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**SINDH EDUCATION MANAGEMENT
INFORMATION SYSTEM
[AN ANALYSIS]**

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**SINDH HARIDUSE HALDAMISE
INFOSÜSTEEM
[ANALÜÜS]**

Magistritöö

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Author's declaration of originality

I hereby certify that I am the sole author of this thesis. All the used materials, references to the literature and the work of others have been referred to. This thesis has not been presented for examination anywhere else.

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Abstract

Education Management information system (EMIS) is the process that delivers the entire information required to support the operations of the educational Department with integrated efforts of human and latest technologies. With well-performing Sindh-EMIS, it can be made certain that provincial goals can be achieved which in turn can offer quality education and can facilitate economic progress and sustainable development. The government requires quality statistics and information for improvising, assessing and checking the education sectors' performance while directing it in a way that it attains the intended aims and goals.

This study finds that SEMIS has a dynamic influence on the education system of Sindh. On one hand, it provides information to users to support them in conducting different task efficiently. It enables the decision makers to take best decisions with the help of calculations. It is considered a performance measurement tool for education department and related authorities. On other hand, it is difficult to unveil the benefits of SEMIS as the production and utilization of SEMIS data is limited due to lack of skills and training. Data inaccuracy and inconsistency is another factor to render its usage. The study also reveals that SEMIS can resolve the problem of allocation and distribution of budget and facilities, and bring about a positive change in schools by introducing transparency in the present system. This study further finds that School management, teachers and students are not satisfied with the performance of SEMIS. Study highlights some of the major problems SEMIS is facing to progress.

Moreover, study recommends improving the human capacity of SEMIS for balancing it with the definite workload. Likewise, it also recommends increasing the credibility of SEMIS data so the decision makers do not hesitate to use this data frequently.

It is likely that such findings and suggestions will be used by the policy makers and the stakeholders for improvising SEMIS development strategies while enhancing

stakeholders' partnership when it comes to strengthening the functions of SEMIS especially within low-resource contexts.

This thesis is written in English and is 92 pages long, including five chapters, 35 figures and 02 tables.

List of abbreviations and terms

NEMIS	National Education Management Information System
EMIS	Education Management Information System
SEMIS	Sindh Education Management Information System
ELD	Education and Literacy Department
GoS	Government of Sindh
ICT	Islamabad Capital Territory
GIZ	German Agency for International Cooperation
FDE	Federal Directorate of Education
WB	World Bank
RSU	Reform Support Unit
EMO	Education Management Organization
MDGs	Millennium Development Goals
EFA	Education Free for All
UPE	Universal Primary Education
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
USAID	United States Agency for International Development
NEP	National Education Policy
IS	Information System
MIS	Management Information System
KPK	Khyber Pakhtunkhwa
GDP	Gross Domestic Product
FATA	Federally Administered Tribal Areas
ASC	Annual School Census
MO	Monitoring Officers

AEPAM	Academy of Planning And Management
EDEO	Executive District Officer Education
CPM	Chief Program Manager
ACU	Anti-Corruption Unit
NAB	National Accountability Bureau
FIA	Federal Investigation Agency

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1 Introduction

Education plays an important role in political constancy, economic progress and social evolution of a nation. It brings political constancy by realizing the people their national rights and duties as well as the awareness of their rights and duties; a very good environment is produced for better accomplishment of the policies with good contribution and collaboration of the people. Education brings economic growth because it enhances the productivity and efficiency of the people, and provides them essential skills which enable the people to play their role in supporting the sustainable economic growth of the country (MoE. GOP, 2009). Education shapes the personality of the people, seeks them moral obligations and duties, so they can play their part in the society efficiently.

Today Pakistan is facing a number of problems i.e. poverty, anxiety, terrorism, sectarianism and much more and the reason for all these problems, is a lack of awareness, patience, and illiteracy which are created by the ineffective educational system. The vital role and importance of education system are largely mistreated in Pakistan. There are also some other factors dependable for instability in Pakistan but education is the vital one (Mansour, 2017). The education system of Pakistan is facing some problems. Through, 62 years have been past and 23 policies and actions planned have been introduced yet the education sector which is still waiting for the solution of its problem i.e. multiple systems of education, lacking sufficient funds, insufficient physical and other facilities, poor examination system, dropouts, low enrolment rate, are few among the major ones. (Nazir, 2010)

Education Management information system (EMIS) is the process that delivers the entire information required to support the operations of educational Department with integrated efforts of human and latest technologies. Decision making, management, and planning process are included in the education system that is being backed by the Education Management Information System (EMIS) (Nayar-Stone, 2014). The government of Pakistan in 1991 noticed the indispensable need of the system that

maintains the record and provides the consummate information regarding the education. Systematically with amalgamation and collaboration of UNDP/UNESCO, the government of Pakistan initiated the National Education Management Information System (NEMIS). Since its start, the ample complexities were higher to sustain the system appropriately. The Sindh Government (SBEP, 2016) then planned to adopt the system to evaluate the education system and produce beneficial results through latest techniques. In 1994 with the immense support of World Bank the Sindh Govt. inaugurated Sindh Education Management Information System (SEMIS) that would considerably witness as the mainstream and backbone of the education department of Sindh. (Khan, 2011)

The revelation of this research report is the information relevant to Education Management Information System of Sindh (SEMIS). This report does not only reveal the structure and performance of this system under the administration of Sindh Government but also divulges the concealed knowledge about its development and achievements (Nayar-Stone, 2014). The World Bank (WB) raised its supportive hand in June 1996 and SEMIS directly went under Education Department Control. Institutional census on annual basis for public schools and collection of data of entire province is one of the keen considerations of the management of SEMIS(Coleman, 2012). .

Albeit of awareness the collaboration of ASC and SEMIS is quite feeble. Lack of regularity and aptness has been perceived (ESRA, 2003). The gain ground of system and penetration of new techniques are mandatory to collect the information on right time for taking immaculate decisions.

Academy of Planning and Management supervised by the Ministry of Federal Education and Professional Training declares that SEMIS is dissemination process, data gathering and retrieval of information that is an indispensable asset for decision makers and policy designers of federal and provincial governments (ESRA, 2003). The ‘Managing System of Big Data’ that are being statistically evaluated and disseminated as per requirement through this process. The point that needs consideration is that this thesis and all information mentioned below in other chapters are related to Sindh Government. The accomplishment of integrated process is required in input, processing, output, and feedback.

The progression of SEMIS is based on the productive attitude of the Sindh government. But unfortunately, the lack of planning and poor management impairs this system (Nayar-Stone, 2014). The GoS needs to revive the procedure and hire the dexterous employees to sustain this system. The magnitude of the corruption and shifting of responsibilities has halted the development of the education sector. The news in 2012 was motivated and appreciable when education Secretary Muhammad Siddiq Memon stated that the SEMIS is needed to reform. The governmental bodies were striving to make the system are transparent as well as coordinated. This meeting was attended by the managers of SEMIS and Reform Support Unit (RSU) in Karachi. With the mutual thought they all agreed that the work of SEMIS should have done earliest, they advised the gathering of all the representatives of schools in the workshop to gather the information regarding the enrolled students, classes, and schools. The chalking out of future strategies depends on the good performance of SEMIS (SBEP, 2016).

The education system of Sindh has been suffering from major problems since its emergence. The lack of accountability and monitoring and lack of mentoring of teachers are the basic cause of this failure. Most of the school are badly constructed or either coup by the lack of planning. Electricity issues are common in the schools. The non-proficient and old teachers are the fate of schools in Sindh (ESRA, 2003). The students are allowed to cheat in the class while examination because the management of schools know that they failed to hire the professional teachers that the students can learn something in a whole year. This all problem is due to lack of accountability from the Sindh and federal governments. This accountability process is more dependent on the consummate execution of SEMIS in the entire province.

In its recent press release, the Education and Literacy Department announced the program with the help of USAID. It reveals that the improvement in education quality in selected schools by supporting the public sector schools from worthy institutions is one of the beneficial intentions of the Sindh government (SBEP, 2016). With the aim of reconstruction of 120 schools of Sindh and improvement in 280 neighboring schools, Sindh Government is relying on the supportive hand of USAID program. In this regards, the Education Management Organization (EMO) has been set up to supply the technical assistance to Education and Literacy Department (ELD).

1.1 Statement of the Problem

The Sindh Education Management Information System (SEMIS) is the process that has been controlled by the GoS to gather the information relating to the education sector in the province. This is the advance technique to approach the statistics of enrolled students, registered schools, and teachers. This helps the governmental bodies and concern authorities to take decisions and do efforts for its progress.

The research will highlight,

1. How has SEMIS influenced the education system in Sindh?
2. What are some of the limitations which hinder the progress of SEMIS system in Sindh?
3. What can be proposed to improve the performance of SEMIS system in Sindh?

1.2 Aims and Objectives

There are few aims and objectives on which the entire reports are being flowed. These aims and objectives help the readers to determine the study and adhere with the relevancy of specific topic to get the consummate information.

- 1- To identify the techniques and technologies utilized by Sindh Education Management Information System (SEMIS).
- 2- To magnify the structure and performance of the system by providing the authentic information
- 3- To mention the problematic situations and factors and recommendations to iron out with great efficiency.
- 4- To discuss the effective role of government in its development and advancement of the system with different latest strategies.

1.3 The significance of the Study

This study does not only aid to provide the complete information regarding the intelligence system of education in Sindh (Pakistan) but also helps the reader to review the gravity of this modus operandi. Not even the single glance has been avoiding the

significance of an education intelligence system after considering this research paper pregnant with amazing information. The charts, tables, and graphs with pictorial assistance are the essential part of this thesis work that allows the readers to judge the research through rational means. The clear definitions of all terminologies and abbreviations are being discussed. Furthermore, the authentic references and in-text citation of online resources have been the core part of the thesis. The quite importance of this research paper can only be understood who are either students, work for the sake of students or want to see the better future of Pakistan by the hands of students.

1.4 The scope of the Study

It helps the international donors and governmental bodies to raise resources for the Sindh Education Management Information System (SEMIS) (Sterling, 2009). The ardent scope of the study discloses the significance of the educational system of Pakistan and catches the attention of higher authorities towards its development.

- To give the detailed account of the educational system of Sindh
- To provide the fundamental information regarding the SEMIS
- Evaluation of the best intelligence system that may easily execute

1.5 Research Methodology

The data has been collected from primary and secondary resources to complete this report. The completion of a thesis is the result of proper and consummate research work. The qualitative approach has been used to write the research. The interview and quotations of staffs related to the education department of Sindh multiply the essence of the report and make the research more pregnant with information.

1.6 Limitation of the Study

The lack of execution of the mentioned system is the limitation of this research paper, furthermore, this research paper could not reveal the name of educational bureaucrats to

secure their positions in government. Moreover, the lack of comparison between provinces makes the study limited.

2 Literature Review

2.1 National Education Policy 2009

National Education Policy 2009 of Pakistan discusses the issues relating to the unclear roles of federal, provincial and district governments within the education system and this was merely due to the fact that there was no clear set of strategies available at hand.

One of the core points of National Education Policy 2009 in relation to EMIS is *Building Management and Planning Capacity*. It has been discussed in detail with a set of policy actions in the third chapter of NEP 2009 titled '*Filling the Implementation Gap: Ensuring Good Governance*'. It focuses to develop certain performance indicators in order to ensure better planning in education sector. Here, the National EMIS program can prove to be very beneficial for SEMIS as it is the process of developing the performance indicators. However, National EMIS is based on the indicators that have been developed by UNESCO and by other international donor programs. The education system of Sindh, as well as other provinces of Pakistan, requires a set of indicators specific to its own context and credentials. These deficiencies within the data collection systems make it difficult for the federal and provincial governments to develop a comprehensive census.

2.2 Terminology

2.2.1 What is an Education System

All institutions that included in the delivery of the consummate services to learners and striving for enhancement of their information are well known as the educational institutions. The systematic approach on which these institutions are relying and depending is actually the system of education. Public, private, profitable and non-profit institutions are the part of the education system. In a broader term, the institutions that direct to schools, colleges, and universities to progress, in setting their education criteria are the part of the education system. These institutions are involved in

financing, managing, regulating and operating the education sectors and its subpart according to requirements (Qureshi, et al, 2012).

2.2.2 What is an Information System?

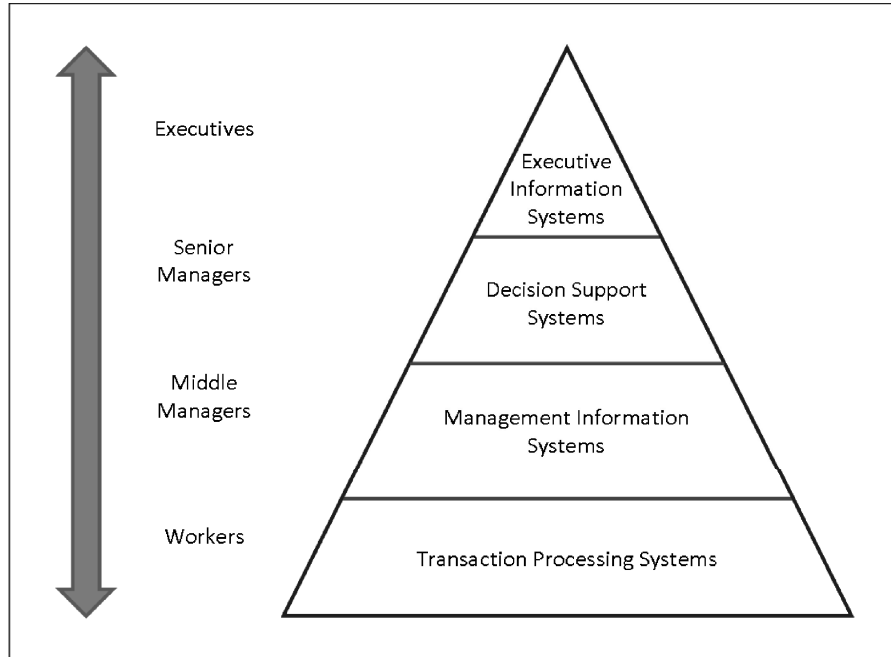
It is an organized framework that is developed for the purpose of collection, management, and storage of data, analyze it and communicate in the form of information to different stakeholders. It actually involves the study of networks in order to collect, process and disseminates data to different organizations and individuals. The importance of Information systems within any organization is immense because it not only manages the data and processes it to provide valuable information for the management that has to develop future policies and procedure for the organization, but it also stores the data and makes it available in the future (Lodhi, 2012). Within an information system, all components work together to form information that is used in the decision-making process. This can be very handy for the management at all levels and due to this fact now organizations are more willing to emphasize on maintaining their data online for fast processing and convenient availability(Zaman, 2013). At times the term ‘information system’ is also used to describe a software application that is required to run a database on a computer. It is also used to describe the ICT that is used by an organization. Information System (IS) is comprised of 6 components (Ali, 2012),

1. Hardware – the equipment such as the computers and networks used
2. Software – the applications that are used to run the hardware
3. Data – the collections of facts that are used by the software applications
4. Processes – the policies that dictate the data collection and information generation procedure
5. People – the human resource required to run the processes
6. Feedback – the information required to make improvements to the overall system

Essentially, Information System works on four different levels within the management hierarchy (Shaikh & Khoja, 2011). These four different levels are; transaction processing system that works at lower management levels, management information system which is also known as MIS and works at middle management levels, decision support system which is useful for senior management and executive information

system which is designed for the top level management for decisions making purposes (Tayyaba, 2012).

Figure 1: Information System management Hierarchy



Source: http://www.chris-kimble.com/Courses/World_Med_MBA/Types-of-Information-System.html

2.2.3 Education Management Information System

Education Management Information System (EMIS), in the simple way provides the clear approach to give the data to managers of the education system. It is the instruments by which one can gather information, store it, incorporate, break down and spread / disseminate (Mansour, 2017). This framework is outlined particularly for the organizers and policy makers to choose and direct education framework all the more successfully and productively.

EMIS is the human and computer based process for gathering all data and information needed to back all the operations of the education sector including decision making, planning and management. It is used to support aid and back the management in the specific sector, with providing the consummate statistics. Following are the main purpose of EMIS.

- Provide information to users to support them in conducting different task efficiently.
- Based on concrete information, it enables the decision makers to take best decisions and justify them with the help of calculations.
- Aiding to address the identified issues by resuming the planning and policy development.
- It provides the realistic estimation for the resources required for the implementing plans, strategies and policies.
- It enables the directors and managers to improve the efficiency day-to-day operations by providing updated and relevant data on a regular basis.
- Efficient monitoring on the decided objectives and goals, by providing the timely data with complete information.
- EMIS supports to eliminate and minimize the wastage of resources by providing complete information of its utilisation.

2.2.4 What is ICT?

ICT is the abbreviation of Information and Communication Technology and is the combined term that is used to describe any form of technologies, including application or device that is used for communication and sharing information. The media that are used for this purpose include TV, radio, computers, and smartphones and various other networking and satellite systems. Hence, ICT involved all the communications mediums that are used to distribute and communicate information (PIPFA Publication Committee, 2016).

2.3 Relation of ICT & EMIS

As per the above definitions, we can easily deduce that ICT and EMIS are directly related with each other in order to establish effective communication to share and distribute information. EMIS cannot work properly without an effective ICT system and EMIS is crucial when implementing different educational policies within a system. ICT can help in improving the educational system of a developing country to achieve economic prosperity. Therefore, it is essential for any government to improve its ICT

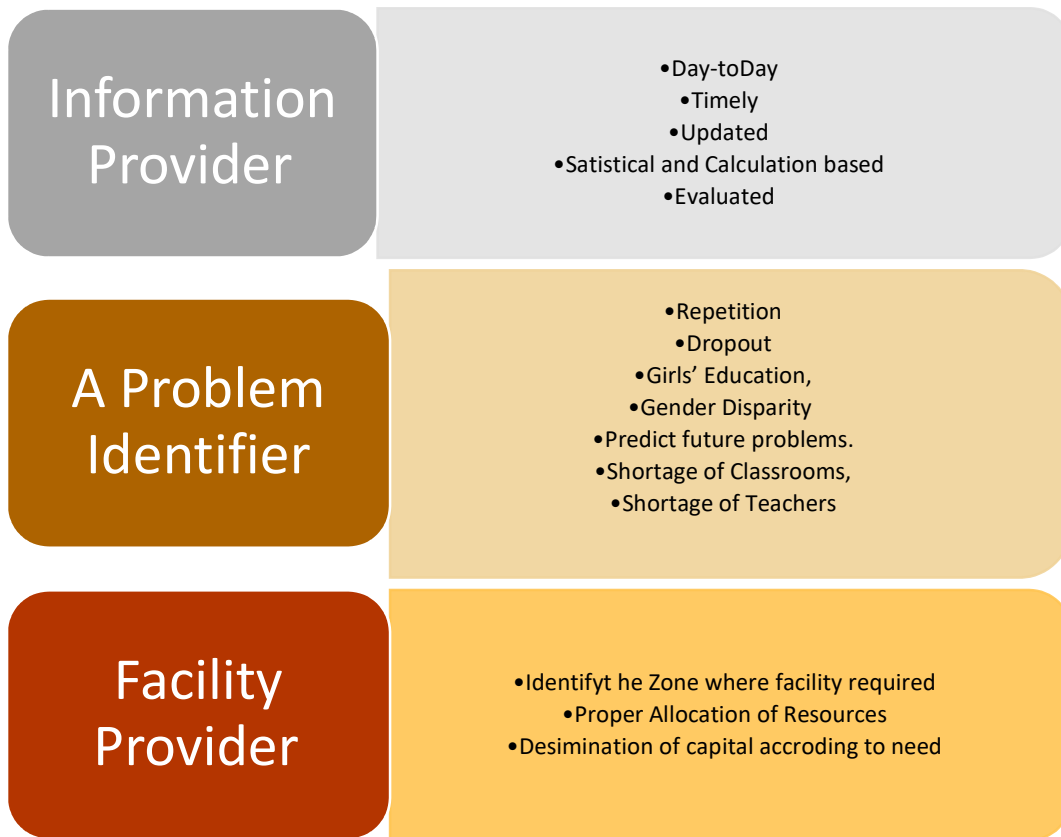
infrastructure so that EMIS can work effectively and achieve its objectives (Shafique & Mahmood, 2012)

2.4 Contribution of EMIS in Education Sector

In the past decade, the data was managed in abundance on the websites even without analyzing. However, now the data can be easily accessible for all people (limited) and for all officials (unlimited) easily and quickly. This data includes student performance, teacher qualification and years of experience and facilities providing by the educational sectors etc. These data may be compiled from different sources, like computers, database applications, and online resources. This is the reality that most data are manually written like the attendance of teachers, staffs, and students, but that are well shaped and at the end of the month updated through EMIS to inform authorities regarding the status and position of the educational sectors (**Husain & Nazim, 2015**). Nevertheless, EMIS made possible to categorize the multiple years of data, multiple levels of data and multiple sources of data to be quickly and easily retrieved, it has not done with a critical difference in the use of data/information. Some of characteristics of EMIS in relation with education sector is;

- Consummate and relevant information provider
- Evaluation of weaknesses and strengths, other like PESTLE and SWOT
- Identification of priorities zone and area
- Information about the allocation of resources
- Help decision makers, planners and executive body
- Support managers to accomplish the goals of the education sector
- Identify numerous problems in the education sector

Figure 2: Features of EMIS



2.5 The Ideal EMIS

The idyllic education management information system should provide some information with basic analyzing of calculations, such are,

I. Supply of Teacher

It should decide the ratio of teachers and students. It tells the perfect evaluation of how many students depend on one teacher. It also identifies the need for teacher supply and student-teacher ratio.

II. Progression Rates

The ideal EMIS declare the ratio of students' repetition, promotion and drops out rates annually. The best way to find these facts on a daily basis is to conduct a correct analysis of the reasons with the relevant category of districts.

III. Intake and enrolment ratios

Entry levels must be notified in EMIS. School-age population and another enrolment level in schools must be proportioned.

IV. Enrolment projections

It defines the expectation of enrollment level in the future year(s), so the officials must plan according to the need of resources like information for estimating future need in relevant to schools, teachers, material, etc.

V. Identification of specific needs

Ideal EMIS identifies the needs and provides the specifications such as the number of classrooms and individuals in relation to teachers, etc.

2.6 Goals and Accomplishing Position

Here the researcher finds the latest projects and international commitments which are necessary to define them before declaring the Education Management Information System (EMIS) (ESRA, 2003). The Millennium Development Goals (MDGs) and Education Free for All (EFA) both are the international commitments on which the recent federal and provincials governments of Pakistan should have executed.

2.6.1 MDGs

To achieve the Universal Primary Education (UPE) was the major goal for Sindh as well as other provinces by 2015. In this, the government bodies were responsible for pushing the boys and girls to complete the primary schooling. The statistic results declare that an increase in the enrolment of the students of the age 3-16 years while the dropout rate decreased. But it could not achieve the basic target of the MDGs. The rate in net primary enrolment was 62%, 52%, 54% and 45% in Punjab, Sindh, KPK, and Baluchistan provinces respectively (Moore & Kearsley, 2011).

Another major goal of the MDGs is to promote the gender equality and empower the women in Sindh along with other provinces of Pakistan. By 2015, the governments of all provinces targeted to eliminate the disparity within their provincial educational systems to make it more splendid. In Pakistan, the disparity rate is quite distinguished (Nayar-Stone, 2014). The literacy rate of male is 71%, while its 48% in women as per

the statistic report of 2012-2013. Moreover, the provinces also declare the same disparity rates in Pakistan.

2.6.2 Education for All (EFA) Commitment

Childhood care including their education of pre-schooling, UPE and secondary education to youth, advancement in adult literacy, elimination of gender disparity and assurance of qualitative education services are the ardent goals and key objectives of the Education for All (EFA) Commitment.

In 2014, the EFA review report declares the figure that was outlined the failure in the accomplishment of the goals. Unfortunately, Sindh, as well as other provinces, are lagging in achieving their targets and goals set by the committee of EFA (Shaikh & Khoja, 2011). Currently, the net rate of the enrolment of primary schools in Pakistan is 85.9% while Pakistan required 100% rate of enrolment by 2015-16 and same goes for Sindh and other provinces. The school going children with the estimated total of 21.4 million between ages of 5 to 9 years, 68.5% are enrolled in the school of which 8.2 million or 56% are boys and 6.5 million or 44% are girls. According to the Economic Survey of Pakistan, 2012-13, the literacy rate remained much higher in the urban areas comparative to rural areas and higher among males.

2.6.3 Vision 2030

The planning commission of Pakistan set the vision 2030 for the academic environment, which promotes the think tanks (Shaikh & Khoja, 2011). The goals refer to the one national examination under one curriculum system in the supervision of state authorities. The achievements of goals are as follows,

1. Enhance the public funds on education and skills development from 2.7% of GDP to 5% by 2010 and 7% by 2015.
2. The technical and vocational stream must reintroduce in the last 2 years of secondary schools.
3. By 2015 the achievement in enrolment of students in technical and vocational education to 25%-30% and 50% by 2030.
4. Generally enhancement in the quality of education and particularly in the scientific/ technical education advancement in Pakistan.

2.7 Analysing the Education System of Pakistan

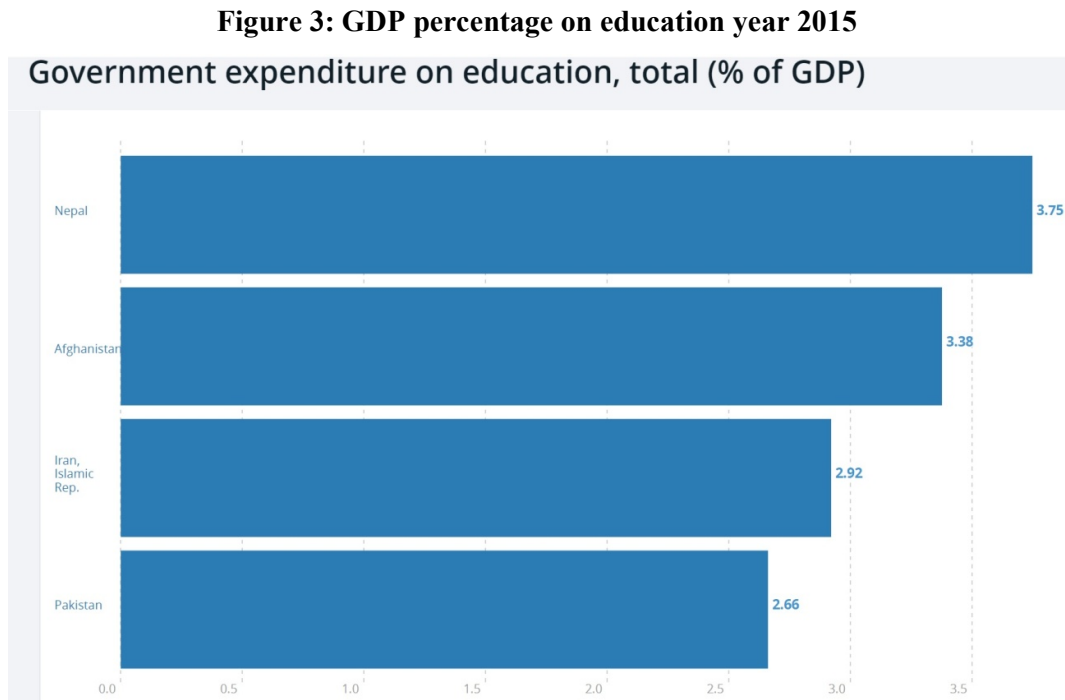
The education system of any specific country plays a pivotal role in order to push that country to advancement. It is the backbone of the country on which the entire country may rely. The power of the education and students can change the destiny of the nation and let it win any war against the benefits of the country (Afzal, et al, 2012). Apart from the significance and vast scope of educating the country has to follow the right and immaculate procedure of the education system. If any country could not follow the intelligence system of executing its educational policies then it will surely fail to maintain the appropriate education up gradation of the country (Malik & Courtney, 2011). The deployment of the dexterous staffs and experienced workers are the most important to execute the policies and hit the nail on the head to improve the educational system.

The history of Pakistan falls into 2 parts, one is before the independence and other initiated after the year 1947. But the education system which Pakistan had been following before the 1990s was adopted from British before its emergence as an independent state. Various time the governments of Pakistan in its tenure expressed to promote the education and, rate of literacy by executing the quintessential strategies domestically and also exerting to implicate into international commitments on education advancement (SBEP, 2016). The earliest recognition of the significant role of education by the constitutional bodies acted through adding the Article 25-A in 1973 constitution. This ensures the provision of free education of children falls in the age group of 5-16 years (Ali, 2011).

However, with that being said, the bird's eye review of the education system of Pakistan depicts a completely different picture. The unfortunate role of Pakistan's governments and institutions bow the head of pride (Moore & Kearsley, 2011) Fundamental principles have been overlooked and put the crucial barrier on the floor of progress (Hoodbhoy, 2011). The best example of this is the Sindh Education Management Information System (SEMIS). Despite being implemented, the system has failed to

achieve what it intended to. The primary cause that is behind this issue is that both Federal and Provincial Governments have failed to implement it in an effective manner.

In accordance with UNESCO statistics 2015, Pakistan is way behind other Asian countries in the education sector. The budget for education sector within the country is below average in comparison with other Asian countries, including Iran, Afghanistan, and Nepal as depicted in the table below,



Source: <http://data.worldbank.org/indicator/SE.XPD.TOTL.GD.ZS?end=2015&locations=AF-PK-NP-IR&start=2015&view=bar>

2.8 Analysing the Education System of Sindh

Before producing any statement on this topic, the aims of education are needed to be discussed briefly beforehand. Education modifies the perception of students to look the world than just living in it (Ali, 2012). In addition, the ardent interest of education is to provide tendency to student for facing daily life problems. With the aim to impact on

our skills, abilities, and work as supporting agent to resolve any complexities, the education influences on ones daily life routine.

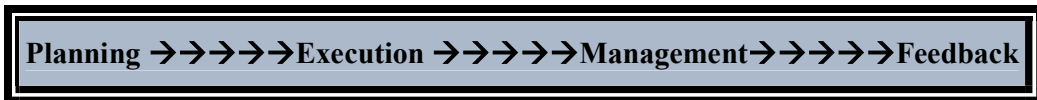
Critically, one comes to know after consummate evaluation that, what a student learn throughout his school life isn't needed at all. More emphasizing on the theoretical education, students are compelled to copy the things rather innovating new thoughts under the curse of cramming the memorising significant more than generation of new ideas. However the situation in higher education is same as in the school system.

The education system in Sindh does not follow the practical education concept; however, accept it as most preferable necessity of modern education system(Aziz, 2014). . Neither parent nor management regularly creates accountability on teachers' lectures and development. The moral education in the childhood age is entirely missing that would be endangered for the entire nation in coming future. In the higher education system in Sindh, students failed to give attention on both practical and theoretical education. This leads them to prevent from actual knowledge.

With the passage of time, we are losing our training quality level as a result of a few reasons; I, for one, feel that the cash creators (non-public schools) are the fundamental provoker to compromise the quality of instruction since they give training just moderate to the rich, yet not to destitute individuals. In Sindh, there is a considerable measure of number of unregistered institutions based schools which flow with ambition to generate immense profit.

2.8.1 Education Planning and Management

The bureaucrats of Sindh province are constantly playing their critical role to fabricate the system sound by the institution of the intelligence system (Latif, 2011). From the very emergence of educational policies, the technical and scientific education would be the main focus of the planners. Nevertheless, of sundry endeavours, Sindh's education system misses a mark to set up a smart technical system to monitor the activities of educational progress in an entire nation. Scientifically it has witnessed that the nation which is considerably more accountable to education system, would be more peculiar and prominent in implementing and executing its strategies.



Feeble planning leads weaker execution and management, same in the situation with Sindh. The allocation of the budget has not been sufficient to meet the requirements of education since the emergence of Sindh. Misfortune is not insufficiency of the budget, but the immaculate utilization of funds (Afzal, et al, 2012). The sharing of latest technologies with advanced and developed countries is the basic need of time.

2.8.2 Prevalent Problems with Education System in Sindh

Predominant complexities may draw the essential prospect and barriers leading to the provincial education system (SBEP, 2016). The education system of Sindh should be more flawless as it exists nowadays. This is the hanging issue which needs some extra effort for resolution. Here the research is striving to make the foundation of the topic that is why the general perspective has been mentioned regarding the problem of the education system in Sindh. There are numbers of problems that must be resolved on an urgent basis but some are the major that are quite significant in terms of the magnitude of their effects. These are mentioned below,

(i) Lack of Planning and Strategies

Unfortunately, the officials of Sindh government belong to education department are not seriously working to execute the policies and strategies (ESRA, 2003). Officials are not sufficient dexterous to make the proper planning and ultimately failed to accomplish within the deadline. MDGs and EFA both are the recent failures of the federal and provincial education department.

(ii) Absent of Dexterous Workforce

The lack of competitive employees and experienced staffs is also the major problem of education department (Nayar-Stone, 2014). The appropriate association with the support of proficient staff is one way to come out from the complexities faced by the education system in Sindh.

(iii) Corruption and illegitimacy in Department

Corruption and illegal exercise within department strike the system more rapidly than anyone else. Recently the Anti-Corruption Department raided to Intern Board Office in Karachi and griped more than 95 illegal cases. The Chairman and Controller have been seized due to their illegitimate activities (Moore & Kearsley, 2011). This proves that the elimination of these black sheep is quite necessary to sustain the system and enable it to accomplish the prescribed goals.

(iv)The scarcity of latest technologies

Lack of techniques and technologies put a vast gap between the planning and its proper execution. Furthermore, Pakistan is quite behind in the implementation of the latest technologies in its education department (Nayar-Stone, 2014). Many students could not find their enrolment and examination (admit) cards even before a day of examination. Sometimes education department blames on schools and colleges and vice versa. This shifting of responsibility halts it to accomplish its objectives with latest techniques.

(v) The cost of Education

The cost/fees in the private education system in Sindh are quite higher than in governmental schools. Due to the quality of education, that has been given by private sectors with a massive rate of charges, it seems quite difficult to give the quality of education to the children belong to lower middle or lower class. The government should take some crucial steps to ensure the free education according to the Article 25-A of the constitution (Malik & Courtney, 2011).

(vi) Gender Gap

Poverty, illiteracy of parents, cultural constraints and parental consideration about the mobility and security of their daughters is one of the major factors that hinder the enrolment of girls in schools at an early age in the Sindh province (Latif, 2011). Early age marriages, girls' modesty limit the intentions of parents in girls' enrolment. The Enrolment rate of girls in rural areas is 45% lower than urban areas while its 10% lower in the enrolment rate of boys witness the impact of the gender gap in education.

(vii) War on Terror

As Pakistan is involved in the war on terror since 2003, the first attack on the schools may observe in the Fata Agency in Pakistan nearly year 2006. Numerous schools have been blown up by non-state actors (Malik & Courtney, 2011). Numbers of teachers and students have been killed in terrorist activities. So the education sectors affect largely in the country and the same goes with the Sindh province.

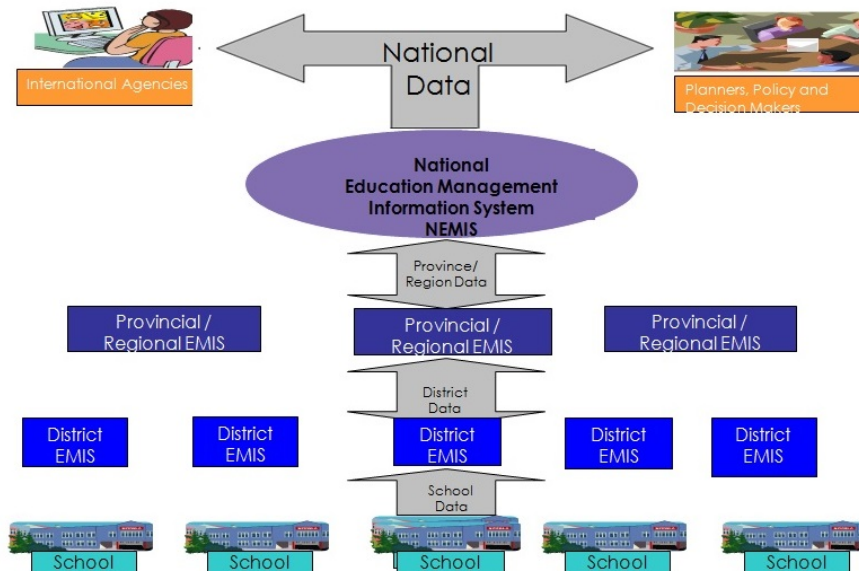
(viii) Funds for Education

The insufficient amount has been served in raising the standard of education in Sindh. That is the reason which halts the province to make the policies to execute for the betterment of education for the sake of the future of a nation. 2.4% of the whole country's GDP has been allocated for education while 89% from those allocated for the salaries of teachers while 11% remaining consecrated for development expenditure which is not sufficient for rapid progress (Qureshi, et al, 2012).

2.9 National Education Management System of Pakistan (NEMIS)

National Education Management System (NEMIS) deals in collecting information throughout the Pakistan and ensures the strategy designing, policy execution, budgeting and decision making for the national level. This is the initiator that provokes provinces to establish the institution that collect the information on a regular basis to eliminate the wastages of resources by proper utilisation throughout the country.

Figure 4: Data Flow of National, Provincial and District EMIS

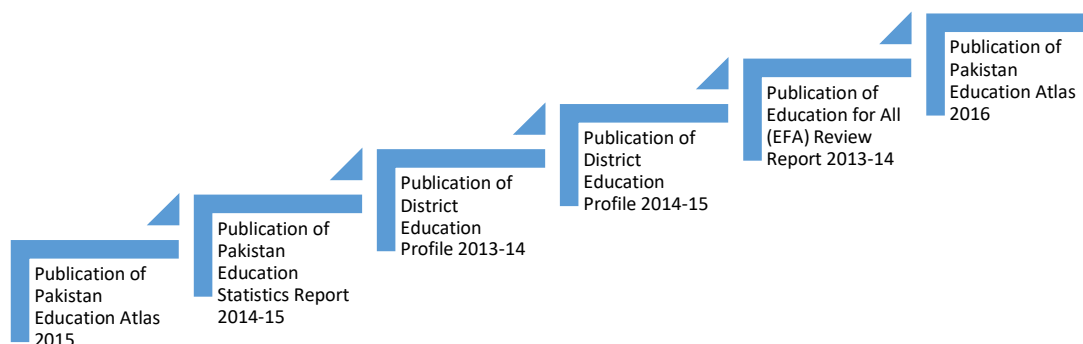


Source: <http://www.aepam.edu.pk/Index.asp?PageId=3>

The NEMIS has shared the history mentioned below,

- In 1990 with the support of UN's financial and technical assistance NEMIS has started to serve as the national repository of education data and acting as the standard setting agency throughout the Pakistan (Soomro, 2011).
- Within a year it initiated to take support of all 4 provinces/regions, FATA and Gilgit Baltistan to gather e relevant education data.
- NEMIS is operating in Academy of Educational Planning and Management since 1992, under the immediate supervision of Ministry of education from Government funding.
- It also involved in publishing the Pakistan Education Statistics annually since 1992-93

Figure 5: On-going activities of NEMIS-AEPAM



Source: <http://www.aepam.edu.pk/Index.asp?PageId=25>

2.10 Sindh Education Management Information System (SEMIS)

SEMIS is one of the authentic systems that connected with the smart activities in the education department to record, maintain and sustain the data on a regular basis for future utilization. (Shaikh & Khoja, 2011). The SEMIS deals with the collecting, integrating and gathering of data throughout the Sindh. After collecting, processing and compiling, the data have been used to make the decisions and also submitted to the federal education department to support the NEMIS. Furthermore, the Sindh bureaucracies for education concerned utilize the calculated data to establish the decisions and execute the needful strategies to promote the education throughout the Sindh.

2.10.1 Establishment of Sindh – EMIS

The activities of NEMIS had started diminishing in December 1993 due to lack of interest and resources for the education sector, or dis-uniformity in the planning and

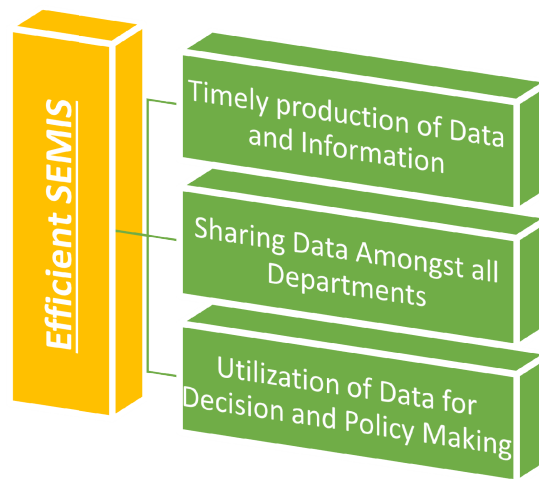
fulfilment of commitments due to high corruption. Therefore, the Sindh felt significance of EMIS, and in 1994 the Govt.of Sindh took initiative steps to introduce the SEMIS. The collaboration of the World Bank (WB) is important to write in the history of SEMIS. However, the assistance of the World Bank (WB) has been ended in June 1996. The National-EMIS was overtaken by the Sindh-EMIS. For the well functioning the SEMIS cells have been flagged his franchise in all grounds, district and zone in Sindh. SEMIS is considered as the milestone and the backbone of the education department in Sindh. It is also required to enhance the support of this system to make it facing challenges (Soomro, 2011). After 1996, the SEMIS has been transferred from development to non-development without the support of the World Bank under Education Department Supervision.

2.10.2 Role of SEMIS

There are few roles of SEMIS in which the information conveying is the major role of it. To provide the information directly to decision makers is the basic and most fundamental role of SEMIS on which entire decisions based on (Khattak, 2012). However, to analyze the receiving data is the core responsibility of managers. After the data, the system is responsible for informing the managers about the problematic areas and condition in the education system. The managers are monitoring all information received by the system. This is the responsibility of managers to analyze the data compared with the objectives and targets of the educational system. It identifies the current issues, according to the nature of the problem which the education system is facing, and supports the policy makers to address those issues perfectly, such as repetitions, drops out, girls' education and gender disparity. It also predicts the future problems based on the projections of present tendencies, for example, shortage of resources, teachers, and classrooms. It also provides the general planning information with the appropriate monitoring and evaluation information system to make the good accountability of the education departments in Sindh. It also helps managers to reveal the exact data before citizens regarding the status of the education system of Sindh, though it supports managers to provide complete information through press releases, newspapers and speeches. Efficient SEMIS is responsible for the production of Data and Information in a timely

manner. Data integration and data sharing amongst the department is also the witness of efficient data sharing, effective usage of data and information for making decisions and handle education policies.

Figure 6: Efficiency of SEMIS



2.10.3 Contribution of SEMIS

Since its emergence the system is responsible to conduct the Annual School Census. After the challenging and restless work including, ASC forms distribution and collecting, data entering, compiling, cleaning, and dissemination, Provincial, District and, School Profiles along with statistical bulletin are printed annually and available online, for all stakeholders and general public. The comprehensive data, comparisons and trends can be found in these statistical reports that would be the significant part of SEMIS. The statistic data by SEMIS guide policy maker and will also help in allocation and resource mobilization. These reports have been updated yearly to provide the relevant data of primary, middle, secondary and higher classes. It also contains the

various key education indicators that will help to judge the provisions, access and participation of efficiency and quality assurance prescribed by UNESCO.

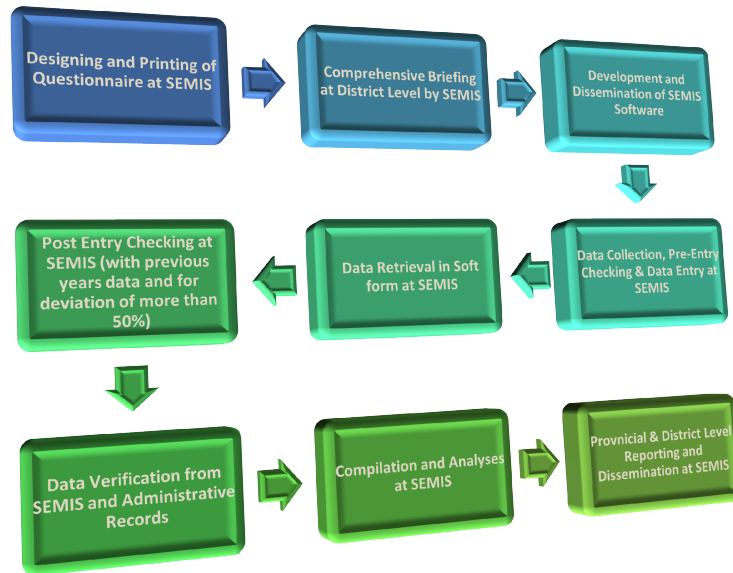
Not for SEMIS but all citizens and stakeholders who are demanding to approach on data must be obliged to various bodies like the World Bank, European Union, US Aid et al. who are striving as the supporting agent for having keen interest in releasing those data / information.

2.10.4 Annual School Census

The data collection exertion that is Sindh Annual School Census (ASC) by which the SEMIS illustrated the strength and performance of education system (SBEP, 2016) support in providing the infrastructure and human resources baselines on the position of modifying in the Sindh Education outcome and consequences indicators. Every year the Annual School Census has been conducted by the Education and Literacy Department (ELD) of Government of Sindh (GoS) (SBEP, 2016). Consummate decision-making, technological advancement, appropriate management, allocation and bona fide distribution of educational resources and delivery of educational service within a promising time frame are the salubrious consequences of School Census Process.

ASC is the primary tool for SEMIS to collect data in order to guide the decision makers for developing different strategies for the future. The sole purpose of this census is to extract valuable information and statistics for the stakeholders and policy makers so that quality education can be delivered to the students of Sindh. Both SEMIS and ASC are implemented within the province yet, they both lack consistency and timeliness of the data collection exercises. There are major upgrades required for both the systems in terms of data collections as well as data processing (GoS, 2016).

Figure 7: SEMIS Activities Cycle

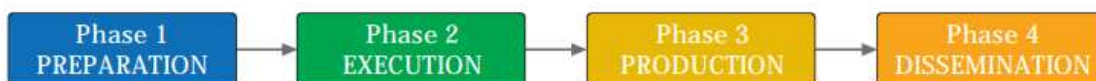


The working of the statistics is manually and a lot of data generated is quantitative. The data collection and publication took a period of six months. The questionnaires were required to be completed by schools and institutions by October each year. The questionnaires of primary, middle as well as elementary schools were needed to be submitted to the SEMIS unit directly.

2.10.5 Phases of Data Processing

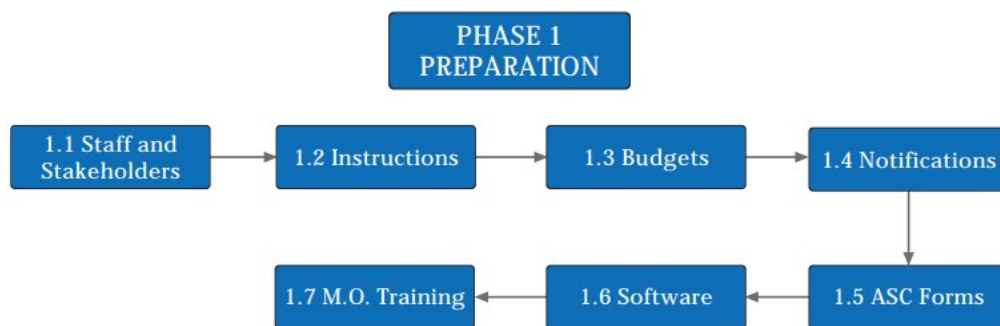
ASC works in four phases; preparations, execution, production and dissemination.

Figure 8: Phases of Data Processing



Phase 1 – Preparation involves all the activities that are associated with the annual school census of the coming year. The activities include reviewing the required stakeholders and staff and all the people understand their responsibilities regarding their positions. This phase also includes preparations of any contingency plans as well

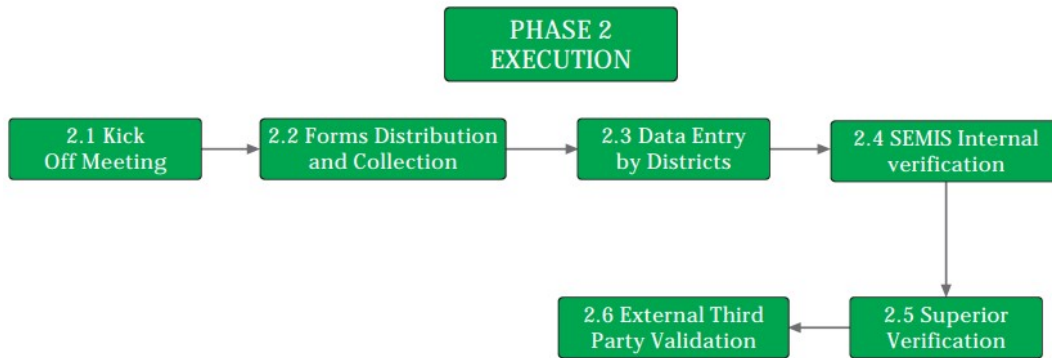
Figure 9: Phase 1



Source: ASC Operational Manual-SEMIS

Phase 2 – Execution involves the development of techniques for the data collection in a successful and effective manner. Here, a meeting is held and all the best practices are discussed in associations with form distribution and collection within all districts of the province. Internal verifications are also developed in order to detect and eliminate invalid data.

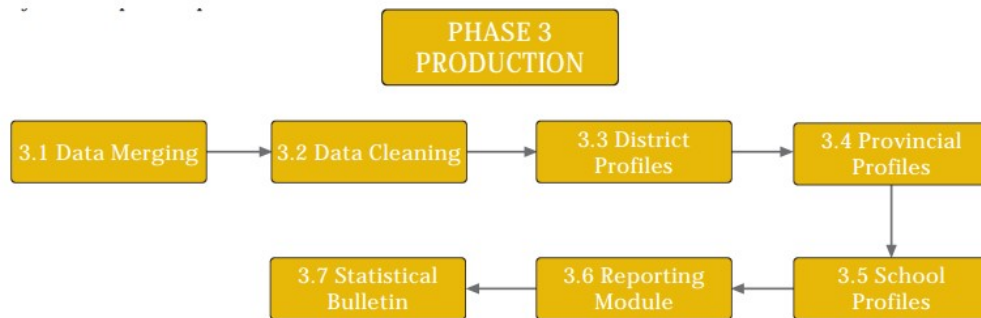
Figure 10: Phase 2



Source: ASC Operational Manual-SEMIS

Phase 3 – Production is related with development of data reports that will be used by the policy makers in relation to education within the Sindh province. The data is processed, cleaned and from there reports are developed. (AEPAM, 2016)

Figure 11: Phase 3



Source: ASC Operational Manual-SEMIS

Phase 4 – Dissemination pertains with the techniques that will be used to publish the data to all the stakeholders that are involved in the educations sector. The phase specifically focuses on the preparations content for the purpose of successful publishing of the data to make sure that all the information is distributed in the proper manner.

Figure 12: Phase 4

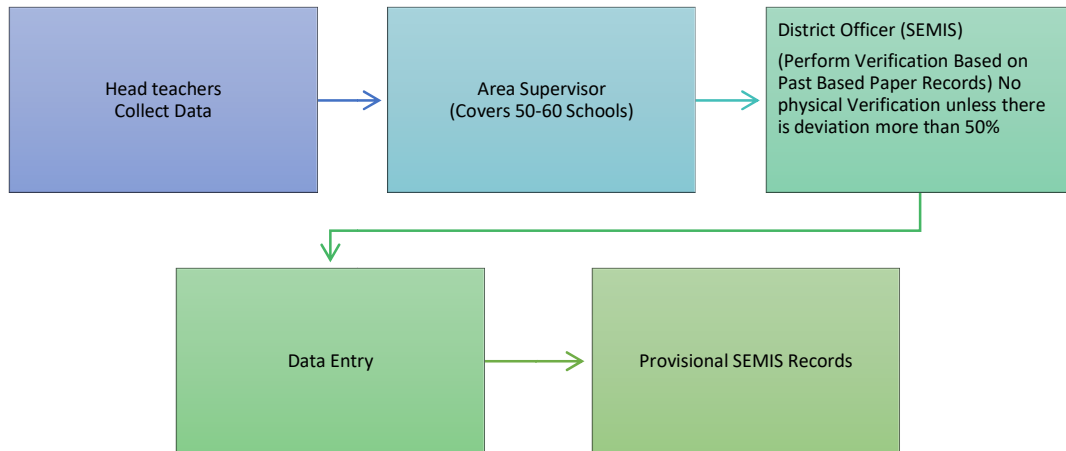


Source: ASC Operational Manual-SEMIS

2.10.6 Activities of the district-level SEMIS

There are various steps that the district SEMIS must proceed in order to sustain the proper and efficient information. First of all the data must be completed and transparent and immaculate from all kinds of errors and blunders. All schools, institutions, and colleges must complete data by filling the questionnaires. The next step is correctness of data. The data must be correct and appropriate by ensuring that all institutions and educational sectors provide the transparent data. Data entering process is another step in which the computer feeding is necessary to put the data into an online account and also complete the data by correcting all mistakes and errors. The next is verification of data for final utilization. Without verification, the proper decisions could not summon. Then disseminate data to further as per departmental requirements. (Sajid, 2011).

Figure 13: Data Collection Process in Districts



2.10.7 Production Phase of SEMIS Data

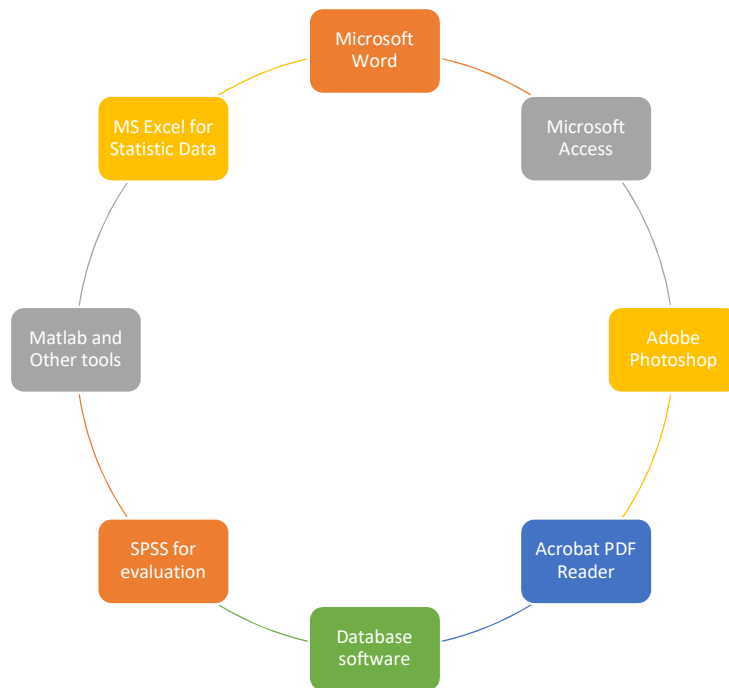
The Production Phase of the Annual School Census work plan covers the tasks to produce an accurate, clean and all inclusive Sindh ASC database and the reports that can be use by key stakeholders in the education sector for policy making and the resource allocation decisions to improve the government education system. (Soomro, 2011)

2.10.7.1 District Profile

The district profile activity is pivotally producing the profile of performance of district level in all 23 districts in the Sindh, the all entire data that has been gathered, including, statistic data about schools, enrolment, teachers, infrastructure and facilities, during the school census activity is summarized in this census information system and distributed to all district and town levels.

The report formulates into Microsoft Access and various database programs are being used to produce the annual school census report. With the passage of time, the format of report has also been changed according to need.

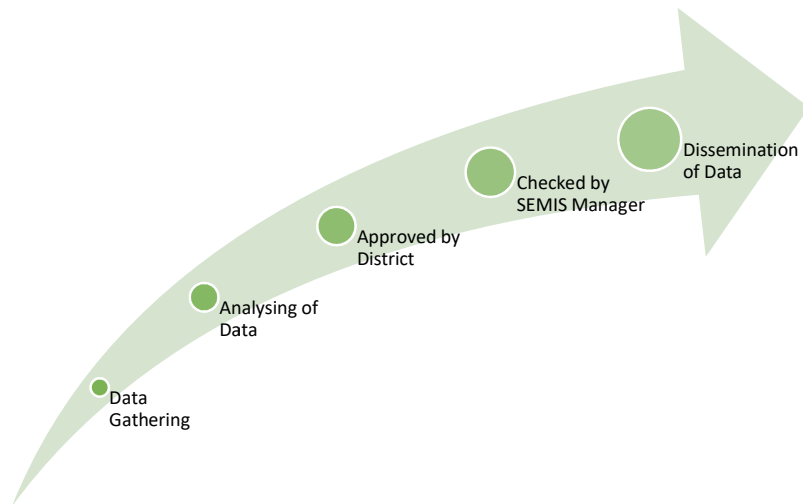
Figure 14: SEMIS Reports Building Softwares



Source: ASC Operational Manual-SEMIS

The SEMIS Program Manager of Education of Sindh shares all the files of district reports to Executive District Education Officer (EDEO) after compilation of data. When all 23 district profiles come with approval on the table of SEMIS manager, he assured that the report has been reviewed by all district management. Then the report is ready to disseminate for further publication. The various steps involved in the district profile mentioned below.

Figure 15: Steps of Data Dissemination



2.10.7.2 Provincial Profile

The provincial activities has been summarised into the printed form and distributed to national level and submitted to the federal education department for further processing. The entire policies and decision markers in the education sector having an ardent interest to assess these documents to make some needful decisions and executions. Sometimes, it makes some comparison with previous year(s). The provided information is bifurcated into district, provincial and town level (AEPAM, 2016). The same tools have been used in provincial profile as it has used in district profile. However, this is in a better format with addition of more charts, tables and graphs.

Table 1: Number of Public Schools, Teachers and Enrollment

Basic Summary of Government Schools (Census 2015 - 16) 1

Sindh Province	Number of Institutes				Enrolment			Teachers			Number of Rooms and Classrooms	
	School Level	Boys	Girls	Co-Edu.	Total	Boys	Girls	Total	Male	Female	Total	Rooms
Primary	9,271	5,711	26,149	41,131	1,648,607	1,039,794	2,688,401	68,428	24,514	92,942	84,772	77,233
Middle / Elementary	513	593	1,223	2,329	147,898	117,948	265,846	8,395	5,215	13,610	13,789	11,023
Secondary	564	488	644	1,696	490,291	346,103	836,394	22,207	16,604	38,811	33,010	21,649
Higher Secondary	87	76	128	291	232,384	122,194	354,578	7,089	3,764	10,853	8,909	5,693
Total	10,435	6,868	28,144	45,447	2,519,180	1,626,039	4,145,219	106,119	50,097	156,216	140,480	115,598

After proper formatting, analysing and reviewing the report is conveyed to Chief Program Manager (CPM) and the Secretary Education with the approval of districts on the district profile, the letter is also dispatched with the profile to assure that federal bodies has reviewed, approved and accepted (Tayyaba, 2012). The report can be printed after the approval of profiles and can be disseminated for education planning purpose.

2.10.7.3 School Profile

The activity of School Profile is summarised in a single page and place on notice board for every reporting school in the Sindh Province. The summary is dispatch to school where the school administration can also claim for any found error. The report is generated in Microsoft Access and then printed with the high-speed laser printer by the RSU, SEMIS team (Sterling, 2009). There are some basic reason to print the data of each school separately and dispatch to the concern school, that are mentioned below,

- 1- By this school profile, the government can record information of each school distinctly.
- 2- The school administrations get aware about the concern of government officials regarding their schools.
- 3- The parents and teacher can easily analyse the reputation and statistic of school by the verified certificate.
- 4- School administration can ask for modification of any data if found error(s) in it.
- 5- The focus of schools is diverted towards progress and that also can help officials to disseminate the facilities to any specific school distinctly.

2.10.7.4 Reporting Module

With built-in reporting capabilities the Locked down version of SEMIS has been produced by the Reporting Module for approval of district officers after disseminated. The previous year data has been comparatively studying to evaluate the changes in the latest record. The alignment of the database based on the requirements and then develops a software generated report that can't be changed once locked down, and dispatch for the approval of Program Manager SEMIS and CPM. (Jaffer, 2010).

2.10.7.5 Reporting Module Online

The district profile, school profile and provincial profile with consummate and reliable data of infrastructure of schools and teacher information are available on the RSU website through the ASC Access database that is responsible to generate the dynamic web pages. The user-friendly options like drop box and filters are available to ease the user and search specific school and district according to desire. The information based on the town/district or name of the school. The image shows the interference of page that allow the filters using drop down list available at following web page.

Figure 16: Online Data Reporting Module Interface

Source: <http://www.rsusindh.gov.pk/census2009-10/schoolinfo200910.asp>

Once we select any district with the Town from drop down list, we can find the report as in mentioned below picture.

Figure 17: Online Data Report of Schools

SEMIS code	School Name	School Address	District	Taluka/Town	UC
124425	GBPS 13	PO KARIM BUX KHOSO	Jacobabad	Thull	8-Kot Jango
124116	GBPS 13	C/O ADOE (M) THULL	Jacobabad	Thull	19-Dinpur
124365	GBPS 13	C/O ADOE (M) THULL	Jacobabad	Thull	17-Ranhapur
124459	GBPS 16	PO UNAR WAH	Jacobabad	Thull	6-Logi
124499	GBHS A.M.K.K.B.S.I.I	PO THUL JACOBABAD	Jacobabad	Thull	12-Thull-2
135513	GBPS A.MAYED SABOL & A.MAJED JACHIRANI (BS-1)	C/O ADOE (M) THUL	Jacobabad	Thull	10-Karim Bux
124352	GBPS ABDUL AZIZ KHOSO	PO OLD JUNGO	Jacobabad	Thull	18-Balochabad
125552	GBPS ABDUL AZIZ KHOSO (BS-1)	D/O MUBARAK PUR	Jacobabad	Thull	16-Mubarakpur
124664	GBPS ABDUL AZIZ SARFI	C/O ADOE (M) THUL	Jacobabad	Thull	3-Shernah
124242	GBPS ABDUL FATAH KHOSO & MUHAMMAD SAMZAN	PO SAHO KHOSO THUL	Jacobabad	Thull	5-Tajo Khoso

Source: <http://www.rsusindh.gov.pk/census2009-10/schoolinfo200910.asp>

It has shown that more than 700 schools in the district, that are registered by the SEMIS, however, once you write the name of the school you can find the proper and detailed information about that school in the district. Furthermore, one can access any part of the school profile for the specific purpose. The below-mentioned figure divulges the pictorial example of the selected school profile and the dynamic page availed at the website under the reporting module online.

Figure 18: Online School Profile

**Reform Support Unit - R.S.U
(SEMIS WING)
Information Of School (2009-10)
GBPS 15 KHAWAND DINO**

District: JACOBABAD Tehsil/Town: TRILL UC: 17-BANDHAPUR
 SEMIS Code: 124345 School Name: GBPS 15 KHAWAND DINO School Address: C/O ADOE (H) TRILL KHAWAND MAHAR

Head Master: GHULAM QADIR

School Status				Enrollment			Staff Position					
Area	Rural	Shift	Morning	Grade Un Admit	Boys	Girls	Total	Head Master	Male	Female	Total	
Status	Rural	Fulltime		0	15	13	28	0	0	0	0	
Level	Primary	Year of Estt.	1964	0	15	13	28	0	0	0	0	
Gender	Boys	Schools	Branch	No	0	0	0	0	3	0	3	
Non-School (SMB) Code (if branch)				Middle Classes			List of Teachers					
Non-School Name				VI			0			Non-Government		
School is				VII			0			0		
Shelter fee				VIII			0			0		
School is Govt.				Secondary Classes			List of Teachers					
Building				Grade			Energy/Subject/Boys			Girls Total		
Year of Construction				IX			0			SMC Details		
Construction Type				Biology			0			SMC Functional		
Building Condition				Chemistry			0			Approved any Training		
Number of Class				Biology			0			SAC/AC/NO		
Rooms				C/O Computer			0			1575		
Staff Room				Commerce			0			Bank Name		
Toilet				Higher Secondary Classes			Student / Teacher Ratio			1:1		
Drinking Water				Grade			Biology			Student / Class Ratio		
Library				XI			0			Student / Teacher Ratio (No Teacher ...)		
Play Ground				Computer			0			Student / Class Ratio		
Rooms				Commerce			0			Free Text Books		
Class				Biology			0			School received text books in academic year		
Black Board				XII			0			2009		
				Computer			0			Text Books received Full?		
				Commerce			0			Some Text Books missing in sets?		
				Total Students			33			0		
										Some Full set missing?		
										Sufficient sets extra received?		
										Text Book's Medium charged?		

Source: <http://www.rsusindh.gov.pk/census2009-10/schoolinfo200910.asp>

The all system of SEMIS can be shown in the online system, furthermore, the detailed account of the facilities can also be available to access on the performance and activity of the SEMIS bodies. The below-mentioned picture declares the immaculate approach towards the facility provided to various schools available at the website.

Figure 19: Online District Wise School Facility Report

Reform Support Unit - Education & Literacy Department Govt. of Sindh
Facilities available in Schools 2009-10

District: Shikarpur Taluka/Town: All

List of computers Electricity Water Facility Toilet Facility B. Wall Facility

SCHOOLS : Facilities in District (Schools with Facilities) 2008-09

District Name	Schools	Schools having Basic Facilities				Schools having Advance Facilities			
		Electricity	Toilets	Drinking Water	Boundary Wall	Laboratory	Library	Play Ground	SHC
Badin	3,175	179	1,512	999	1,234	31	28	1,689	2,586
Dadu	2,138	472	1,092	782	1,065	26	28	609	1,637
Hyderabad	1,074	476	881	721	854	57	39	410	997
Thatta	3,321	93	1,229	757	1,003	22	23	1,056	2,552
Mirpur Khas	2,253	368	1,067	920	920	36	33	490	1,872
Tharparkar	4,153	108	1,428	1,209	1,345	18	18	1,746	2,764
Sanghar	3,345	458	1,582	1,424	1,505	78	70	539	2,477
Karachi City	3,673	2,131	2,736	2,174	3,048	419	211	1,563	3,313
Jacobabad	1,561	259	629	494	652	11	9	145	1,205
Larkana	1,354	623	1,005	964	975	32	12	226	1,229
Shikarpur	1,387	135	793	768	766	23	23	360	990
Khairpur Mirs	3,739	764	2,371	2,448	1,913	44	64	1,172	3,200
Nasirero Feroze	2,482	799	1,434	1,603	1,283	26	41	534	2,122
Nawab Shah	2,736	715	1,477	1,473	1,420	30	21	212	2,030
Sukkur	1,379	304	1,036	991	862	40	45	411	1,121
Chotki	2,001	254	1,094	1,101	1,036	20	25	684	1,502
Umerkot	2,341	227	1,308	975	1,033	16	18	406	1,734

Source: <http://www.rsindh.gov.pk/census2009-10/schoolinfo200910.asp>

2.10.8 Performance of SEMIS

The development in SEMIS taking place in Sindh was believed to bring efficiency and improve the quality of data as well as its use. However, there were subsequent errors found in the data and statistics produced by SEMIS resulting in limited accessibility. In provincial statistical publications, the data inconsistency and imperfections can be found (Mansour, 2017). It is a fact that SEMIS is not able to produce some very important indicators such as Net enrollment rate, because they do not collect age wise enrollment. Another important indicator, Gross enrollment rate is available after using out-dated population census and national projections.

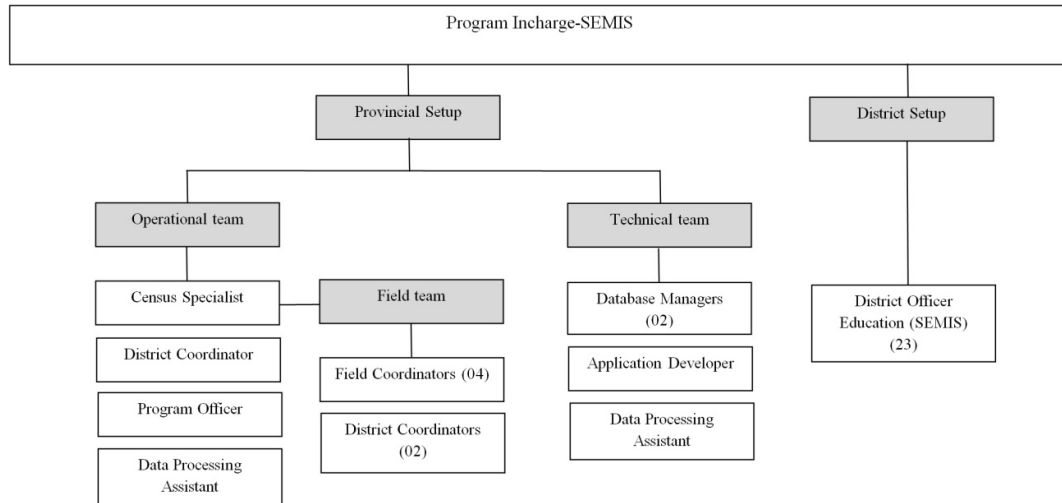
Table 2: Gross enrollment Rate

Gross Enrolment Rate in Government Schools (Census 2015 - 16)										
Stages of Classes	Age Group in Years	Projected Population			Enrolment			GER in Govt Schools		
		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
Pre-Primary	4	843,221	791,291	1,634,512	372,057	268,981	641,038	44%	34%	39%
Primary	5 - 9	3,853,975	3,451,906	7,305,881	1,485,534	944,387	2,429,921	39%	27%	33%
Middle	10 - 12	2,149,161	1,792,110	3,941,271	361,542	240,888	602,430	17%	13%	15%
Secondary	13 - 14	1,034,626	882,552	1,917,178	228,237	139,464	367,701	22%	16%	19%
Higher Secondary	15 - 16	941,027	810,194	1,751,221	71,810	32,319	104,129	8%	4%	6%
Grand Total		8,822,010	7,728,053	16,550,063	2,519,180	1,626,039	4,145,219	29%	21%	25%

Apart from the data discrepancies, there was a decline in the human capacity for SEMIS section with the passage of time. The number and strength of SEMIS staff can match with the amplified workload as well as data demands which result from dramatically expanding schools as well as enrolment. Regrettably, the attrition rate of SEMIS staff having basic professional requirement as well as work experience in education data and statistics has increased while the replacement rate is decreased, which resulted in extreme staff shortage and also increasing the workload. Hence, SEMIS should be offered proper resources like personnel, statistical programs, facilities, technology, training and finance as well as equipment. SEMIS staff should comprise of qualified people suiting the positions of statisticians, managers, survey administrators, programmers, and hardware as well as software maintenance specialist.

Currently, SEMIS has following staff.

Figure 20: Organizational Hierarchy of SEMIS



Source:<http://rsu-sindh.gov.pk/units/Sindh%20Education%20Profile%20%202015-16.pdf>

Moreover, Ministry of Education is facing challenges in the usage of SEMIS data, as most of publications are less user-friendly. The SEMIS data that is published is of quantitative nature having provincial as well as district aggregate. The publication language is still English which only some educated stakeholders can understand.

Nonetheless, the financial support by Ministry for SEMIS has been little over time. Like a lot of developing countries, Pakistan has a centralized administration along with management bureaucracies, and similar situation in the provinces, where a lot of decisions are taken at high levels. An individual might assume that effective change for SEMIS is dependent on the commitment and approach of the decision makers both at the provincial as well as national levels.

There have been a lot of resources invested in SEMIS by Sindh province for producing information with the purpose of supporting educational management as well as development.

However, the ownership and maintainability of SEMIS is threatened by the inadequate competence of the government as well as the increased reliance on external financing and technical support. The amounts of financial and technical resources that are allotted

to SEMIS are so little that its usefulness is limited and has resulted in poor quality data and statistics. This has rendered the policymakers unclear about supporting educational policy reforms along with management decision as there is no exact depiction regarding the strengths and weakness of the system.

These circumstances can exist due to a lot of factors such as decreased demand for SEMIS outputs from policy makers, decision makers as well as planners. The low demand might exist because the system is not much user friendly or some users perceive SEMIS outputs as irrelevant. The resource constraints have also made it difficult to employ policy choices in such a case. The government is demotivated as there is less demand for good data which has made it difficult to support SEMIS functions while reducing the allocation of resources for SEMIS progress. (Malik, 2011).

2.10.9 Inner Department Limitations of SEMIS

Performing duties beyond the responsibilities portrayed negative impact on the SEMIS. When the SEMIS is not considered as the mainstream agent in the educational sectors then it fills often assigning of other duties of staffs related to SEMIS. When the staffs of SEMIS are used for the IT support and troubleshooting due to their above-average competencies in IT then it is considerably the typical problem in SEMIS.

2.10.10 Remaining Challenge for SEMIS

A basic test remains, that is, the utilization of the EMIS information or data by the Government of Sindh. Truth be told, anybody won't be amazed at the event that we discover the utilization of data has been to some degree decreased as the creation of it develops in the previous two decades. While numerous MoEs may have been enjoying another competency in EMIS limit, none put resources into the real utilize and combination of information and data for institutional approach improvement or administration choices(Hameed-ur-Rehman, 2013). When information is coordinated and examined in another light, it creates significance to strategy creators and framework administrators. Straightforward show of "current status" in tables or charts is deficient. Developments, patterns and social ramifications must be conveyed to the known surface. (Raju, 2011)

3. Research Methods and Procedures

3.1 Purpose of Study

Both the exploratory and descriptive study had been used to conduct the following research, to generate the worthy results and literature for giving the informative material to readers. The undertaken study such as exploratory study helps in the better understand and comprehend the nature of core problem discussed in the research; however, the descriptive study will help to describe the characteristic to involve in the situation (Husain & Nazim, 2015). The research has chosen both ways to conclude the research problem; the qualitative and quantitative data is the part of the study. The both approaches were being used to mitigate the real problem for research according to the topic.

3.2 Study Setting

This part refers to the place where the study had been conducted, the collection of data we made from the entire Sindh and targeted audience were the people affiliated with the education system of Sindh. To identify the variables accurately the interference of the public opinion was included in the research data analysis part. Furthermore, the study was conductive in a non-contrived setting.

3.3 Time Horizon

The data collection was from different sources, that is why it took the time to compose, compile, analyse and produce results. Furthermore, the data collection was done once because all data were used from latest journal articles. The overall time frame of the research was 2 months and 1 week approximately. With the completion of data, the supervisor guides the direction to make it splendid after completion of each chapter.

3.4 Sources of Data

Both, primary and secondary resources were being used to collect the research data. Primary data conducted by the mean of interviews, and closed-ended questionnaires. On the other hand, the secondary data had been collected from journals, magazines and other internet and offline sources.

3.5 Measurement

A tool, SPSS is used to measure the data perfectly and consummately. The objective of the research is to measure the data about the SEMIS system for the sake of the educational system of Sindh in Particular and Pakistan in general.

3.6 Respondents of Study

There are various respondents who participated in the interview and questionnaire sessions. The respondents who were targeted are listed below, furthermore, it is crucial to define that all targeted audience mentioned were from the Sindh urban or Rural.

- School and Institution Management
- Government Officials
- Teachers
- Students

3.7 Instruments

The instruments, being part of the research paper, are interviews and questionnaires, by which respondent participated and provided their notion about the topic.

3.8 Questionnaire

This is the inexpensive way to collect the data from potentially larger respondents. This data allowed the researcher to gather the big data and after sampling take the results for providing evidence and general perception of respondents and targeted audience (AEPAM, 2016). The overall performance of the test system and information on

specific component both rely on the effective gathering of data by questionnaire, the 5 closed ended questions were shaped up to gather the authentic and reliable information. Amongst different groups, the test system correlates the performance and satisfaction of the respondent if the question includes any demographic factor.

3.9 Interview

Selected interview questions are designed to collect the data from them and used in the thematic analysis of data. Furthermore, the work of transcribing of interviews is also crucial which had been submitted along with research report.

3.10 Treatment of Data / Information / Analysis

The comparison between the results was being managed through the frequency distribution, percentages and data analyses. All the data from questionnaires and interviews were being separated handled to depict the consummate information in the system. The statistically treated data will be presented in the form of bar, pie or other types of charts.

4. Data Analysis and Finding

4.1 Thematic analysis of Interviewed Questions

There are various interviews open-ended questions were formulated to approach towards the results of the performance of SEMIS with the perception of the general and specific people related to the field. Furthermore, the thematic analysis supports to evaluate the results by the consummate comparison of answers of respondents against each question.

Q.1 What is the basic role of SEMIS in the development of educational sectors of Sindh?

This question was approached by the government officials, school management, teachers and the students and all of them vocalized their understanding of the way SEMIS works. Most of the teachers stated that SEMIS has played a major role in gathering information about the relevant students/schools/teachers in the Sindh. According to majority of government officials, it plays a role in transferring this information to the decision makers directly. The SEMIS plays a role in informing the managers about the problematic areas and conditions in the education system. The managers can gather all information received by the system. The students are of the opinion that SEMIS predicts the future problems on the basis of projections on present affinity such as shortage of resources, teachers and classrooms. The undeniable and healthy role it has been playing to launch budget or facility and splendidly allocate it on the needful target. However, few respondents were disagreeing with this opinion, and had a view that without IT experts and trained education management staff, the role and significance of SEMIS in this system is worthless.

Hence it can be seen that the majority of respondents feel that the basic role of SEMIS is to provide information to users. On the basis of real information, it offers information to users to support them to conduct different tasks efficiently.

Q2. What is the ICT and how it is helpful for the SEMIS system?

When interrogated with the government officials, students, school teachers and school management, they all expressed their significant views in relation to assistance of ICT in SEMIS. According to the half of school teachers and most of the students, ICT has helped in establishing effective communication for sharing and distributing of information. Other half considers the online system is the most important part of data collection, entry and validation process of SEMIS. Few government officials stated the same view as teachers that ICT has made it easy to collect data online and also made the data entry process quick and accurate. Respondents from government officials perceive that statistical reports provide help to the managers as well as data users to have accessibility of data while also managing data wherever they can. All of school management expressed the benefits of the cloud technologies too in relation to ICT and the readiness and safety of data has been increased with SEMIS as the data theft has become almost impossible.

Hence after knowing the respondent's view, it can be stated that ICT provides wide assistance to everyone in terms of effectively communicating and sharing information.

Q3. Does SEMIS influence on the general performance of teachers, management and concern authorities?

The study observed that the half of school management and government officials is of the opinion that SEMIS has the prodigious influence on the performance of teachers and management. The teachers get help from SEMIS data and assess their own potential after calculating the number of dropouts and passed students and judge where they are standing in terms of their performance in public schools of concerned area. They have started to use of SEMIS data in the progress reports that are presented by the district, instead of relying on manual information. In addition, SEMIS data has supported immensely in completing teacher rationalization appropriately. They also emphasized

the significance of SEMIS enrolment data in the printing and distribution of books all over province. Due to enrolment data, Sindh Text book board, which is an authorized board of printing text books, is able to print books according to current enrolment.

However, some school management respondent did not agree with this notion and believe that SEMIS just show static numbers which schools provide them. There is no proper planning to utilize this data at school level. In addition, they mentioned there is no component of teacher IT skill training into SEMIS, therefore most of teachers in rural schools does not know what are the benefits of SEMIS and how its data can be used. Moreover, rest of government officials indicated dissatisfaction as well of SEMIS influence as the school management and teachers are not much trained in order to utilize the data of SEMIS. They also consider that utilization of SEMIS data is limited to SEMIS staff only. Due to lack of data quality, and non-integration with other government departments and educational institutes such as private schools and colleges, universities and technical institutes, SEMIS would not be able to develop its influence on educational system of Sindh(Shah, 2003).

On the contrary, all teachers expressed their opinion about how much SEMIS has helped to track down the worst student-teacher ratio in their school by sharing it with high authorities which resulted appointment of additional teachers in their schools and has really helped in improving the performance of the overall school.

Some of the students were confused about this question and they had no straightforward answers. Few of them replied positively with this example that because of having few teachers in their school, teacher data was highlighted to higher authorities in SEMIS reports, which results school receives additional teachers and this addition also help students in class learning environment. However, few students were on disagreement because there was no student information system embedded in SEMIS. Therefore, since the system has no influence on the students, it is difficult to imagine the impact it'd have on the management.

This question is very important as it reflects the core problem of this research. The responses attained show a mixed approach which justifies the significance of this question. It is a fact that a lot of teachers find it difficult to unveil the benefits of SEMIS

that it brings in the school system because they have not been trained to use this system proficiently. In addition, data inaccuracy and inconsistency has rendered to use it with confidence. Data accessibility is also another problem that it can only be accessed and utilized by SEMIS staff. Since it has not been linked with other governmental agencies and fully integrated with educational system, the purpose of SEMIS would not be able to facilitate the usage of related information by departments and individuals for effectively planning, implementation along with management.

On the other hand it can be stated that SEMIS has influenced the performance of management, teachers and students positively. School management is able to access and utilize SEMIS data at school level to improve the performance of their school. It can evaluate enrolment trend and share the future statistic for various policy making activities. Monitoring of budgetary expenses has also been easy for them. Moreover, teacher rationalization, which was a hectic job takes so much time relying on education officers to complete, has become a matter of hours now.

Q4. What is your opinion about the quality of SEMIS data in relation to its accuracy?

With regards to the respondent's comments, it depicts that the most of school management and teachers were unconfident with SEMIS data quality. They argued that they come across differences between SEMIS data as well as the real situation existing in various education delivery level and lack of efficiency and effectiveness in mechanism for validating and controlling the data quality which is collected at schools, institutions along with district levels. The management of private and unregistered schools is showing lack of interest to gather data, and sharing personal information of teachers so the irregularity in data creates the double trouble to manage the entire procedure. A lot of schools management stated that the schools and districts lack skills and knowledge regarding statistics as well as education that can result in increasing inaccuracies in the data which is submitted to the SEMIS unit.

However, surprisingly, all government officials and students reported that, it is obvious to have some percentage of inconsistencies and discrepancies in the large amount of data having more than four million students and forty five thousand schools. Despite the

inconsistencies SEMIS unit has observed, there are still signs of progress and improvement at both the provincial as well as district levels.

Thus, the respondent's view about the accuracy regarding the SEMIS data has showed a rather disparity that SEMIS currently seems to be having. At one hand they view SEMIS lacking efficiency and effectiveness in mechanism for the validation and control of data quality and on the other hand, they view SEMIS as a progressive and an improving system which can show its functions in accuracy when it is used properly and by trained minds.

Q5. The major issue of educational sectors is lack of allocation and distribution of budgets and facilities on merit basis, how it can be resolved by effective SEMIS?

Most of the government officials are of the opinion that the effectiveness of SEMIS means efficiency in data collection. Besides, the SEMIS plan to make some strategies for designing the software for online data collection and record of infrastructure and budget allocation in the Sindh (ESRA, 2003). It ensures the allocation and dissemination of facilities transparently, with the support of a recorded system of SEMIS. This ultimately results in lack of corruption and target the specific sector where it really needs.

However, few of the school management expresses disagree that SEMIS can play a part in this matter. They consider that with the help of donors the school can be fully equipped with technologically advanced facilities. Whereas the rest of all respondents from school management think that SEMIS has brought about a positive change with regards to transparency in budget allocation and distribution. Since the SEMIS system holds the entire data of the school specific budgets, the budget can be allotted in future years in accordance to the development and progress taking place in the schools, therefore it has become vital for school to use yearly allotted budget fairly and wisely. (Baig, 2012).

Few teachers objected to SEMIS resolving the allocation of budget due to the deep-rooted corruption and unfairness in the system which partly exists because teachers are

paid poorly. However, rest of teachers were in view that it is only SEMIS data, which can bring the transparency in providing facilities to the needy schools.

Most of the students had a view that SEMIS can develop school performance based strategy which will select the best school yearly and that school will be eligible for maximum budget and facilities of the criterion developed by SEMIS according to school's performance. In this way, the budgetary allocation can be done on merit basis.

Hence an analysis from the respondent's views show that majority of them think that SEMIS can resolve the problem of allocation and distribution of budget and facilities, and bring about a positive change in schools by introducing transparency in the present system.

4.2 Analysis by SPSS

The questionnaire has been designed to evaluate the results about the general topic and problems taken into account in the research. Besides, the results have proved the general perception about the Sindh-EMIS. There are various closed-ended question has designed and formulate result according to different age groups, professions and gender, the sample frequency of the occupation, age and gender of the respondents are mentioned below generated by the SPSS software.

	Frequency	Percent	Valid Percent	Cumulative Percent
Govt. Officials	19	27.1	27.1	27.1
Management	20	28.6	28.6	55.7
Teachers	17	24.3	24.3	80.0
Student	14	20.0	20.0	100.0
Total	70	100.0	100.0	

Gender

	Frequency	Percent	Valid Percent	Cumulative Percent
Male	39	55.7	55.7	55.7
Female	31	44.3	44.3	100.0
Total	70	100.0	100.0	

Age

	Frequency	Percent	Valid Percent	Cumulative Percent
20 to 30 years	37	52.9	52.9	52.9
31 to 40 years	21	30.0	30.0	82.9
41 to 50 years	12	17.1	17.1	100.0
Total	70	100.0	100.0	

4.3 Analysis of Questionnaire

4.3.1 Q.1 “Do you satisfy with the Sindh-Education Management Information System?”

4.3.1.1 With Respect to occupation

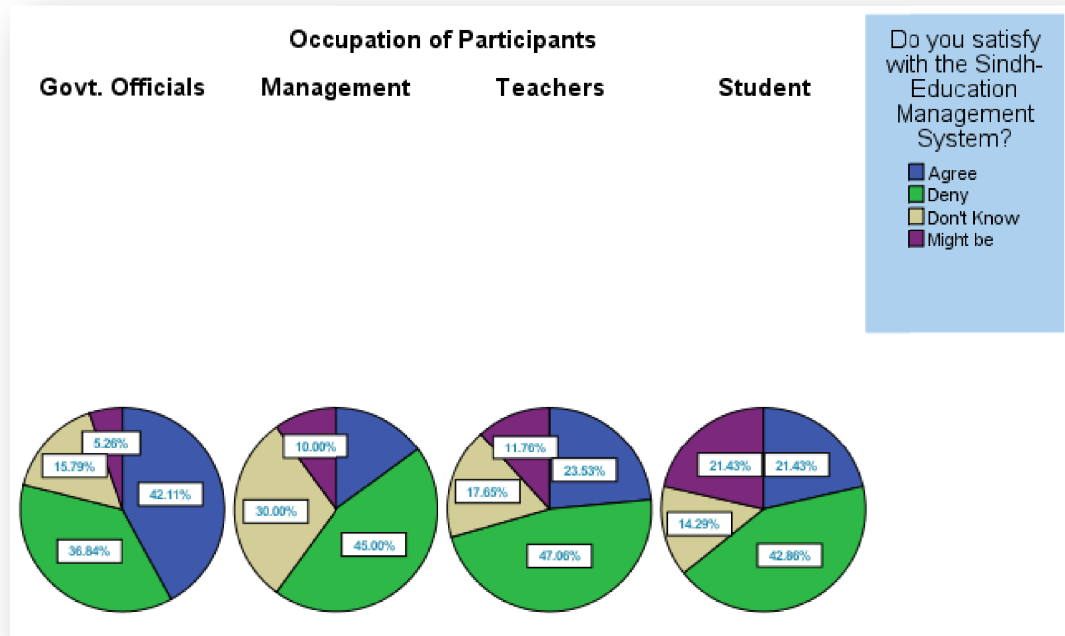
- i. Government Officials: For the Respondent analysing according to the Occupational groups. In which government officials respond positively and 42.11% are satisfied with the Sindh education management information system while 36.84% shows dissatisfaction with the SEMIS, 15.79% people do not know the answer while 5.26% confuse to reveal anything about their perception and notion.

- ii. School and Institution Management: When the same question is asked from the school and management professionals, they respond in another way, as are not much agree on the particular question and shows dissatisfaction, as 45.0% respond in a negative manner, and 30.0% do not know the real answer while 10.0% are confused to respond to the particular question.

- iii. Teachers of various schools: When the same question is asked from the teachers of various schools, they respond in another way, as are not much agree on the particular question and shows dissatisfaction, as only 23.53% respond that they are satisfied, however, 47.06% respond in a negative manner, and 17.65% do not know the real answer while 11.76% are confused to respond to the particular question.

- iv. Students: When the same question is asked from the teachers of various schools, they respond in another way, as are not much agree on the particular question and shows dissatisfaction, as only 21.43% respond that they are satisfied, however, 42.86% respond in a negative manner, and 14.29% do not know the real answer while 21.43% are confused to respond to the particular question.

Figure 21: Agreement by Occupation of Participant



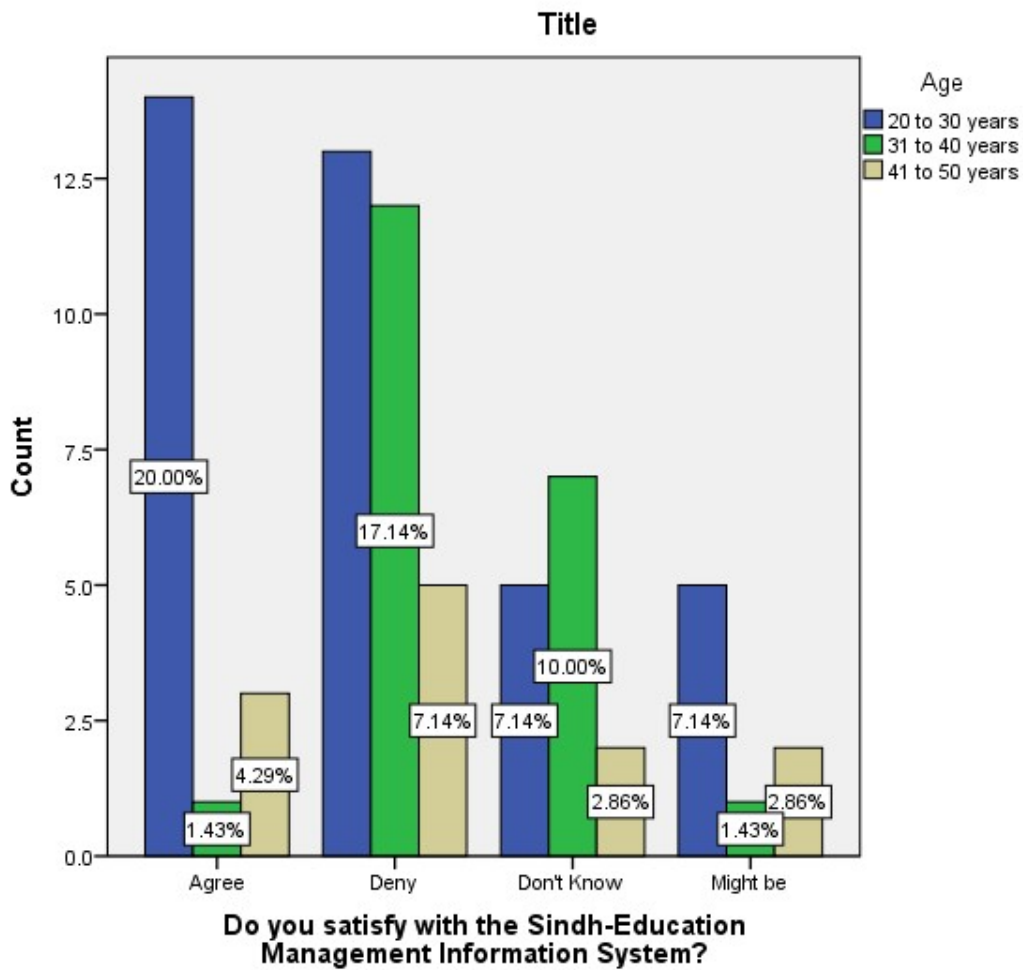
4.3.1.2 With respect to age

When the particular question asked by the people belongs to the various age group then the age group between 20 to 30 years responds in a positive manner as almost 20.0% agree, while 18.60% deny the satisfactory results and progress of SEMIS, the rest of them 7.14% do not know the exact answer and 7.14% are confused.

When the particular question asked by the people belongs to the various age group then the age group between 31 to 40 years responds in a positive manner as almost 1.43% agree, while 17.14% deny the satisfactory results and progress of SEMIS, the rest of them 10% do not know the exact answer and 1.43% are confused.

When the particular question asked by the people belongs to the various age group then the age group between 41 to 50 years responds in a positive manner as almost 4.29% agree, while 7.14% deny the satisfactory results and progress of SEMIS, the rest of them 2.86% do not know the exact answer and 2.86% are confused.

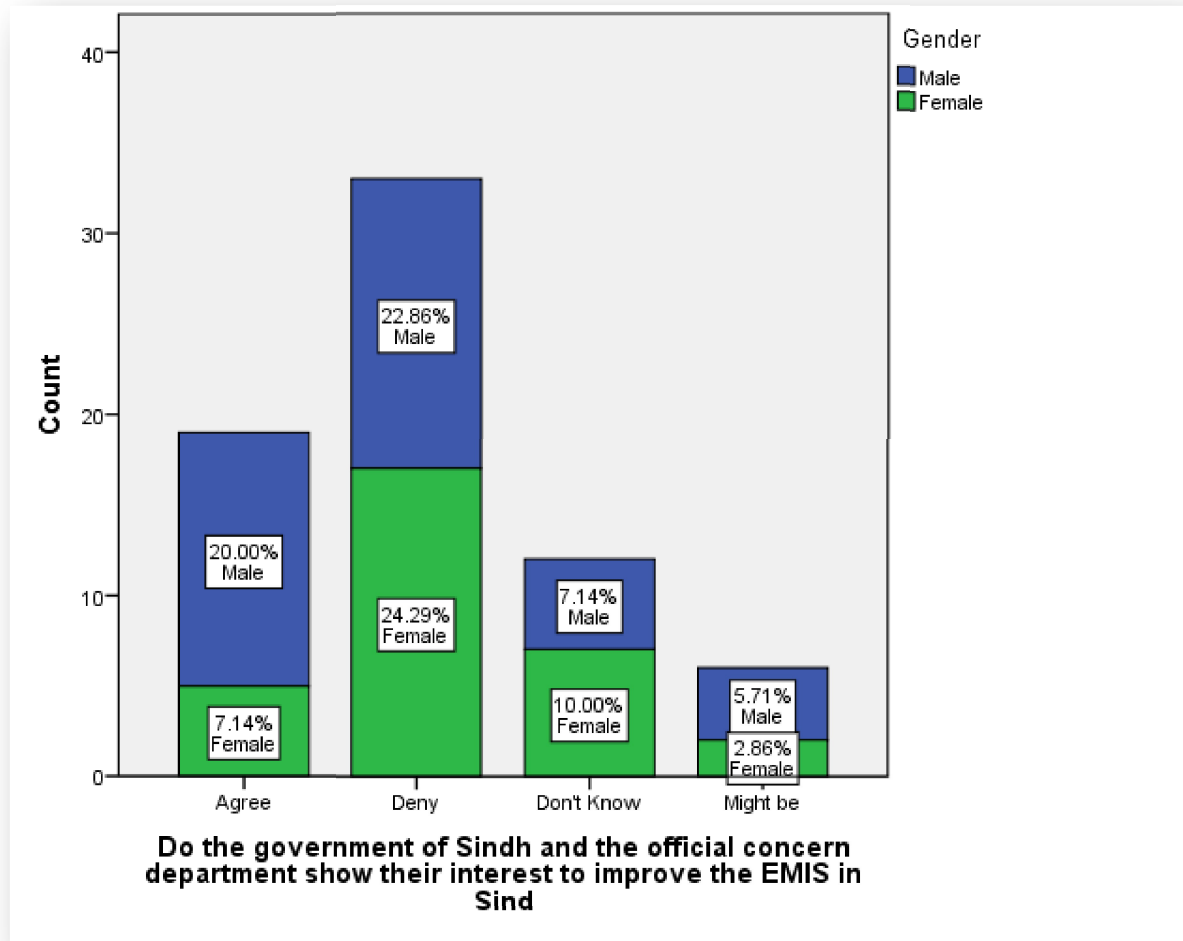
Figure 22: Agreement by Age



4.3.1.3 With Respect to Gender

When the particular question asked from the various genders, then we find the entire distinct results, 20% males and 7.14% females are satisfied respectively, 22.86% males and 24.29% females are not entirely satisfied with the performance of SEMIS. While 7.14% males and 10.0% females do not know the exact answer, besides, the 5.71% males and 2.86% females are confused.

Figure 23: Agreement by Gender



4.3.2 Q.2 Do the government of Sindh and the official concern department show their interest to improve the EMIS in Sindh?

4.3.2.1 With respect to occupation

- i. Government Officials: For the Respondent analysing according to the Occupational groups. In which government officials respond negatively and only 31.58% are satisfied with the government concern about the improvement of Sindh education management information system while 36.84% shows dissatisfaction with the government concern, 21.05% people do not know the answer while 10.53% confuse to reveal anything about their perception and

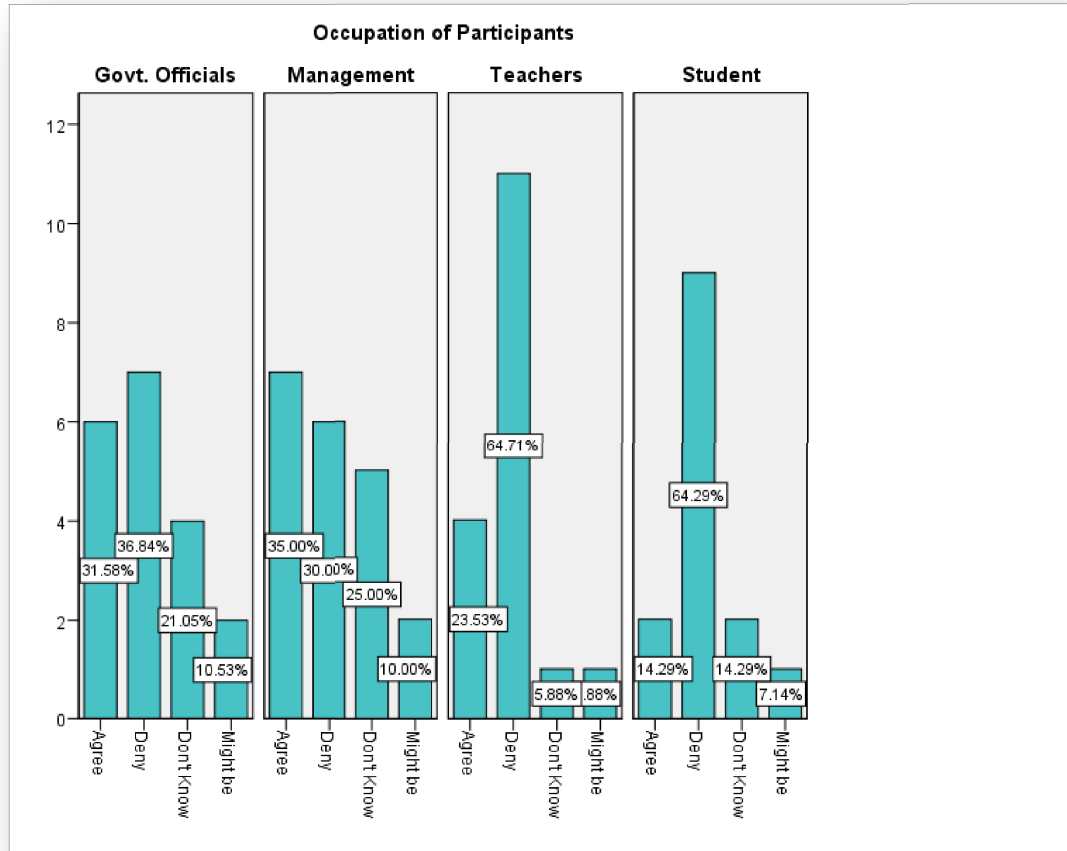
notion.

- ii. School and Institution Management: When the same question is asked from the school and management professionals, they respond in another way, as more as 35.0% are agree on the particular question and shows the positive image of government on the improvement of SEMIS, as 30.0% respond in a negative manner, and 25.0% do not know the real answer while 10.0% are confused to respond on the particular question.

Teachers of various schools: When the same question is asked from the teachers of various schools, they respond in another way, as not much agree on the particular question and shows dissatisfaction with official bodies in improvement and development of SEMIS, as only 23.53% respond that they are satisfied, however, 64.71% respond in a negative manner, and 5.88% do not know the real answer while 5.88% are confused to respond to the particular question.

- iii. Students: When the same question is asked from the students of various schools, they respond in another way, as are not much agree on the particular question and shows dissatisfaction with official bodies in improvement and development of SEMIS, as only 14.29% respond that they are satisfied, however, 64.29% respond in a negative manner, and 14.29% do not know the real answer while 07.14% are confused to respond to the particular question.

Figure 24: Agreement by Occupation of Participant



4.3.2.2 With respect to age

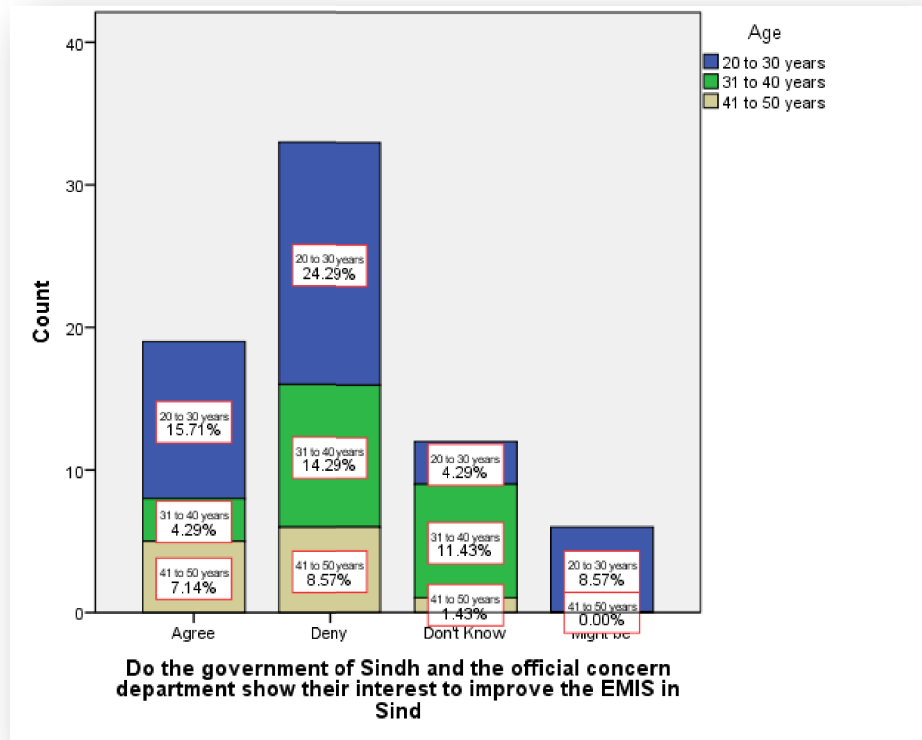
When the particular question asked by the people belongs to the various age group then the age group between 20 to 30 years responds in a negative manner as almost 15.71% agree, while 24.29% deny the satisfactory results and progress of SEMIS, the rest of them 4.29% do not know the exact answer and 8.57% are confused.

When the particular question asked by the people belongs to the various age group then the age group between 31 to 40 years responds in a negative manner as almost 4.29% agree, while 14.29% deny the satisfactory results and progress of SEMIS, the rest of them 11.43% do not know the exact answer and 0.0% are confused.

When the particular question asked by the people belongs to the various age group then the age group between 41 to 50 years responds in a negative manner as almost 7.14%

agree, while 8.57% deny the satisfactory results and progress of SEMIS, the rest of them 1.43% do not know the exact answer and 0.0% are confused.

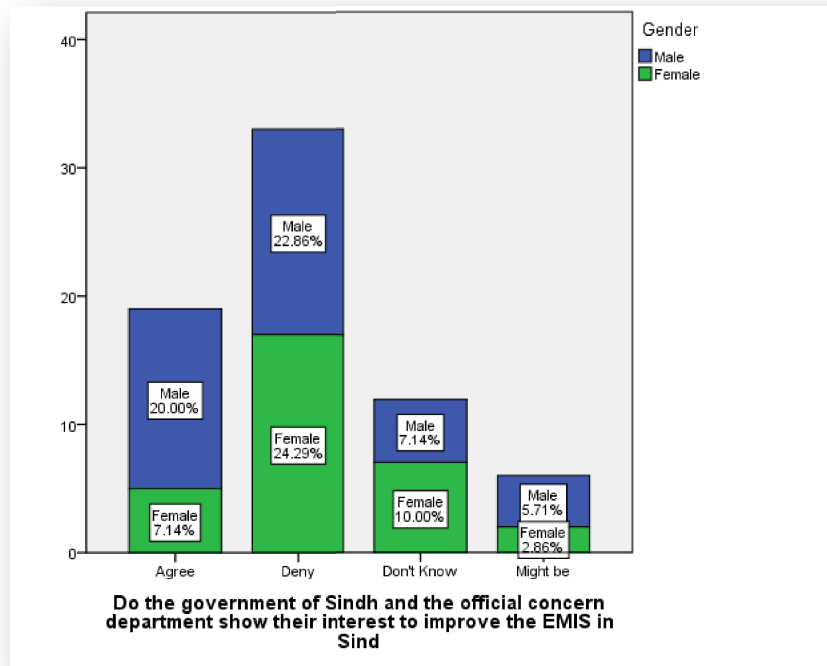
Figure 25: Agreement by Age



4.3.2.3 With respect to gender

When the particular question asked from the various genders, then we find the entire distinct results, 20% males and 7.14% females are satisfied respectively, 22.86% males and 24.29% females are not entirely satisfied with the performance of government official towards the SEMIS. While 7.14% males and 10.0% females do not know the exact answer, besides, the 5.71% males and 2.86% females are confused.

Figure 26: Agreement by Gender



4.3.3 Q.3 Do you satisfy with the role of SEMIS to improve and implement the NEP 2009 program?

4.3.3.1 With respect to occupation

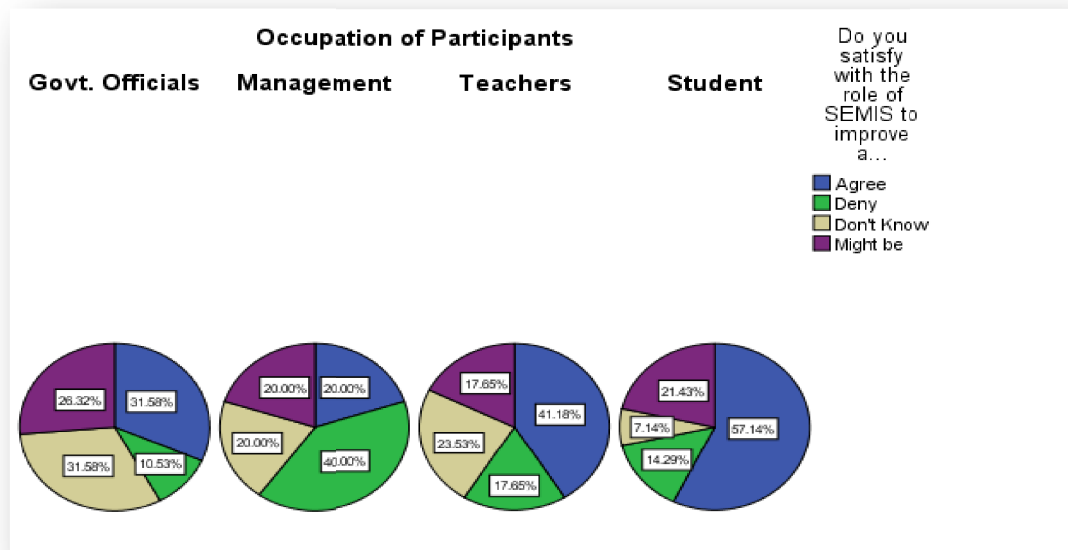
- i. Government Officials: For the Respondent analysing according to the Occupational groups. In which government officials respond positively and only 31.58% are satisfied with the government concern about the role of SEMIS in improvement and implementation of NEP-2009 while 10.53% shows dissatisfaction with the its improvement role, 31.58% people do not know the answer while 26.32% confuse to reveal anything about their perception and notion.
- ii. School and Institution Management: When the same question is asked from the school and management professionals, they respond in another way, as more as 20.0% are agree on the particular question and shows the positive image of role

of SEMIS on the improvement of NEP-2009, as 40.0% respond in a negative manner, and 20.0% do not know the real answer while 20.0% are confused to respond to the particular question.

iii. Teachers of various schools: When the same question is asked from the teachers of various schools, they respond in another way, as not much agree on the particular question and shows satisfaction with the role of SEMIS in the improvement and development of NEP-2009, as only 41.18% respond that they are satisfied, however, 17.65% respond in a negative manner, and 23.53% do not know the real answer while 17.65% are confused to respond to the particular question.

iv. Students: When the same question is asked from the students of various schools, they respond in another way, as are not much agree on the particular question and shows satisfaction with the role of SEMIS improvement of NEP-2009, as only 57.14% respond that they are satisfied, however, 14.29% respond in a negative manner, and 7.14% do not know the real answer while 21.43% are confused to respond to the particular question.

Figure 27: Agreement by Occupation of Participant



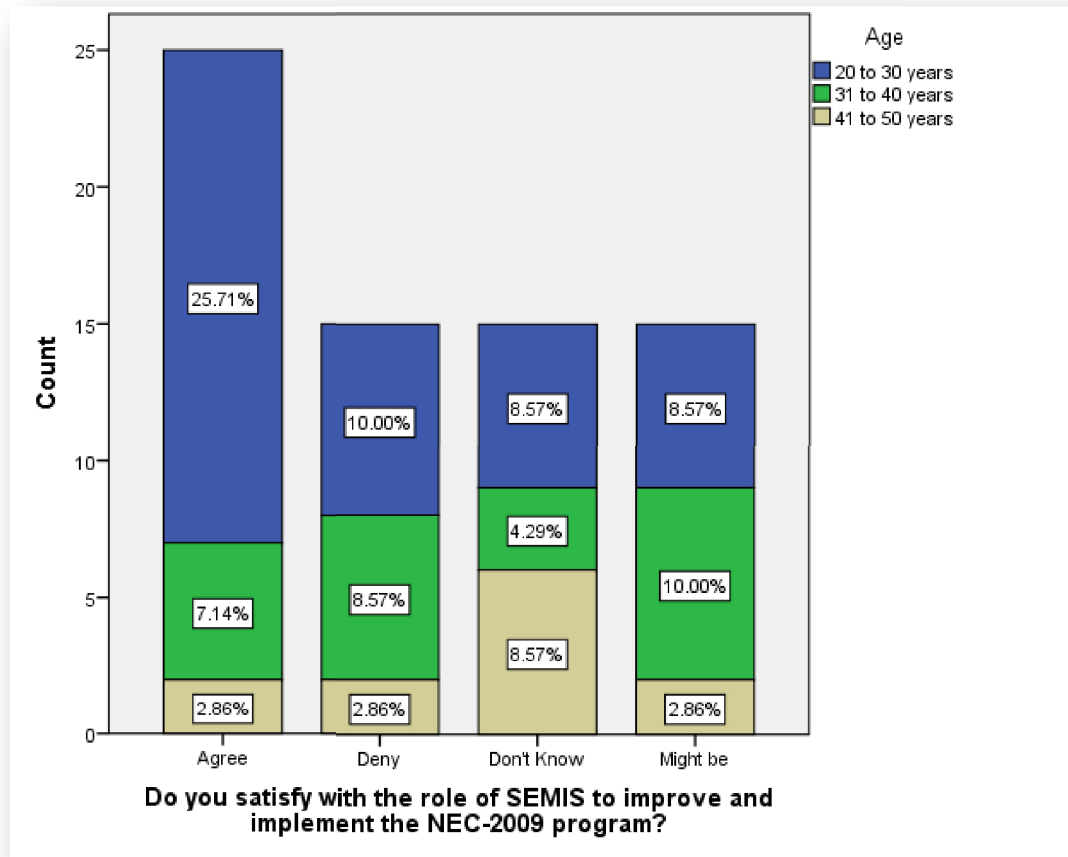
4.3.3.2 With respect to age

When the particular question asked by the people belongs to the various age group then the age group between 20 to 30 years responds in a positive manner as almost 25.71% agree, while 10.00% deny the satisfactory role of SEMIS in progress of NEP-2009, the rest of them 8.57% do not know the exact answer and 8.57% are confused.

When the particular question asked by the people belongs to the various age group then the age group between 31 to 40 years responds in a negative manner as almost 7.14% agree, while 8.57% deny the satisfactory role of SEMIS in progress of NEP-2009, the rest of them 4.29% do not know the exact answer and 10.0% are confused.

When the particular question asked by the people belongs to the various age group then the age group between 41 to 50 years responds in an equal manner as almost 2.86% agree, while 2.86% deny the satisfactory role of SEMIS in progress of NEP-2009, the rest of them 8.57% do not know the exact answer and 2.86% are confused.

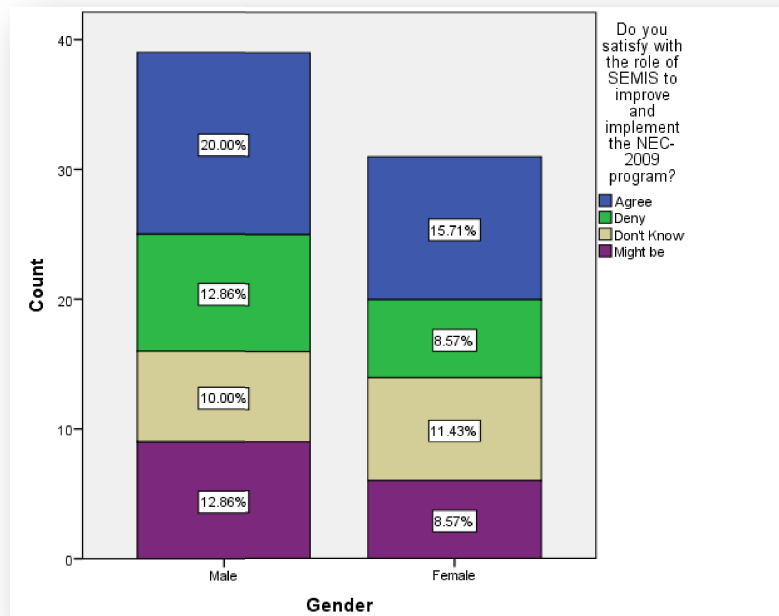
Figure 28: Agreement by Age



4.3.3.3 With respect to Gender

When the particular question asked from the various genders, then we find the entire distinct results, 20% males and 15.17% females are satisfied respectively, 12.86% males and 8.57% females are not entirely satisfied with the performance of SEMIS in progress of NEP-2009. While 10.0% males and 11.43% females do not know the exact answer, besides, the 12.86% males and 8.57% females are confused.

Figure 29: Agreement by Gender



4.3.4 Q.4 Does the management use Integrated Communication Technology (ICT) to gather the reliable and timely information for SEMIS?

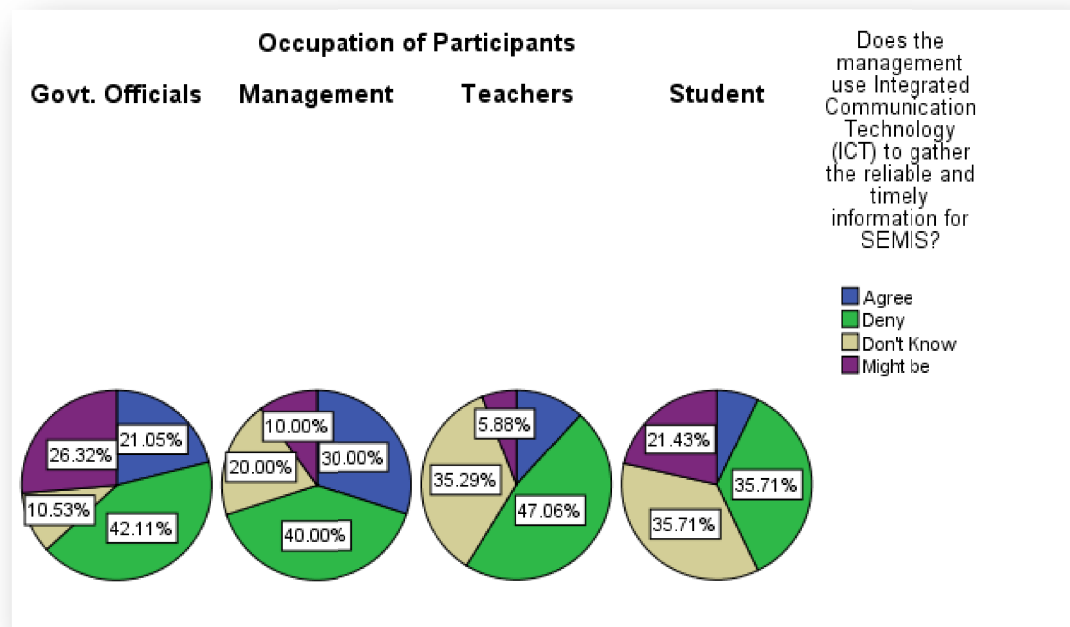
4.3.4.1 With Respect to Occupation

- i. Government Officials: For the Respondent analysing according to the Occupational groups. In which government officials respond negatively and only 21.05% are satisfied with the non usage of ICT in the gathering of information, while 42.11% shows dissatisfaction with the ICT utilisation, 10.53% people do not know the answer while 26.32% confuse to reveal anything about their perception and notion.
- ii. School and Institution Management: When the same question is asked by the school and management professionals, they respond in another way, as more as 30.00% are agree on the particular question and shows the negative image of ICT usage in the SEMIS for gathering information, as 40.00% respond in a negative manner, and 20.0% do not know the real answer while 10.0% are

confused to respond on the particular question.

- iii. Teachers of various schools: When the same question is asked from the teachers of various schools, they respond in another way, as not much agree on the particular question and shows dissatisfaction with official bodies in utilising the ICT in the improvement and development of SEMIS, as only 11.77% respond that they are satisfied, however, 47.06% respond in a negative manner, and 35.29% do not know the real answer while 5.88% are confused to respond to the particular question.
- iv. Students: When the same question is asked from the students of various schools, they respond in another way, as are not much agree on the particular question and shows dissatisfaction with official bodies in utilising the ICT in the improvement and development of SEMIS, as only 7.15% respond that they are satisfied, however, 35.71% respond in a negative manner, and 35.71% do not know the real answer while 21.43% are confused to respond to the particular question.

Figure 30: Agreement by Occupation of Participant



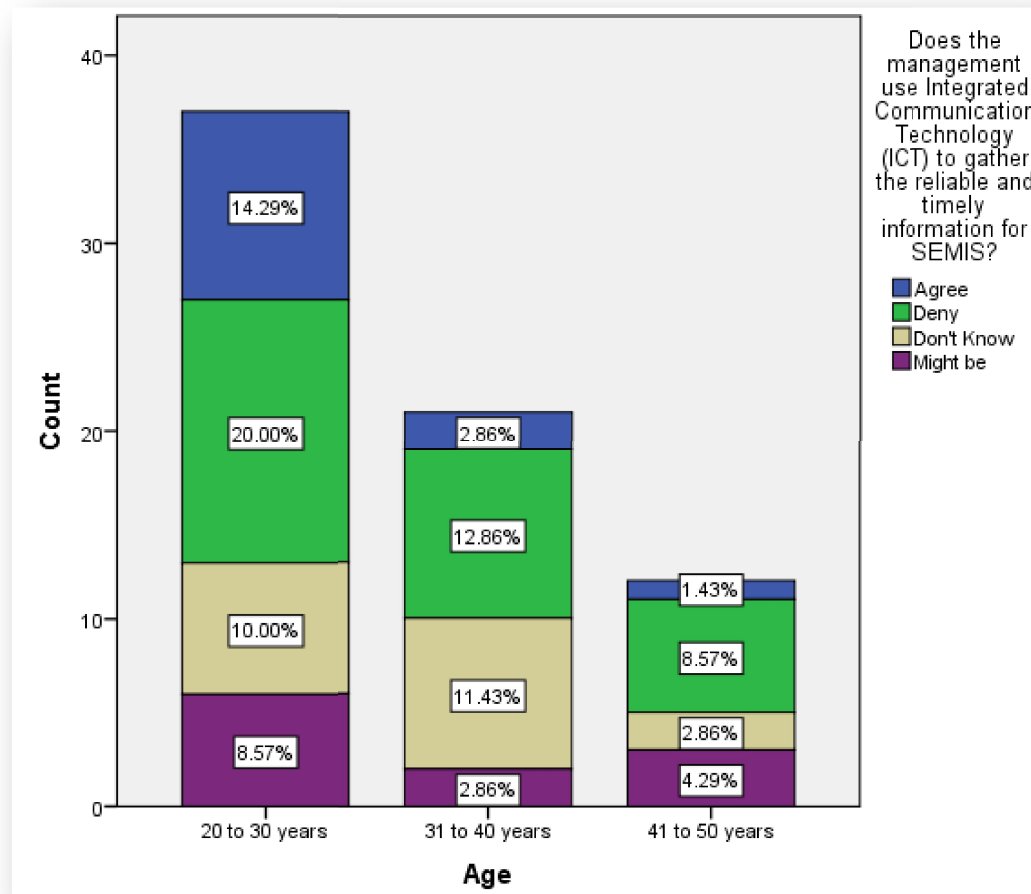
4.3.4.2 With respect to age

When the particular question asked by the people belongs to the various age group then the age group between 20 to 30 years responds in a negative manner as almost 14.29% agree, while 20.00% deny the satisfactory results of ICT in the progress of SEMIS, the rest of them 10.00% do not know the exact answer and 8.57% are confused.

When the particular question asked by the people belongs to the various age group then the age group between 31 to 40 years responds in a negative manner as almost 2.86% agree, while 12.86% deny the satisfactory in the utilisation of ICT in the progress of SEMIS, the rest of them 11.43% do not know the exact answer and 2.86% are confused.

When the particular question asked by the people belongs to the various age group then the age group between 41 to 50 years responds in a negative manner as almost 1.43% agree, while 8.57% deny the satisfactory results of utilisation of ICT in the progress of SEMIS, the rest of them 2.86% do not know the exact answer and 4.29% are confused.

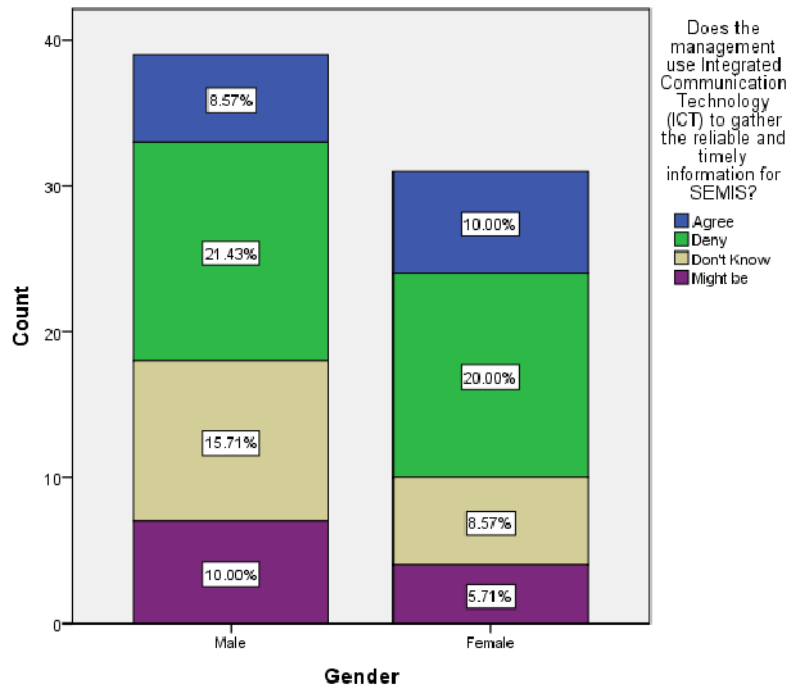
Figure 31: Agreement by Age



4.3.4.3 With respect to gender

When the particular question asked from the various genders, then we find the entire distinct results, 8.57% males and 10.0% females are satisfied respectively, 21.43% males and 20.00% females are not entirely satisfied with the utilisation of ICT in the SEMIS for the progress of the educational sectors. While 15.71% males and 8.57% females do not know the exact answer, besides, the 10.0% males and 5.71% females are confused.

Figure 32: Agreement by Gender

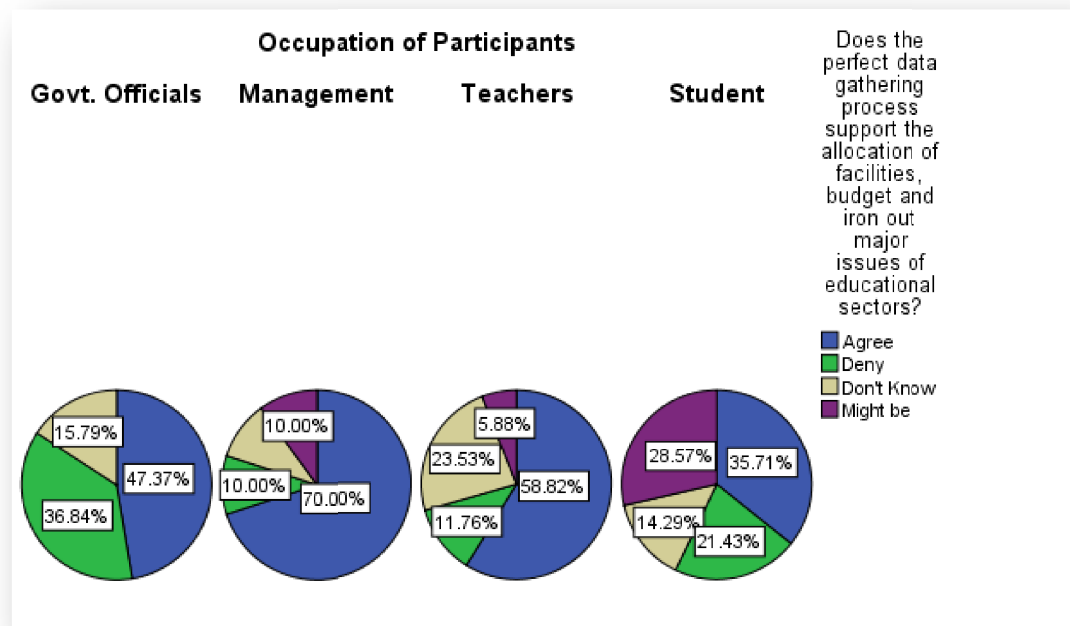


4.3.5 Q.5 Does the perfect data gathering process support the allocation of facilities, budget and iron out major issues of educational sectors?

4.3.5.1 With respect to occupation

- i. Government Officials: For the Respondent analysing according to the Occupational groups. In which government officials respond negatively and only 47.37% are satisfied with the government concern about the improvement of allocation of facilities by data gathering in the Sindh education management information system while 36.84% shows dissatisfaction with the allocation of facilities by the gathering of data, 15.79% people do not know the answer while 0.00% confuse to reveal anything about their perception and notion.
- ii. School and Institution Management: When the same question is asked from the school and management professionals, they respond in another way, as more as 70.0% are agree on the particular question and shows the positive image of facilities allocation and resolution of issues by the data gathering process in SEMIS, as 10.0% respond in a negative manner, and 10.0% do not know the real answer while 10.0% are confused to respond to the particular question.
- iii. Teachers of various schools: When the same question is asked from the teachers of various schools, they respond in another way, as not much agree on the particular question and shows satisfaction with the allocation of facilities and budget and resolution of problems by data gathering in the SEMIS, as 58.82% respond that they are satisfied, however, only 11.76% respond in a negative manner, and 23.53% do not know the real answer while 5.88% are confused to respond to the particular question.
- iv. Students: When the same question is asked from the students of various schools, they respond in another way, as are not much agree on the particular question and shows satisfaction with the allocation of facilities from the data gathering SEMIS, as only 35.71% respond that they are satisfied, however, 21.43% respond in a negative manner, and 14.29% do not know the real answer while 28.57% are confused to respond to the particular question.

Figure 33: Agreement by Occupation of Participant



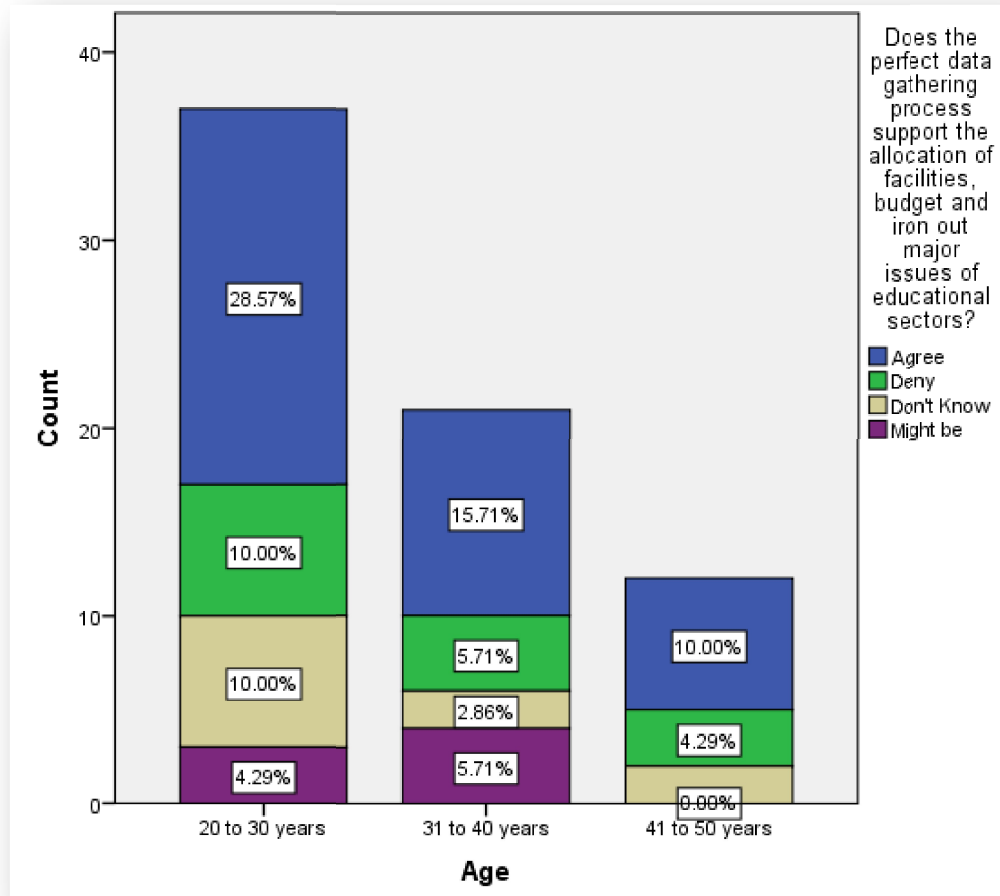
4.3.5.2 With respect to Age

When the particular question asked by the people belongs to the various age group then the age group between 20 to 30 years responds in a negative manner as almost 28.57% agree, while 10.0% deny the satisfactory results and progress of SEMIS, the rest of them 1.0% do not know the exact answer and 4.29% are confused.

When the particular question asked by the people belongs to the various age group then the age group between 31 to 40 years responds in a negative manner as almost 15.71% agree, while 5.71% deny the satisfactory results and progress of SEMIS, the rest of them 2.86% do not know the exact answer and 5.71% are confused.

When the particular question asked by the people belongs to the various age group then the age group between 41 to 50 years responds in a negative manner as almost 10.00% agree, while 4.29% deny the satisfactory results and progress of SEMIS, the rest of them 3.86% do not know the exact answer and 0.0% are confused.

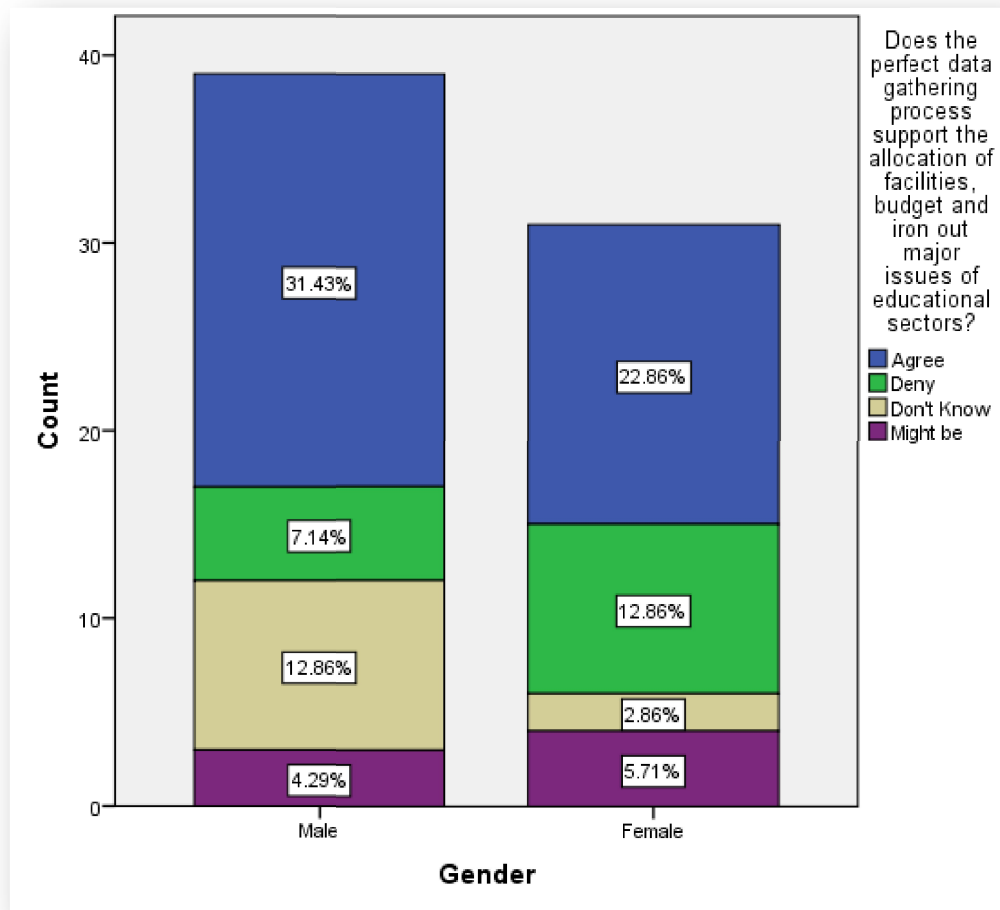
Figure 34: Agreement by Age



4.3.5.3 With respect to Gender

When the particular question asked from the various genders, then we find the entire distinct results, 31.43% males and 22.86% females are satisfied respectively, 7.14% males and 12.86% females are not entirely satisfied with the positive cohesion between allocation and data gathering in the SEMIS. While 12.86% males and 2.86% females do not know the exact answer, besides, the 4.29% males and 5.71% females are confused.

Figure 35: Agreement by Gender



5. Conclusion and Recommendations

5.1 Recommendations

There are various recommendations that are being followed for the improvement, progress and development of the SEMIS. There are distinct facets that are under the keen observation of the researcher and also produce the reliable suggestion to make the education information management more accurate with enhancement of its operations.

I. Restructure the SEMIS Unit

For improvement in the SEMIS functions, a well-coordinated SEMIS unit is needed by the management officials that have communication with the subsectors carried via their particular department. As for the institutional understanding of the SEMIS functions, the emphasis should be on building communication links that will make certain that all departments at the ministerial level have information and are updated on SEMIS operations.

II. Focus on participation of all stakeholders

The SEMIS unit should take into involvement key stakeholders to design and plan processes in regards to its functions. It might be more feasible for the SEMIS unit for conducting need assessment helping them in identification of stakeholders' preferences regarding data demand. It is crucial that SEMIS data as well as information design should go with both the macro policy as well as the micro policy priorities at management as well as operational levels. The aim of the SEMIS inputs should be to produce outputs that meet the users' requirements.

III. Increase credibility of EMIS data

There is no requirement of increasing data credibility that is generated by SEMIS by the creation of policy frameworks along with guidelines governing its performance. The

functions of SEMIS can be effectively performed if it is guided by regulations defining different roles along with responsibilities and raising accountability to the hierarchical levels of functions. For example, SEMIS should make it compulsory to implement penalties or sanctions as a strategy to strengthen data collection, validation as well as record keeping at the data sources, specifically at school and district levels.

IV. Boosting participation of high authorities in SEMIS Plans

Presently in the bureaucratic and centralized administrative as well as management system, the high level management authorities are involved and working as decision makers, and monitoring officers. This is done at the first stage when the memorandum regarding understanding or economic or technical support contracts is signed. Thus the external consultants collaborate with technical staff at the operational levels without emphasizing engagement of management staff to understand technical matters. The drawback results in reduction in government commitment and accountability for supporting SEMIS development steps that weaken its sustainability. When a lot of training sessions are conducted for the management staff, they can nurture a sense of ownership to make the consideration of SEMIS among the ministry's key significant areas needing allocation of a large amount of funds as well resources sustaining their function(Barber, 2010).

V. Improve the capacity of SEMIS

The observation says that the human capacity in SEMIS unit is low and needs tangible strategies for focusing on forming a required manning level for balancing it with the definite workload. Additionally, the SEMIS is required to establish a succession plan for replacing staff leaving the job on various grounds like official retirement, transfers related to promotion as well as quitting the work. Apart from that, there is a need for regular training programs to make certain that SEMIS staff has a lot of knowledge and skills required for improving the proficiency and increasing confidence so their duties can be performed.

5.2 Conclusion

There is a need for strengthening the SEMIS of the Sindh province for ensuring that the educational policies are based on reliable, authentic, relevant and well-timed data and information. If the EMIS of Pakistan is well-developed, the government will be able to modernize administration of the education sector, so it can conform with models that are internationally standardized and giving importance to evidence-based decision making intended for policy formulation, supervising, planning and evaluating the performance of educational sector.

Nevertheless, the EMIS may be sure that the government and other users are influenced for demanding and utilizing the outputs by the production of quality data and information that gives answers to the policy related questions. The value of EMIS will increase if it is viewed positively, utilized effectively by stakeholders in all levels.

There is a potential for future research for exploring EMIS acceptance, perception as well as relevance especially in the lower education management along with the delivery levels which serve as the primary education data and information providers.

References

- AEPAM. (2016). *Educational Management Information System (EMIS)*. Retrieved from AEPAM: <http://www.aepam.edu.pk/Index.asp?PageId=3>
- Afzal, et al. (2012). Relationship among education, poverty and economic growth in Pakistan: an econometric analysis. *Journal of Elementary Education* , 22(1), 23-45.
- Rashid, K., & Mukhtar, S. (2012). Education in Pakistan: Problems and their solutions. *International Journal of Academic Research in Business and Social Sciences*, 2(11), 332.
- Ali, S. K., & Baig, L. A. (2012). Problems and issues in implementing innovative curriculum in the developing countries: the Pakistani experience. *BMC medical education*, 12(1), 31.
- Malik, Z. I., Amin, M. N., & Irfan, Y. (2011). *Use of Data for Educational Planning and Management*. National Education Management Information System, Academy of Educational Planning and Management, Ministry of Professional and Technical Training.
- Ali, S. (2012). Education policy borrowing in Pakistan: Public-private partnerships. In G. Donn & Y. A. Manthri (Eds.), *Education in the broader Middle East: Borrowing a baroque arsenal* , 23-40.
- Hameed-ur-Rehman, M., & Sewani, S. M. S. (2013). Critical Analysis of the Educational Policies of Pakistan. *The Dialogue*, 8(3), 247-260.
- ESRA. (2003). EMIS in Pakistan, Process, people and structures. *Examining Policy Issues in Education Data* .
- GoS. (2016). *Reports*. Retrieved March 25, 2017, from Reform Support Unit - Education & Literacy Department - GoS: <http://www.rsu-sindh.gov.pk/downloads/downloads.php>
- Husain, S., & Nazim, M. (2015). Exploring the need of knowledge management education within library and information science educational courses: An Indian perspective. *New Library World* , 116 (11/12), 711-727.
- Latif. (2011). Alarming situation of education in Pakistan. . *Press International Report*.
- Malik & Courtney. (2011). Higher education and women's empowerment in Pakistan. *Gender and Education*, 23(1), 29-45.

- Mansour, E. (2017). A survey of digital information literacy (DIL) among academic library and information professionals. *Digital Library Perspectives* , 33 (2).
- Hoodbhoy, P. (2011). Education Reform in Pakistan—Challenges and Prospects.
- MoE. GOP. (2009). *National Education Policy 2009*. Retrieved from UNESCO: <http://unesco.org.pk/education/teachereducation/files/National%20Education%20Policy.pdf>
- Moore & Kearsley. (2011). Distance education: A systems view of online learning. Cengage Learning.
- Nayar-Stone, R. (2014). Using National Management Information System to Make Local Service Improvements . *The World Bank (The Case of Pakistan)* .
- PIPFA Publication Committee. (2016). Educational Reforms. *PIPFA Journals* , 18 (January-March 2016), 9-16.
- Qureshi, et al. (2012). Quality function deployment in higher education institutes of Pakistan. *Middle-East Journal of Scientific Research*, 12(8), 1111-1118.
- SBEP. (2016). *SINDH BASIC EDUCATION PROGRAM in partnership with govt. pf sindh*. Retrieved 02 23, 2017, from Sindh Basic Education Program: <http://www.sbecp.gos.pk/technical-assistance-to-education-dept.php>
- Barber, S. M. (2010). Education reform in Pakistan: This time it’s going to be different. *Islamabad Pakistan Education Task Force*.
- Ali, S. (2011). Policy analysis of education in Sindh. *Pakistan: UNESCO*.
- Barrera-Osorio, F., Blakeslee, D. S., Hoover, M., Linden, L. L., & Raju, D. (2011, April). Expanding Educational Opportunities in Remote Parts of the World: Evidence from a RCT of a Public Private Partnership in Pakistan. In *Third Institute for the Study of Labor (IZA) Workshop, “Child Labor in Developing Countries,” Mexico City*.
- Amjad, R., & MacLeod, G. (2014). Academic effectiveness of private, public and private–public partnership schools in Pakistan. *International Journal of Educational Development*, 37, 22-31.
- Shah, G. U. D., Bhatti, M. N., Iftikhar, M., Qureshi, M. I., & Zaman, K. (2013). Implementation of technology acceptance model in e-learning environment in rural and urban areas of Pakistan. *World Applied Sciences Journal*, 27(11), 1495-1507.
- Nazir, M. (2010). Democracy and education in Pakistan. *Educational Review*, 62(3), 329-342.
- Jaffer, K. (2010). School inspection and supervision in Pakistan: Approaches and issues. *Prospects*, 40(3), 375-392.
- Khattak, S. G. (2012). Assessment in schools in Pakistan. *SA-eDUC Journal*, 9(2).

- Kakar, Z. K., Khilji, B. A., & Khan, M. J. (2011). Relationship between education and economic growth in Pakistan: A time series analysis. *Journal of International Academic Research*, 11(1), 27-32.
- Ahmed, M. I., & Lodhi, F. A. (2012). A comparative study of the role of Public Higher Secondary Schools in Rural and Urban Sindh. *Indus Journal of Management & Social Sciences*, 6(1), 76-90.
- Shafique, F., & Mahmood, K. (2012). Scanning the information infrastructure of Pakistan: A step towards the development of a national educational information system. *Library Review*, 61 (7), 511-525.
- Shaikh & Khoja. (2011). Role of ICT in shaping the future of Pakistani higher education system. *TOJET: The Turkish Online Journal of Educational Technology*, 10(1).
- Soomro, A. (2011, December 19). *The decline in Sindh*. Retrieved March 24, 2017, from Dawn: <https://www.dawn.com/news/681800>
- Sterling, L. S. (2009). *The Art of Agent-Oriented Modeling*. London: The MIT Press.
- Tayyaba, S. (2012). Rural-urban gaps in academic achievement, schooling conditions, student, and teachers' characteristics in Pakistan. *International Journal of Educational Management*, 26 (1), 6-26.
- Coleman, H., & Capstick, T. (2012). *Language in education in Pakistan: Recommendations for policy and practice*. Islamabad: British Council.
- Shah, D. (2003). Country report on decentralization in the education system of Pakistan: Policies and strategies. *Islamabad: Academy of Educational Planning and Management, (Islamabad), Ministry of Education*.
- Aziz, M., Bloom, D. E., Humair, S., Jimenez, E., Rosenberg, L., & Sathar, Z. (2014). *Education system reform in Pakistan: why, when, and how?* (No. 76). IZA Policy Paper.
- Sajid, A. (2011). Deficient policy communication deficient outcomes-capacity building policy under education reforms in Sindh, Pakistan. *Bulletin of Education and Research*, 33(1).

There are no sources in the current document.

Appendix 1 – Questionnaire

Name: _____ ID: _____ Occupation: _____
Age: _____ Gender: _____

1. Do you satisfy with the Sindh-Education Management Information System?

Agree Deny Don't Know Might be

2. Do the government of Sindh and the official concern department show their interest to improve the EMIS in Sindh?

Agree Deny Don't Know Might be

3. Do you satisfy with the role of SEMIS to improve and implement the NEC-2009 program?

Agree Deny Don't Know Might be

4. Does the management use Integrated Communication Technology (ICT) to gather the reliable and timely information for SEMIS?

Agree Deny Don't Know Might be

5. Does the perfect data gathering process support the allocation of facilities, budget and iron out major issues of educational sectors?

Agree Deny Don't Know Might be

Appendix 2- Interview Data: Open Ended Questions

Name: _____ ID: _____ Occupation: _____

Age: _____ Gender: _____

Q1- What is the basic role of SEMIS in the development of educational sectors of Sindh?

Q2- How ICT is helpful for the system?

Q3- The major issue of educational sectors is lack of allocation and distribution of budgets and facilities on merit basis, how it can be resolved by effective SEMIS?

Q4- What is your opinion about the quality of SEMIS data in relation to its accuracy?

Q5- Does SEMIS influence on the general performance of teachers, management and concern authorities?

