DILLA UNIVERSITY,

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INSTITUTE OF EDUCATION AND BEHAVIORAL SCIENCES,

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PRACTICES AND CHALLENGES OF EDUCATION MANAGEMENT INFORMATION SYSTEMS IN SECONDARY SCHOOLS OF KAFA ZONE

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JULY, 2019

DILLA, ETHIOPIA

PRACTICES AND CHALLENGES OF EDUCATION MANAGEMENT INFORMATION SYSTEM IN SECONDARY SCHOOLS OF KAFA ZONE

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A thesis submitted to the School of Graduate Studies at Dilla University, in partial fulfillment of the requirements for the Degree of Masters of Arts in School Leadership.

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DECLARATION

I declare that this thesis entitled "*The practice and challenges of education management information system in government secondary schools of Kaffa Zone*, is my original work. I also declare that this thesis has not been presented for a degree in any other university, and that all sources of material used for the thesis have been duly acknowledged.

ACKNOLEDGEMNT

I would like to thank my advisor Dr .MisganuL eggese in his strong effort to advise and teach me in conducting my research and also I would like to thank my respondents for their willing to participate in this research. I would also thank my family for their support in all occasion sand all individuals those who helped me in my research work and Dilaa University for its wholes tic encouragement and hosting value.

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ACRONYEMS AND AVEREVATION

EMIS Education Management Information System

ESDP Educational Sector Development Program

GEQIP General Education Quality Improvement Program

ICT Information Communication Technology

IIEP

KETB Keble Education and Training Board

PTSA Parent Teacher and Student Association

SDG Sustainable Development goal

UNESCO Union Nation Education , Social and Culture Organization

ABSTRACT

This study sought to investigate the practice and challenge of EMIS in the secondary schools of kaffa zone. The purpose of this study is to assess the practice and challenge of utilizing an educational management information system in government secondary schools of kaffa zone. The objectives of the study were: -finding out the extent to which ICT facilities were accessible to the school managers in government secondary schools of kaffa zone, find out the extent of use of EMIS in school management in secondary schools of kaffa zone and examining factor that affect the effective use of EMIS in school management in secondary schools. The study employed mixed approach research design. The target population in selected study area was 301 school teacher, 15 vice principal, 15 principal, 16 unit leader, and four woreda education officer. The sample size was 15 principals , 15 vice principal, 16 unit leaders, 106 school teacher, and 4 woreda education officer were the sample population in study area. The sampling techniques were used censure sampling for principals vice principals unit leaders and woreda education officers and simple random sampling for school teachers. Data was collected quantitatively through survey questions and qualitatively through interview, observation and document analysis at the same time. The data was analyzed by use of descriptive statistics (frequency , percentage, mean and standard deviation) and inferential statics which is independent sampling t-test. The significant level was set at alpha =0.05. The finding show that vice principals and department head teachers were not accessible for ICT facility for their managerial duties. School principals are accessible for ICT facilities at low extent for their managerial duties. The extent of using EMIS by stockholders/ woreda education officers, department head teachers and education management team at each hierarchy/ was found at low extent. The extent of EMIS development in the school was found at low extent. The skill training for woreda education officers, principals vice principals, department head teachers, and education management team at woreda and zonal level was at low extent. inadequate ICT facilities and infrastructures were found to be challenges for effective use of EMIS in school management. The study concludes that: the extent of data management process, the effective use of EMIS and development EMIS in school, were low. The skill gap in school leaders and stack holders in using EMIS and ICT in school management were challenges that affect the effective use of EMIS in school management. The absence of skill training , in adequate ICT facility and ICT infrastructure and power for using ICT were challenges of EMIS .Finally, to improve such challenges the study suggest zone education department to seek funding more to equip school with ICT facilities and infrastructure. Woreda education office and school cooperatively work to strengthen school community relation and plan and implement professional development. The school would plan and implement to strengthen EMIS development in the school.

CHAPTER ONE

INTRODUCTION

This chapter highlights background 0f the study, statement of the problem, research questions, and objectives of the study, significance of the study, delimitations of the study limitations of the study and organization of the study.

1.1. Background of the Study

Education is a crucial sector in any nation being a major investment in human capital development. It play crucial role in long term productivity and growth in both at micro and macro level. (King Dom E.OrijMackoe.Job 2013-312) To achieve its goal, it should be quality education that uses quality and relevant input to produce quality output. Among major challenge or contribution quality education management information system is the major one. EMIS is a system for the collection, integration, processing, maintenance and dissemination of data and information to support decision making, policy analysis, monitoring and evaluation of all levels of education system (HaiyanHua and Jon Herstein 2003)

According to Bruges (2003) education management information system can be defined as a comprehensive system that bring together people, practice and technology to provide quality education statics in timely cost effective and sustainable manner at every administrative level operational function.As HaiyanHua and Jon Herstein (2003) EMIS is also formulized and integrated operational process procedure and compressive agreement by which data and information about school and schooling such as facility, teacher and student learning activity and evaluation output are regularly shared, integrated analyzed and disseminated for education decision used at each level of education hierarch EMIS are the tools countries use to gather, process and interpret data. For the past several decades, these systems have grown in complexity to give policy-makers and classroom teachers alike a view of whether learners, schools, and national education plans are progressing in relation to different objectives. (UNESCO EMIS POLICY, 2018)

A fact which is often overlooked efforts to reinforce government information systems marketing educational data and statistics in a timely and reliable fashion

However, EMIS are better understood as system-wide, and not units exclusively located in one place. The collection, input and analysis, and use of data is a collective endeavor — that is, beyond the work of any particular unit, team, or service — that informs administrative, managerial, planning, and policy decisions horizontally across the entire education system, within and between subsectors and institutions. **(.UNESCO EMIS Policy, 2018)**

Formal education systems developed EMIS with the purpose of managing resources (human, material, and financial). In the 1980s, when information management systems were beginning to be computerized, the digitization of EMIS was motivated by a desire to automate routine administrative functions (Cassidy, 2006). Since then EMIS has often focused on administrative data such as enrolment rates, schools, and number of teachers (Powell, 2006). This partly explains why, today, EMIS are sometimes narrowly understood as technical tools, pieces of information management software, rather than a social process, and an integral and evolving part of education system reforms. Cassidy (2006), for instance, describes how: For some people, any effort to improve the quality of data and information is associated with EMIS. For some, an EMIS is simply an updated, computerized, statistical information system. Others refer to any administrative, function-specific database system as an EMIS, e.g., personnel management systems, financial management systems, project monitoring systems, municipal education database systems, etc. For some, EMIS is all about computers and computerization. On the other hand, Abdul-Hamid, Saraogi, and Mintz (2017, p. 1) lay out a systemic, albeit very fundamental definition for EMIS: 'In its simplest form, [it] can be defined as a system responsible for collection, maintenance, analysis, dissemination, and utilization of data in an education system.' While this definition certainly captures the systemic nature of EMIS, it is rather general, and does not identify the elements that constitute the system. Villanueva (2003, p. 5) proposes a definition that acknowledges EMIS as a system – describing it as 'a tool that uses systems theory':

It is a collection of component parts that include inputs, processes, outputs, and feedbacks that are integrated to achieve a specific objective. It is a system for managing a large body of data and in- formation that can be readily retrieved, processed, analyzed, and made available for use and dissemination.

Villanueva also touches on the technology component of EMIS, highlighting how "developments in computerization" help "create a comprehensive approach to the collection and use of vast quantities of information on the education and training system" (p. 5). UNESCO-IIEP enumerates the following as the specific components of an EMIS: "people, technology, models, methods, processes, procedures, rules, and regulations".

The guiding vision for the development of EMIS was, according to Tung (2003), "to establish a demand responsive and self-sustainable" system that is based on the integration of decentralized and distributed sub-systems; guided by a partnership of stakeholders; and supported by technically competent bodies (Tung, 2003).

EMIS can thus support system-wide efforts to improve the equity, inclusiveness, and quality of education and learning: to prepare learners, create better learning environments, make content more relevant, augment the competencies of teachers, and increase the linkage between student learning and positive participation in society (Abdul-Hamid, 2014). In the context of SDG 4-Education 2030, EMIS can, for example, advance a rights-based approach to education by providing evidence of the extent to which individuals do — or do not — enjoy their right to education. Information about access, participation, equity, quality and relevance is necessary to ensure that no one is left behind.Most countries as develop are education data base using their result of school census and or survey that are carried out an irregular basis. These data are published in bulky statically year books, often raw, fragment and without analysis, yet, policy makers and other actors in management and planning need easily understandable and interpretable data.

Although there has been statically report before the history of EMIS in Ethiopian may be dated to 1957, the year where a research and statistical department was established in history of Education.(MOE, 1998). At the end 1957 the statically work was organized in to department known as central planned and statistical division under the department of programmed plan and research .(Kassaw ,2001).Recently the new system EMIS utilization

includes the restricting of the system and its management as its cited in. Using EMIS system becoming very crucial because according to Hua and Hersiten, (2003) Information based decision making in management of educational system has its goal increasing access ,efficient ,effectiveness ,equity and quality of education through effectiveness of monitoring and evaluation budgeting and planning policy research and analysis. EMIS enable this information decision to be made by providing the necessary data and information by to steering an environment which the demand for this information derived its use.

EMIS have several importances. EMIS helps provide analysts and decision makers with information to understand how educational inputs are transformed in to educational out puts. It also accesses to quality and timely data helps improve decision making and ensure that limited resource target areas in most needed and where returns will be highest. EMIS enables decision makers to understand how resources are translated in to learning out comes, especially the efficiency and effectiveness of the existing processes. It also allows setting of new policies and revising old ones based on evidence instead of self-perception (Hua and Hersiten, 2003)

.Given the complex of school management Haddada and Jurich(2001); contended that an EMIS could be used, to do the following ; assist school administration in the efficient management of official function enhancing the supervision of progress improving of school resource management promotion of communication between school unit parent and school administration and in so doing cultivating responsibility on the part of school management enhancing transparence in administrative action as well as the interlinking of school networks (Maki ,2006).

According to system approach for better education result (SABER) working paper enabling environment is considered to be the legal framework; organizational structure; and institutionalized processes, human resources, infrastructural capacity, and budget of the system.

This includes both the laws and the policies surrounding an EMIS. In essence, this policy area is the context in which an EMIS exists. “EMIS development involves significant organizational, human resource and technical challenges” (Cassidy 2006, 5), the enabling environment is a crucial policy area. Education data are sourced from different institutions, but all data feed into and comprise the Databases within an EMIS are not viewed as separate databases, but as part of the EMIS.

The processes for collecting, saving, producing and utilizing information ensures accuracy; security; and high–quality, timely, and reliable information for use in decision making. Data quality is a multidimensional concept that encompasses more than just the underlying accuracy of the statistics produced. It means that not only is the data accurate, but that the data addresses specific needs in a timely fashion. The multidimensionality of quality makes achieving quality education more challenging, as it goes beyond quantitative measures. This difficulty is compounded by the inadequacy of education statistics in many education systems. Therefore, it is necessary to evaluate and benchmark the quality of data within an EMIS.

An EMIS needs to be used so that measures can be taken to improve educational quality. Accurate information on education sector performance enables the design of more informed policies and programs. It is imperative to understand where decision making occurs, if the capacity to analyze and interpret education data exists, and if specific data is available to inform decisions. "Lack of knowledge and skills to use data and information is not so much limiting the EMIS development as it is limiting development of the education system" (Cassidy 2006, 19). Therefore it is important to understand how an EMIS is utilize

Education and training policy of Ethiopian (1994) decided the organization and management of education is to be decentralized. Due to this educational management authority is given for regional educational bureau and woreda educational office which is under implementation in Kaffa zone. Moreover GEQIP is designed to ensure education quality. Under GEQIP there are six components. Among these components management and administration improvement program (LAMP) is one of the important components that aim to ensure quality education management. Under this component there are three sub components. These are capacity development for educational and management, sector, planning capacity development for schQ1ool planning and management and education management information system. Under the first phase of GEQIP MOE plans to strength the existing system through combination of capacity development for policy analysis and planning, renewal, renovation, repairing and ongoing maintenance of IT infrastructure at the federal, regional and woreda levels and several enhancement initiatives that will make EMIS more accessible and relevant (Teaching Material Prepared for EdPM 3rd year Students MTU, 2016).However, the increasing number of school student teacher and staff complicate the management activity to utilize information properly specially at woreda and school level of Kaffa zone. According to Lasonen etal, (2005) administration faces the challenge of

management information system at woreda and zonal level and facilitating school community participation in school governance. This shows how complexity of management is enhancing and enhancing. Despite the apparent importance of utilizing an educational management information system, to my long experience and best knowledge no study has been conduct to assess the practice and challenge of educational management information system and to explore solution for problem.

Therefor the purpose of this study is to assess the practice and challenge of utilizing an educational management information system in government secondary schools of Kaffa zone.

1.2. Statement of the Problem

Edmunds and Morris (2000) talk about the paradox of organizations suffering from a "scarcity of useful information" regardless of the "excess of information "that is available to them. Data are abundant; the issue lies in determining what kind of data are needed and how that data should be analyzed and presented in ways that can actually inform decision-making. The analysis of data on social and educational disparities is necessary to justify the allocations of resources to disadvantaged communities, institutions or students to ensure equity and inclusion, and equality of opportunity at every level of an education system. As result, ministries will be able to make smarter investments and allocate resources to where they are actually most needed yielding better returns on investment whilst also potentially reducing costs

Education and training policy of Ethiopian 1994 states that education management will be decentralized to create the necessary condition to expand in reach and improve the relevant quality accessibility and equity of education and training. Effective teaching and learning take place in a wider administrative and socio economic context which must support what teacher do and in other way assist in creating the condition necessary for improvement in task of education management (Planning for action, 2002-2015).The development of an education management information system EMIS is essential modern management of education. It is design to support information based decision –making process; computer technology data based tool and technical skill provide the necessary assistance in the data and information production capacity for educational system

The development of EMIS involves nurturing new management culture more than establishing a data and information system (Hua and Heristen 2003). The conduct of education and contribution to its improvement is highly related with that of success of EMIS (MOE 2004) .

According to the Hrisen and Hunan, (2003) EMIS's success depends upon three factors: Timely and Reliable Production of Data and Information, data Integration and Data Sharing among departments, effective use of data and Information for Educational Policy decisions.

In similar ways scholars identified Challenges hinder the successiveness of EMIS implementation at different levels of educational organization including schools**.** Iyengar et al. (2016) identifies six main challenges that are often underestimated when approaching EMIS in developing countries, which fit well within the concept of design-reality gaps: A strong technological background (social and technical) is needed to host the data, something which is often lacking bandwidth is not sufficient to distribute the software or sustain use at school level, Training and capacity building at all levels is extensive and resource demanding. This results in too much effort spent collecting data rather than utilizing it. Information is not being used for active decision-making. Country context makes target groups inaccessible, as well as organizational faith of the merits of an EMIS is doubted Budgets prevent sustainable operation of the EMIS on a long term basis.

While most publications agree on the strategy of how to implement an EMIS in a low resource context (create timely and reliable production of data, integrate towards other departments and create a culture of information use), reflections on data relevancy and the interplay of objectives between organizational levels are absent. According to Salako, C. T inadequate funding, inability to integrate data and data systems, inadequate development of skills in data use at all levels, inability to capture expenditure and budget data in EMIS and inability to develop student-record based EMIS were Challenges of EMIS .

Although much information is available within the education system, on issues of educational performance (mainly through EMIS) finances and teachers , ESDP V of the Ethiopia set the priority for the consistency, reliability and systematic analysis of this as well information, its distribution to relevant stakeholders and its use for evidence based decision making and resource allocation needs to be improved. But according to the researcher the above mentioned challenges were not only the problems in Education managements.

As the researcher's long experiences and knowledge there is still increment of number of schools, student, teachers, and staff and the great demand of using more education resources is emerging in the education system in the study area.

Poor planning, slow decision making, poor skills in using information technology among stake holders toward in education management delaying of information exchange are challenges in education management system. Due to this fact that many schools are still faced with operational inefficiencies, lack of proper training in use of ICT and challenges that arise due to the implementation of EMIS use poses the question of the extent to which managers are using data for planning as well as decision making. . This is convinced by complains on frequent annual reports of zone education department and woreda education office. Moreover no research is conducted on the issue in this study area. This is why the research needs to be conducted on this area

1.3. Research Question

1. To what extent do ICT facilities accessible for the school managers in government secondary schools of Kafa zone**?**
2. How do stakeholders manage EMIS in secondary schools of Kafa zone?
3. What are the challenges that hinder the use of EMIS in school management in the government secondary schools of Kafa zone?

1.4. Objective of the Research

1.4.1. General Objective

Examine the practices and challenges of using EMIS in school management in government schools of kafa zone.

1.4.2. Specific Objectives

1. Finding out the extent to which ICT facilities are accessible to school managers in government secondary schools of Kafa zone
2. Find out the extent of use of EMIS in school management in government secondary schools of Kafa zone
3. Examining factors that affect the effective use of EMIS in school management in secondary schools of Kafa zone

1.5. Significant of the Study

This study may have several significances as through limited the study may add literature to the sparse body of knowledge on practices and challenges of education management information system. It may also be as starting point for further study on practices and challenge of education management information system in government secondary schools of Kafa zone there by stimulating further research to provide valuable insight for other researchers and academicians. Moreover, based on the finding of this study other researchers and practitioners may have a clear picture on the practices and challenges of education management information system of secondary education level in the Kafa zone.

The study also is expected to help concerned bodies at zone, woreda and school level to understanding the practice and challenge of education management information system and then may take appropriate measure to improve practice and challenge of education management information system. The findings may be useful to school Boards of Management to enable them use EMIS in a practical way to enhance management in schools and also identify areas where more training is needed. The principals may use findings for appraisal in the use of EMIS and assist in planning for training. The study may additionally contribute knowledge to the field of educational management with regard to the use of EMIS and also provide data for further research in related fields.

1.6. Delimitation of the Study

The study researcher delimited study to government secondary schools in Kafa Zone .Though there are eleven woredas in the Kaffazone ,Chena woreda ,Bita woreda ,and Bonga administrative town and Gimbo would be selected ahead of other woredas because of two major reasons. First research has been conducted in this woreda on practice and challenges of education management information system are minimal. The student researcher's long year service as a director in the zone and there by his better experience of its socio-cultural and geographical setting was another reason to select it for the study was also delimited to secondary schools. Now a days secondary schools in Ethiopia characterized by several critical education problems including education management information system but not limited to low pass rate and low internal efficiency (Joshi &Verspoor, 2013; MOE, 2010). The study restricted conceptually to examine the accessibility of ICT facility, the effectiveness of EMIS used by stakeholders, training given, and challenges faced on use of EMIS. The study investigating the practice and challenge of education management information system for education management has been considered as a frame of reference.

Student researcher do so for the reason that this education management information system dimensions are the most commonly used in the study of practice and challenges of education management information system in secondary schools

1.7. Limitations of the study

Any study cannot be free 0f limitation and this study is not exceptional. The following were the major limitations encountered the study. Include the small sample size involved in the interview was one of the limitation. However, to include wider perspective of the respondent on the issue under investigation the researcher selected respondents those who had better outlook about EMIS. Another limitation encountered the study was .the reliance on self-report of the Education leaders and teacher respondent. However to overcome this limitation the researcher insured respondents confidentiality and pilot testing all the instruments used in the study.

1.8.Operational Definitions of Key Terms

Annual statistical abstract: This is a summary of statistical tables and some indicators and is intended for the general public, i.e. users within and outside the MoE who need the statistics for reference purposes only.

Data: Is educational information on teaching and learning process used by stakeholders that has been translated in to a form that is efficient for movement or processing

Data organization: is the step of coding, entering and building of the data file about instruction human resource finance and curriculum, (encyclopedia of international education)

Data processing: A system of verification and control procedures of data or transformation of data about school and schooling process would be disseminated according to the "specific" needs of the organization;

Data retrieval: search for recorded data about student attendance achievement progress, education efficiency and performance which. Can be used for decision making and planning purpose

Data storage: presupposes some expected future use

Education Management Information System (EMIS): refers to ICT software with several components (modules) by which data in schools is collected, aggregated, organized and processed for use by school management in decision making. The components (modules)

include those of curriculum and instruction, human resource, school-community relations, and finance (Odhiambo, 2017)

Finance: refers to the planning and utilization of school funds in an efficient and and in accordance with regulations and procedures from the Ministry of Education (Odhiambo, 2017)

Human resource: refers to staff and student administration, attendance, allocation of duty to staff and monitoring of students' academic progress, discipline and staff Appraisal (Odhiambo, 2017)

Information and Communication Technology (ICT): Refers to technologies that are used for accessing, gathering, manipulating and presenting or communicating information of data about student attendance achievement progress, education efficiency and performance.

(Odhiambo, 2017)

Information management: Organization-wide capability of creating, maintaining, retrieving and making immediately available the right information about student attendance achievement progress, education efficiency and performance, in the right place, at the right time, in hands of the right people, at the lowest cost, in the best media, for use in decision making (Lange Mo, 1980)

Planning: Is a basic management function involving formulation of one or detailed plans to achieve optimum balance of need or demands with available resources at school.

School management team: Refers to the principal, deputy principal, heads of Department and the Board of Management who are responsible for among other duties, supervision and implementation of curriculum, human resource and finance **(**Odhiambo, 2017)

School-community relations: refers to formal or informal interaction between Educational institution and the section of the public with interest in the school which have some common interest in what is dual purpose of obtaining and maintaining community support for school programmers (Odhiambo, 2017).

1.9 Organization of the Study

This study encompasses five chapters. The first chapter is introduction of the study. The second chapter provides the review of literature pertinent to the study, the third chapter presents the research methodology fourth chapter contains presentation, analysis and interpretation fifth chapter contains summary, conclusion and recommendations.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1. Introduction

This chapter reviews the related literature under the following titles: Management of schools; the concept of Education Management Information System (EMIS); the process of educational management information system(EMIS);challenges to effective use of EMIS in school management; summary of literature reviewed theoretical frameworks and technological acceptance model

2.2. The School Management

Acordinig (Tegene wako, 2003) management is defined as an effort made to coordinate the exertion of human and material input in order to achieve the set objectives. It is an art of coordinating the knowledge and skills of people involved in EMIS activities in order to accomplish planned objectives and visions. To do this, we consider all our activities, the procedures involved, the professionals carrying them out, and the relationships within and with other stakeholders.

Makewa, Meremo and Role (2013) in their study found out that the management of schools is characterized by challenges in the area of finance, teacher absenteeism and lateness, maintenance of student records, communication with parents and students which has been worsened by the a steep rise in the number of students with no corresponding increase in teachers. The use of EMIS in management is therefore expected to enhance the management practices

Bruniges (2003) also asserted that the purpose using EMIS to improving and increase quality accessibility and coast efficiency of the delivery of education The justification of using EMIS is further affirmed by J.HURREE (2005) who argues that apart from classroom instruction, teachers are also involved class administration duties such as student record keeping lesson, plane preparation, preparing hand out paper making and performing some analysis which can be efficiently done using EMIS module.

Given the complex of school management Haddada and Jurich(2001); contended that an EMIS could be used to do the following ; assist school administration in the efficient management of official function enhancing the supervision of progress improving of school resource management promotion of communication between school unit parent and school administration and in so doing cultivating responsibility on the part of school management enhancing transparence in administrative action as well a the interlinking of school networks

Blave and Presser (2013) affirm that EMIS can help school management to work more

efficient by for example improving raking learning out corners behavior's , curriculum. and others pedagogical data in addition to providing on demanded updated data at different level ,individual student class, subjects or the entire school and by strengthens communications among staff, student and parent

According to Ghavifekr, Ashfari, Siraj and Seger (2013) applications used in school management can be categorized into hardware and software applications. The common hardware ICT application tools that are used in school management include computers, photocopy machines, television, radio, digital cameras, scanners, laptops, multimedia projectors and overhead projectors. The software applications on the other hand that are used in schools are Office tools such as Word, Excel and PowerPoint.

Ghavifekr et al. (2013) further point out those schools can communicate with students and parents via e-mail and social networks platforms such as Facebook, Twitter and What's App. The internet can be used for faster and cheaper approach in operating administration and management of daily tasks such as information processing, transferring, storing and retrieval.

Maki (2006) argues that for the 21st century school manager to be effective in the discharge of his duties he must possess technical, human and conceptual skills including the use of new technology to deal with emerging managerial challenges. Such a manager would therefore be able to use the skills so gained to easily integrate technology in the management process.

Indeed, Jhuree (2005), point out the school managers are also involved in variety of work that require technology such as computation of school performance for certain year keeping record of employs and preparation of school budget.

In Kenya, school managers are now being encouraged to acquire ICT skills to enable them conduct duties such as registering students for national examinations online students among other managerial duties (Republic of Kenya, 2015).

According to juit(2000) evidence at school level also point to the introduction management information system not only allows new practice to be more efficient , but also allow new practice to be established. The study by price water use Cooper (2004) which investigate the use if ICT to adders teachers load found that through ICT does help to adders work load for some teachers, in the other cause ICT increase their workload with some task take it was longer to complete. However established that could be result of confidence in the use technology

Technology is often the most noticeable aspect of EMIS, but it is only a part of the education information solution. Increasingly, laptops are replacing desktop computers (more rugged, just as powerful using less power, consolidated into one piece, and often more reliable).

As importantly, smaller computers (netbooks/"classmates"/even tablet computers) can now be used with much lower requirements for cooling, security, and electricity. Tablet computers, and, to some extent "netbooks," hold the promise of both lower cost and highly portable and adaptable instruments to place more information into more stakeholders' hands than ever before. Tablets lend themselves to classroom observation, easy presentation of graphics; can be used with minimal training, and lower the cost for moving educational information closer to the school and classroom level. They also support the Regional and National level's need to be informed.

Only some of these technologies have been available over the last six years— hence their full application has not yet been tested. Cell phones have gotten much more powerful—capable of transmitting data via SMS or GPRS—in useable formats for "urgent" or high-demand information. Cell phones are already used to "log" school locations and to communicate key information such as "attendance or enrollment data" to district or national offices rapidly.

They are typically more "sustainable" because people want them for multiple reasons (virtually every person or family wants to communicate)—but mainly because they allow for relatively cheap communication. Cell phones can also provide a relatively low cost option for communicating between users and suppliers of key school necessities. Software has also improved with simpler to use software like excel, access, or MySQL with enhanced features and better training, offering more options even at the school level. For larger systems, there are many more alternatives for school-based EMIS (from open source and from proprietary vendors) as well as integration of all the various technologies—computers, servers, cell-phones, and paper make data more manageable. Leadership support though infrastructure support is imperative, school technology leadership is a stronger predictor of teachers' use of computer technology in teaching (Anderson & Dexter, 2005).

Yee (2000) believe that a leader who implements technology plans and also shares a common vision with the teachers stimulate them to use technology in their lessons.

Schiff and Solmon suggest that for effective utilization of ICT by teachers, there is the need for a strong leadership to drive a well- designed technology plans in schools (as cited in Lai & Pratt, 2004, p.462) Becta report on the effect of ICT on teaching in basic schools in United Kingdom also stressed on significance of good leadership (as cited in Lai & Pratt, 2004, p.462). In addition Becta, identified five factors that were essential to be present in schools if ICT was to be utilized properly (as cited in Lai & Pratt, 2004, p.462). These factors were ICT resources, ICT teaching, ICT leadership, general teaching and general school leadership.

2.3. The Concept of EMIS

The acronym EMIS stands for 'Education Management Information System'. It is a system designed to systematically organize information related to the management of educational development. EMIS's center is at the Ministry of Education (MoE), where it is responsible for the collection, processing, analyzing, publication, distribution, and rendering of information services for users of educational information.

In the words of K. C. Tung, 'EMIS refers to a System for Processing Information for the Management of education resources and services'. Within the MOE, EMIS is responsible for the promotion and use of information for policy planning and implementation, decision-making, and the monitoring and evaluation of an education system.

As we live in the age of information, the success in organizing information systems for the development of education lies in the use of information for development. Not using accurate and timely educational information for monitoring development activities results in retarded development.

EMIS also substantially aids efforts made to assess the performance of an education system. It also closely monitors the equitable distribution of resources, and plays an active role in providing information to top management about the deployment of teachers, student performance assessment, and internal efficiency of the education system, resource allocation, and the distribution of didactic materials to schools. It must also give technical support to the research unit at the MOE. Statistics are an important part of the EMIS system. Thus, statistics relating to formal, non-formal, and early childhood, primary, secondary, and higher education, teacher-training institutions, and technical and vocational institutions are vital to EMIS. In turn, the collection, processing, analyzing, and reporting of statistics in these areas is the responsibility of EMIS at the MOE. In the event that each department and section of the MOE collects and compiles its own statistics, EMIS must obtain a copy of the final product from each department or section.

EMIS is also responsible for continuously developing, through training and work, the capacity of its own EMIS staff as well as other staff in the MOE in order to generate a sustainable and self-sufficient center for the provision, development, and maintenance of an educational information system. Moreover, central EMIS is expected to provide special assistance to EMIS personnel at provinces, districts, and schools. Being the major source of educational information, schools need more input regarding training, the improvement of the records management system, and awareness of the use of such information for planning and decision-making purposes.

Experience has shown that the best approach to achieving this is having in place an organized programmer for the training of trainers. Using this approach, central EMIS will train the provincial staff trainers, who will in turn train their own staff as well as those at district level.

At district level, staff is to create close contact with schools and provide constant feedback and training. They must also relay information, guidelines, and reports between central EMIS and schools, and in both directions. For example, they must ensure that schools have received the necessary instruments of data collection, have filled them in correctly and sent them back to the district office. Data processing is done at provincial level in a decentralized system.

It is too expensive to decentralize the data-processing system down to district level. Countries that can afford to decentralize to district level have a greater chance of increasing the accuracy of data and getting timely reports as they can easily contact schools for feedback information and follow-up. Eventually, countries will have to decentralize the data processing (entry and cleaning) to school level, with reports being sent to upper tiers electronically. However, this may not be realized in the near future due to the digital divide and poor economic capacity that affects many countries in sub-Saharan Africa. .finally, central EMIS has a coordinator role, connecting major stakeholders in partnership and experience-sharing programs, while at the same time introducing new innovations to all stakeholders. Hence, EMIS must carry out the following:

Survey administration of schools – instrument design, testing, re-designs, distribution, and collecting onorganizing, processing, compiling, and cleaning of data Analysis, interpretation, and use of educational informational. TegeneNuresu Wako (2003)

2.4. The concept of Information

The concept of information in an organizational sense is more complex and difficult than the frequent use of this common word would suggest. Every society, no doubt, is an information society and every organization is an information organization. Therefore, information is a basic resource like materials, money and personnel. Information can be considered either as an abstract concept (ideas) or as a commodity, usually in the form of letters and reports.

Essentially, therefore, information has become a critical resource, just like energy, both of which are vital to the wellbeing of individuals and organizations in the modern world. Like energy and politics, technology is changing the ways in which information is captured, processed, stored, disseminated and used. Information, therefore, like any other resource in an organization, should be properly managed to ensure its cost-effective use. It is an ingredient that is vital to good management and if properly managed, should rank in importance with the organization's personnel, material and financial resources. In an organizational context, it is increasingly being recognized as a resource

independent of the technology used in manipulating it. The implication of this realization is the further recognition that information is the cohesive element that holds an organization together.

Information is an unusual commodity, quite unlike most physical goods or consumer durables. Since it is intangible, it is often hard to enforce custody. For this simple reason, it is often crucial to highlight the significant differences between this resource and others when developing a management framework. Its content can be distinguished either by source (internal or external) or by form (numeric or nonnumeric). Non-numeric can either be structured or unstructured. Internal information is that generated within an organization and generally is of interest and value only to decision makers within that organization. External information can be regarded as that created by others, that is, outside the four walls of the organization, generally by publishers in the form of books or journals, or by Governments, external contacts and the like. Information professionals have a surprising range of ideas on what information is.

They have not been able to produce a widely acceptable definition. Zorkoczy (1981) defines information "as the meaning that a human expresses by, or extracts from, representations of facts and ideas, by means of the known conventions of the representations used". This definition includes the word "meaning" which is just as intangible and elusive as "information". Stonecash (1981) also defines information by stating that "information is simply symbols (data, text, images, voices, etc.) that convey meaning through their relative ordering, timing, shape, context, etc. … information is the raw material for making decisions for creating knowledge and fuelling the modern organization".

As a concept, information has always connoted different meanings to various information professionals, depending on what side of the information profession they belong. Ellis (1986) rightly observes that "the data processing manager might conceive it in terms of data, the records manager in terms of records and reports, the librarian or information scientist in terms of documents or other materials".

There are three major information worlds which have traditionally been divided and separated. The first is the literature world of libraries and archives, where information has been put into recorded form. The second is the document world of information centers and record centers, where information has been collected and organized but perhaps not seriously evaluated in the same sense as in the literature world. The third information world is the data world of computers, telecommunications and automated information systems where the information is often numerical or structured (David, 1982).

Two key variables distinguish the three categories: "time frame" and "storage medium". Information professionals can no longer claim ignorance of generic information.

Similarity in terms of roles and perceptions of information has been summed up as “records, words, data ... whatever you call it, it’s still information” (Mass, 1982). In fact, the increasing recognition of information as a generic concept in recent times, coupled with the continued proliferation of computer-based information systems and the integration of formerly discrete information systems led Getz (1982) to suggest coalescence as an inevitable fate. He sees the manager of an organization that results from the coalescence as a generalist, with a solid understanding of technology but with a better understanding of business conditions and needs. However, he is not without his bias for management information system (MIS) managers. He feels they are the right professionals to play the role of information managers in the organization, as he concludes that either the MIS manager will take the initiative to lead this merger of the firm’s data resources activities and make some sense of their management, or a manager outside of the MIS organization will do it for him.

It is in the context of this coalescence that the employment of the term “information management” can best be understood as a method of describing the activity or work role created by any such coalescence in an organization. Management information is information produced for decision making. It can either be structured or unstructured (Library Review, Vol. 46 No. 5, 1997, pp. 318-327. © MCB University Press, 0024-2535)

2.5. The information management concept

Information management has been defined as the organization-wide capability of creating, maintaining, retrieving and making immediately available the right information, in the right place, at the right time, in hands of the right people, at the lowest cost, in the best media, for use in decision making (Lange Mo, 1980). In the same vein, Best (1988) defines information management as the economic, efficient and effective co-ordination of the production, control, storage and retrieval and dissemination of information from external and internal sources, in order to improve the performance of the organization. This definition is narrow in perspective in that it does not take care of managing the characteristics of information itself (content, ownership, representation and equality), irrespective of the storage medium, equipment that processes it and the system that employs it. In summary, therefore, the key issue involved in information management is managing information in an organization using modern information technologies.

The rapid evolution of computer technology is expanding man’s desire to obtain computer assistance in solving more and more complex problems: problems which were considered solely in the domain of man’s intuitive and judgmental processes, particularly in organizations, a few years ago. Information systems are becoming of ever greater interest in progressive and dynamic organizations.

The need to obtain access conveniently, quickly and economically makes it imperative to devise procedures for the creation, management and utilization of databases in organizations.

Management information and information systems, in particular those related to effective decision-making processes in an organization, i.e. MIS, are regarded as valuable organizational resources. Simply put, an information system is a system for accepting data/information as a raw material and through one or more transmutation processes, generating information as a product.

It comprises the following functional elements which relate to the organization and its environments: extent that the information system engages in decision making that concerns itself. Although critics may be right to object to the inclusion of the last item, it has to be noted that relationships between the processes of the information system and decision making are close enough to raise the question of including decision making as part of the information function elements specifically designed for an organization. Whatever way one looks at an information system, it is generally expected to provide not only a confrontation between the user and information, but also, the interaction required for relevant and timely decision making. Its main purpose is to satisfy users' information needs. Approaching information systems in an organizational content shows that it is a sub-system within an organizational system which is a "living and open" system.

Academics interested in information works and information practitioners alike have defined information systems in various ways but with basic ideas of people, information technology and procedures which enable the facilitation of the generation, use and transfer of information. Although information systems are considered to belong to an applied discipline, there is need for an understanding of their underlying basic concepts by information practitioners. The definition of information systems by Duff and Assad (1980) is considered to be adequate: a collection of people, procedures, a base of data and (sometimes) hardware and software that collects, processes, stores and communicates data for transaction processing at operational level and information to support Management decision making.

Library Review, Vol. 46 No. 5, 1997, pp. 318-327. © MCB University Press, 0024-2535

2 .6.The Over View of EMIS System in Ethiopia

Although there has been statically report before the history of EMIS in Ethiopian may be dated to 1957, the year where a research and statistical department was established in history of Education. (MOE, 1998).

At the end 1957 the statically work was organized in to department known as central planned and statistical division under the department of programmed plan and research .(Kassaw ,2001).

Recently the new system EMIS utilization includes the restricting of the system and its management. In Ethiopia, Educational Management Information System and Information Communications Technology (EMIS-ICT) Directorate is organized in three teams. Those are EMIS Team, ICT Experts Team and ICT Support Team. Main duties of EMIS and ICT Directorate is to collect and organize, education data, prepare Annual Education Statistics, deliver education related data for decision makers and users, and give technical support on ICT related issues (MoE, 2017).

As has been put by the Ethiopian Ministry of Education (MoE, 2015), during ESDP V, Ethiopia's

EMIS system has continued to grow in strength throughout its operation for the past two sector plans. EMIS offices now exist in all woredas and the annual survey of schools is completed effectively, albeit with some delays, with information aggregated at each level from institution to federal level. As the EMIS system has grown and improved, new functions have been added (MOE, Ibid). According to the Ethiopian MOE, School Management Information System (SMIS) will be operated at the school level (and when fully established can replace the annual school survey by linking to EMIS). SMIS will support school leaders to collect, record, and analyses school performance data. SMIS will focus on school-level performance data, related to activities to be implemented by school leaders (MOE, Ibid). School leaders have started to make use of information systems in the gradually increasing daily management staffs.

2.7. The Process of EMIS

There is a need for Government and the private sector to coordinate data collection activities to minimize duplication and overlap and to maximize the impact of the data collection results. A comprehensive EMIS will assist in this process.

Managing education through informed decision-making requires the availability of accurate and timely information which links together resource inputs to education teaching and learning conditions and processes and appropriate indicators of the knowledge acquired by students. In s o m e countries, the widespread use of information based decision-making has resulted in more effective and efficient planning and the identification of new information needs.

In others however failure to supply information that is timely and reliable has contributed to management inefficiencies and are laitance on the part of decision-makers to use information.

Some Ministers of Education knows that data collection does not function properly and thus they do not trust it. This is also true of other senior decision-makers in education and other ministries.

Yes paradoxically, school principals and other education managers sometimes suffer from too much information this is not useable or timely. For example, valuable findings from an annual school census m a y not be fully exploited because of the large quantity of data collected. Also, the data may

be collected tabulated and disseminated in a form difficult to interpret and use especially for people with limited understanding of statistics.

There is a need for well-organized data presentation and data interpretation standards to provide managers with useful and relevant information. Ideally the design and establishment of an EMIS should be preceded by appropriate policy development legislation and relevant administrative decisions. Government commitment is of major importance in the first instance by the Ministry of Education. This ideal prerequisite situation is particularly necessary where the EMIS is to be established by unifying and expanding existing information structures and services. In s o m e countries, these services already undertake independent ongoing information activities for which they have sole responsibility.

Hence a set of well-coordinated and clearly defined legislative and Administrative measures would be the first requirement in order to bring these services together under the s a m e EMIS.

This is even necessary today as, in most countries; the formal education system includes a growing privately-funded sector, which often operates at both national and sub-national levels.

It often handles information, s o m e of which is also relevant to the responsibilities of the central government, for example, for curriculum development or teacher training certification. A well-planned and designed E M IS will facilitate the undertaking of sequential activities relative to the development of a functional EMIS (Plan for-action2013-2015)

2.7.1 Definition of the national development goal statement of mission and objectives of the education system; and setting short and long-range targets.

These are usually reflected in the national development plan of the country. From these goals, the national objectives of education are formulated to synchronize with the national vision for development in a given time frame. The mandates of the Constitution on education and other relevant educational legislation have to be carefully reviewed with reference to the development of the management information system. (Plan for-action2013-2015)

2.7.2. Policy decision for purposes of implementation and monitoring

The resources needed to establish the EMIS are identified at this stage of the development. It is critical to determine the appropriate manpower to operate the system, the cost of services and activities, the overall structure, the timetable of activities and the overall strategies of implementation. (Plan for-action2013-2015)

2.7.3: Identification of data needs and requirements

The necessary data needed to support the various measures in determining the attainment of the objectives of the system shall be carefully identified through consultations with the different sectors, and key officials' school administrators and other potential data users. This will ensure that the data requirements and needs of the policy and decision-makers and other key users are taken care of while at the same time minimizing overloads of unnecessary data. The specific purpose and use of these data shall be made clear at this stage of the process.

2.7.4 Establishment of databases

. A database is an integrated collection of data and information, organized and stored in a manner that facilitates retrieval. Both manual and computer based databases determine the nature of the files or the filing system. Proper labeling of these databases and the corresponding data elements is necessary for easy viewing and access to the hard/printed copies. The label is patterned after the cluster of similar data or related to the major component of the programmed student's teacher's curriculum, finances, physical facilities and equipment, and others.(Plan for-action2013-2015)

2.7.5 Design of monitoring/data gathering forms

These forms are designed to capture the required and needed data identified during the third stage of development. The designer of the questionnaire has the option to choose the appropriate modes and channels of collecting data from various sources. Forms are pilot-tested to ensure that the instructions, data definitions and

data elements requested are understood by the data providers before these forms are administered on a wider or national scale.(Plan for-action2013-2015)

2.7.6. Data and information collection

A Manual of Operation has to be prepared to spell out the essential information about data collection in terms of the objectives the schedule of activities, guidelines for conducting the survey/data gathering, the duties and responsibilities of the monitors/surveyors and supervisors, the specific instructions on how to administer the questionnaire including definition of terms, and the collection or submission of completed questionnaire forms. (Plan for-action2013-2015)

2.7.7 Data processing

A system of data verification and control procedures should be applied before processing takes place. These forms are verified as to the accuracy and consistency of the data entries. All data elements are coded according to the system designed by the programmer .A training session may take place at this stage to train data encoders/data entry operators to interpret instructions, define data elements and apply software in uniform ways. The specifications of the reports to be generated from the processed data are also defined at this stage. Some of the most important aspects of this activity are highlighted below (Plan for-action, 2013-2015)

2.7.8 .Monitoring instruments

The key question is how many questionnaires have been filled in and returned? Our aim is 100% return. In practice this does not always happen. Some come early, some as scheduled, some come back late, some may not come back at all. We need to know how many have come in (completed), and how many are lagging behind.

The distribution of non-returned instruments by both provinces and districts needs to be identified. From these findings we can draw up a schedule to contact those schools concerned. The main aim here is to establish the reasons for the failure to report back as knowing the problem is half way to solving it. It will enable us to identify those schools that can be given second chance as well as those that are not expected to report back. The latter include those schools that have closed, combined, or merged. There are also those schools that fail to report but are operational. Such schools fall into the category of those who give rise to missing data. Admittedly, some schools find responding difficult due to the distances involved or the lack of reliable communication.

By routinely applying such a monitoring technique, we are paving the way for the statisticians and analysts waiting to estimate missing data. .(Tegene Nureso Wako,2003

2.7.9The case of missing data

No matter how hard we try, there will always be some schools that do not return their questionnaire, or do not fully complete it. Identifying such schools is a very time-consuming process.

Those schools known to be operational that have failed to report have to be included in the estimation of missing data, otherwise our results will not reflect the reality on the ground. Missing data is part of the overall picture. Several methods can be used to estimate missing data.

Browse through the school database and identify any schools that have failed to complete/return their questionnaire in the last five years. The data extracted will enable you to project the results for the current year.

Often there is not enough manpower to make projections for schools, especially when there are many involved. Sometimes the historical data does not exist. In such cases, the previous year's data can be

used to predict the current year. However, we have to make sure the school exists, i.e. is not closed, combined, or changed location, etc.

One good practice is to have in place a computer program specifically meant for monitoring and reporting the status of schools. It can be built in to the major data capturing program or be kept separate, with the option of being linked to the main program at a later date. The purpose" generates information on how many schools have reported and how many did not, thus facilitate the follow-up of those schools that failed to report. (Tegene Nureso Wako,2003)

2.7.10.Data entry program design

More often than not, data entry work is done using front-end, user-friendly data entry templates. These should be prepared, most preferably, by computer programmers working for EMIS unit of the MoE. Countries should work hard towards developing their own programs for data capturing and retrieval purposes. In-house developed programs have several advantages:

They are easier to enhance, change and develop in order to further accommodate new requirements, they are easier to maintain and debug, in-house developed programs are less costly,

In-house programs are more sustainable, EMIS professionals can be trained to upgrade and maintain the system, there is more opportunity to further enhance in-house programs.

Externally-driven data capturing and retrieval systems are more expensive and leave countries dependent on external expertise, which is usually much more expensive and thus often unaffordable.

As a result, external systems are far less sustainable; when external assistance goes, the expertise goes with it, leaving countries more or less bereft. Therefore, countries should work within their own capacity in order to be self-sufficient.

In the absence of the internal capacity to train people in the area of in-house program development, the template design can be contracted out to private firms who undertake computer programming and maintenance. However, parallel to the development of the program, EMIS staff must be trained to maintain and efficiently use it. This ensures both the system's sustainability and program maintenance. Without necessary training, the sustainability of an externally-developed program is impeded. With an in-house set-up, EMIS management and EMIS programmers can choose the type of software used, i.e. the operation program for data entry and cleaning. It is important for programmers to work closely with survey administrators in order to make the work of data entry easy and manageable.

Moreover, the programmers need to produce two important reference manuals. One is the users' manual, which is used by the data entry clerk and tells the encoder how to enter data into the computer. These instructions include what keys or key combinations should be used to move from one screen to the other and perform other operations. The second manual is intended for

programmers. It documents, among other things, the program used and the logic applied in developing the computer codes. It is particularly useful for young programmers, who can use it to learn the logic on which the program is based and write and maintain similar programs; modify and correct errors; and adopt the program to specific objectives. .(Tegene Nureso Wako,2003)

2.7.11. Data entry

Data entry can be carried out by trained encoders or data-entry clerks. Following a short period of orientation training using the manual prepared for this purpose, secretaries who are computer literate can also do the work in the absence of trained encoders. The main task is to enter the data into the computer using the pre-prepared data entry template.

This work is usually supervised by an operations manager, who will usually liaise with the programmer3 responsible for maintenance of the program. The objective of data entry is to computerize written information from questionnaires and make it more manageable. .(Tegene Nureso Wako,2003)

2.7.12. Data cleaning

Data cleaning refers to routinely checking for entry errors to ensure that what is entered in the computer matches what appears on the questionnaire. This is the most laborious job, and is often undermined because of the difficulties involved in administering it. There are several ways of getting around such problems. These include:

1 Including input masks, validation rules, default values, etc. when preparing the data entry template. Unfortunately, this method alone cannot guarantee error-free output and must be supplemented by:

2. An organized and well-scheduled proof-reading method in which two or three different groups do the proof-reading. As this checking mechanism is very tiresome, it should be arranged in shifts so that encoders can take turns.

3 Corrects errors, makes necessary adjustments, and assists the encoders as needed, preliminary analysis, a method that is often overlooked. This involves carrying out a simple analysis such as calculation of pupils per teacher, per school, percentage of girls, percentage of female teachers, teachers per class, etc. When this is done at school level it gives an overview of those outliers that may make us suspicious of our findings, which we can then go back and check.

Maintaining a good and complete schools list by district and region is a good aid for data cleaning as it identifies which schools have reported or not. It is also useful to select a list from a flat database of schools without a teacher, schools with no classrooms, schools with no repeaters, etc. to find out which schools have reported correctly. Database queries are good aids in this regard.

Looking back at trend data and comparing the results of the current year with those of the previous year/s and scrutinizing the outcome. .(Tegene Nureso Wako,2003

2.7.13. Data compilation

Here, data compilation means obtaining a flat table from a relational database and aggregating it by level and geographic units: provinces, districts, and school summaries.

Although you may not agree that this deserves to be a step in data processing, I feel it should be included. It makes the data set ready for the analyst, who may not have an all-embracing knowledge of database manipulation.(Tegene Nureso Wako,2003)

2.7.14. Data dissemination and report generation

The packaging of these data into statistical bulletins, compendia, reports, profiles and others will help facilitate the dissemination and use of the data by the users. At the national level, the Ministers, legislators, the members of Cabinets/Parliaments and heads of international bodies need this information for policy making, legislation, programmer development and other national concerns. The middle-level manages, including bureaucrats; need it for organization and control, project implementation, budget preparation, programming, monitoring and evaluation. At the operational level, coordinators, local organizations/units and desk offices need information for their day-to-day operations, supervision, reporting, action planning, and advocacy and mobilization activities. The general public, such as the business sector the community, the professionals, the students, the media and academic or educational institutions are considered interest groups for data consumption and information users who participate in sustaining the development process. (Plan for-action2013-2015)

In practice, dissemination takes a number of forms: regular distribution of school abstracts, quick references, and indicators' reports to users, distribution of pamphlets and posters to users, reports and briefing provided to planners and decision-makers at different levels of administration, provinces, districts, and schools

Dissemination can be both internal and external. Internally, information will have to be disseminated to planners, decision-makers, decision support systems, experts, and educational administrators at all levels within the MoE as well as provinces, districts, and schools. This is important because: It can bring about progress towards creating an informed decision-making environment, Internal users will be aware of the importance and role of information in educational development. Moreover, awareness among users leads to better policy planning, implementation, and review.

It is always advisable to prepare a short report of the outcome for top decision-makers, who may not have the time to read a long report. Therefore, the production of the following summary outputs is envisaged from an EMIS unit of the MOE:

Annual statistical abstract: This is a summary of statistical tables and some indicators and is intended for the general public, i.e. users within and outside the MOE who need the statistics for reference purposes only. This category also includes casual researchers, monitoring and evaluation experts, national and international organizations who use statistics to include in their background report, students and teachers in educational institutions, and research and trust organizations. By producing a statistical abstract, we take many steps forward in our aim of providing information services to general users.

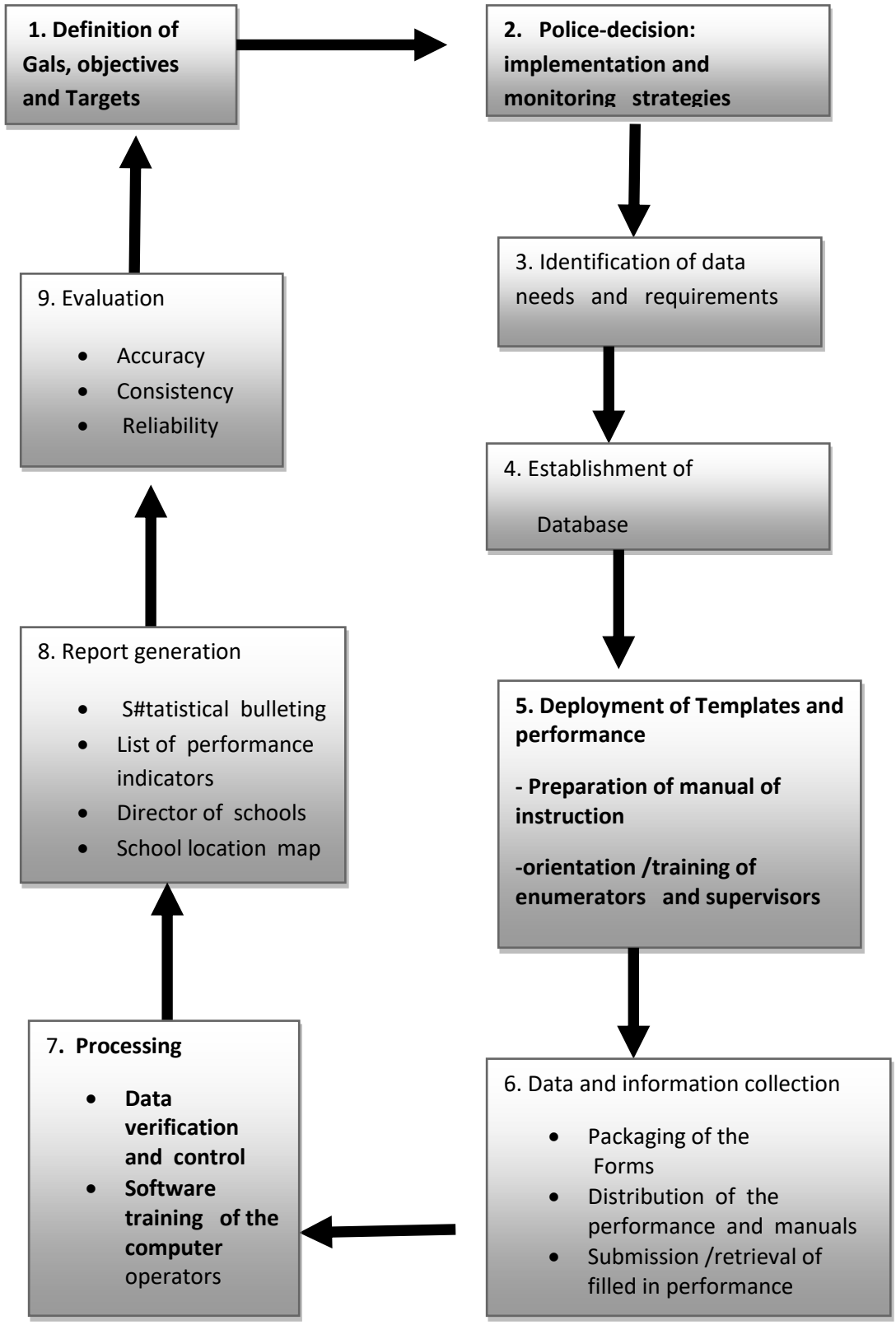
Quick reference: This is a short summary of the annual statistical abstract. As the name indicates, it is meant for quick reference and is targeted at upper decision-makers and those users who do not require detailed statistics. Some countries have already started to appreciate the use of quick reference reports.

Indicators report: This contains the analysis of the school system's performance, which NESIS is encouraging countries to regularly produce. It is prepared by a team of experts in the MoE, including planning and EMIS experts. The objective is to identify the progress made, the problems encountered, and the future direction of the system's implementation. Yearly-based particular findings must be included in this report. It is an important document in that it guides planners, and decision and policy-makers in taking correct actions when planning and making decisions. As such, it should reflect the needs of planners, and decision- and policy-makers. It can be updated on yearly basis by highlighting significant changes made over time. (Tegene Nureso Wako, 2003)

2.7.15. Evaluation of the output

The ultimate end of an EMIS is to produce relevant and timely information of good quality. Towards this end, an evaluation mechanism should be designed to identify the strengths and shortcomings encountered in the development and operation of the EMIS. The results of the evaluation process are the basis for the strengthening of the system. (Plan for-action ,2003-2015)

The Diagram of EMIS Process



Plan for Action (2013-2017)

Effective EMIS provide valuable data that inform processes of management and administration, planning, policy formulation, and monitoring and evaluation. These processes are interconnected and take place at various locations in education systems, from central to local, and within education institutions themselves. EMIS provides support not only to the delivery of educational services, but also to the fulfillment of managerial functions (World Bank, 2016) in the wider context of results-based management. The monitoring of routine administrative functions, tracking and approval financial transactions, timekeeping, or maintaining personnel records can be greatly improved by efficient EMIS. Information from EMIS can inform decisions about the deployment of human and financial resources in the education system.

Furthermore, information extracted from EMIS can inform human resource management and development. For instance, school head teachers can gauge the competencies of their teaching staff and subsequently enlist staff in train in programmers to bridge competency gaps.

Conversely, teachers can track their training history through EMIS, allowing them to extract information that they can use to justify their need for professional development. EMIS are also valuable in tracking the distribution and use of educational resources and the upkeep of school buildings and infrastructure. Recent developments in EMIS enable institutions, district education officers, municipalities, and ministries to identify student and teacher absenteeism, which can help in defining remedial actions and even enable teachers to contact families and communities to understand why individual students are persistently absent. This might, for example, be due to onerous family responsibilities or economic hardship. Data on teacher absenteeism could help to design relevant policy responses: for example, in some countries, teachers have to travel some distance to collect their salaries from a bank during working hours.

Understanding this as a cause of teacher absenteeism meant that other forms of payment, such as mobile banking, could be implemented. EMIS are relied upon to develop realistic and cost-effective plans for the development of the education sector and monitor their implementation. The first concern of education planners should be to ensure that the State is meeting its obligations as the duty-bearer for fulfilling the right to education, even where there are a wide diversity of education providers operating in a country.

This inevitably means that EMIS includes good-quality and up-to-date demographic data, including statistical projections that take estimated population inflows and outflows in to account. Education planners need access to detailed data nationwide; to be able to respond to changing learning demands, often within severely constrained education budgets. EMIS can also provide crucial information about school enrolments, participation and completion, disaggregated by age, gender, with or without disability, and other social categories as required by the plan and its performance indicators. These data are essential for planners to understand precisely which children, youth, and adults are at risk of being "left behind" or marginalized by the education system. Geographic location data can also be used so that planners can find out how educational opportunities and attainment vary across country, and between urban and rural areas. This is especially important in the context of SDG Target 4.5 and its respective indicators, which demand parity indices and data disaggregation related to excluded, disadvantaged, or vulnerable groups. Where EMIS contain local demographic statistics and information about participation in public and private schools, it becomes possible for planners to take effective measures towards equity and inclusion by addressing social disparities and meeting the needs of disadvantaged and vulnerable groups.

Education planners also have a number of other data requirements that should accounted for in designing and developing EMIS. Indeed, EMIS usually provide the core information that serves as a basis for a country's Education Sector Plan. EMIS provides education planners with essential information on demographic trends, as well as education inputs, processes, and outcomes.

Timely, good-quality information can make a significant difference in decision-making at all levels of the education system. For institutions, it can inform decisions on what programmers to offer, which kinds of staff to hire, and what other kinds of resources are the delivery of learning.

The analysis of data on social and educational disparities is necessary to justify the allocations of resources to disadvantaged communities, institutions or students to ensure equity and inclusion, and equality of opportunity at every level of an education system. As a result, ministries will be able to make smarter investments and allocate resources to where they are actually most needed, yielding better returns on investment whilst also potentially reducing costs. In fact, experience suggests that the cost implications of improving data quality through the installation of EMIS is, in the long run, likely to be less than the unnecessary costs caused by misguided expenditures due to lack of data (Porte & Arcia,2011; Abdul-Hamid, 2014).

Countries that are eligible for financial support from the Global Partnership for Education, among others, are expected to conduct an education sector analysis to informal well-coasted education sector plan (ESP). This process is dependent on high-quality data of sufficient scope and geographical coverage, which can support projections and simulations for planning purposes. In doing so, planners should take account of all relevant policy frameworks and regional and international commitments. School mapping data, for example, are relevant for assessing the of distribution the school network and any other changes required in response to demographic trends, migration, and social needs. EMIS can make a difference by enabling an evidence-rich environment for policy dialogue and decision-making. Countries collect massive amounts of data every year, but if this data are not transformed into meaningful, relevant and understandable information coupled with analytical insights, it is unhelpful for decision-making (UNESCO, 2013).

Edmunds and Morris (2000) talk about the paradox of organizations suffering from a “paucity of useful information” despite the “surfeit of information “that is available to them. Data are abundant; the issue lies in determining what kind of data are needed and how that data should be analyzed and presented in ways that can actually inform decision-making.

The identification of priority issues for in-depth analysis is possible with reference to existing education policies, plans, and performance indicators, as well as through close attention to current policy debates. Constant dialogue between EMIS staff and education stakeholders at various level is essential. Even inside the Ministry of Education, the likely end users of EMIS information and analyses have different needs and diverse capacities. Policy-makers may need to take big-picture perspective and may be less interested in the detail of specialized EMIS reports than education planners or researchers. This has implications for the way that evidence is presented to policy-makers. When policymakers find EMIS responsive, informative, and dependable, their demand for EMIS is likely to increase. Policy-makers themselves need to learn what kinds of questions EMIS are able to answer. When policy-makers and decision-makers are convinced of the value of EMIS, it will be easier to build culture of evidence-based policy-making.

Decentralization and trends towards more inclusive and participatory policy processes can also be supported by EMIS. The value of stakeholder consultations depends, to a large extent, on having engaged, informed, and empowered stakeholders. Even though opinions may differ, EMIS has a role to ensure that stakeholders can readily access relevant and quality information about education at various levels.

Education systems have been giving increasing attention to granular data, realizing their value in efforts to improve individual student learning outcomes. For instance, the UNESCO Institute for Statistics and the United Nations Children's Fund (UIS and UNICEF, 2016) emphasize the importance of EMIS in preventing school dropouts. Given the increasing attention to granular data, certain national governments in South and Central Asia (Bangladesh, Kyrgyzstan, Nepal, Sri Lanka and Tajikistan), in partnership with Save the Children and UNICEF, have implemented Community-based EMIS (C-EMIS) (UISUNICEF,2016)

Effective EMIS should be able to respond in a timely but flexible way to various demands for data on education and development, whether coming from national authorities, other national stakeholders, or development partners. . Importantly,

EMIS should facilitate education and lifelong learning system development able to keep pace with and support innovation and reforms in the field of education. Effective EMIS are therefore learning systems in their own right, able to not only respond to present demands for data but also to evolve according to emerging and future demands through constant dialogue with education planners and policy-makers. To be effective, EMIS should have a research function that, through critical inquiry, including research visits to education stakeholders at the school level, are able to support their evolution in light of changing demands.

2.8. Challenges to Effective EMIS use in Secondary School Management

There are some obstacles that have been identified in the literature that would hinder the effective use of EMIS in school management. Becta (2004) grouped these barriers with respect to whether they relate to the institution (school-level barriers) or the individual (teacher- barriers

Pelgrum (2001) noted that there were not enough training opportunities for teachers in the use of ICTs in a classroom environment. Sicilia (2005) reiterated the assertion that many teachers feel unprepared to use technology because of lack of skills hence providing teachers with more technical training would serve several purposes; increase their comfort level to fix problems when they occur, learn more about new technology skills and hence increase their ability to change their teaching practices. The lack of training may have a negative impact on management because rather than reduce the workload of users it may increase it as the users may spend a lot of time figuring out how to use a system rather than doing the actual work.

Mokena, Memo, and Role (2013) in their study found out that the management of school is characterized by challenges in the area of finance absenteeism and lateness, and maintenance of student records, communication with parents and students has been worsened by the steep rise in the number of students with no corresponding increase in teachers

In a survey conducted by Becta (2004) it was found that if there is a lack of technical support available in a school, then it is unlikely that preventive technical maintenance would be carried out regularly.

Sicilia (2005) had a similar observation by citing technical problems including waiting for websites to open, failing to connect to the internet, printers not printing and malfunctioning computers. Lack of technical support may make users to lapse to the manual way of carrying out administrative duties thus affect school management negatively because affect productivity would be affected.

Sicilia (2005) reports in her study that teachers complained about how difficult it was to always have access to computers and other ICT material. This is because the facilities have to be booked in advance meaning that a teacher would have no access to ICT facilities because most of these were shared with other teachers.

Becta (2004) study shows that inaccessibility to ICT resources is not always merely due to non-availability of the hardware and software or other ICT materials within the school but it may be the result of one of a number of factors such as poor organization of resources, poor quality hardware, inappropriate software or lack of personal access for teachers. Lack of accessibility may have a negative impact on management of schools since a lot of time is lost doing work that would have otherwise been done much earlier. This would end up reducing productivity in a school due to the resultant stress levels.

Sicilia (2005) reports in her study that teachers complained about how difficult it was to always have access to computers and other ICT material. This is because the facilities have to be booked in advance meaning that a teacher would have no access to ICT facilities because most of these were shared with other teachers.

Becta (2004) found that resistance to change is an important barrier to teachers' use of new technologies. The study argues that one key area of teachers' attitudes towards the use of technology is their understanding of how those technologies will benefit their teaching and students' learning. Watson (2006) avers that integrating information technology into educational setting requires change and different teachers will handle this change differently depending on their personalities.

Resistance to change may hamper teamwork in a school which may have a negative impact on the management practices in the school for example when some deadlines have to be met and other members of staff are still stuck in the old of doing things like analyzing students' progress manually instead of using special.

According to Waweru (2016), the establishment of a functional EMIS is affected by a number of problems. Both human and non-human resources are inadequate to meet the requirements; no clear-cut policy to be observed in the collection, submission, processing and utilization of data; lack of understanding and appreciation by the concerned education officials and staff in the use and application of EMIS; data are not clearly defined and not regularly collected (Ibid). Data can both be analyzed and stored manually (using physical files) or using a computer (Mugo, 2014). The mode of data storage used either enhances or deter the processing, storage, retrieval and dissemination processes (Waweru, 2016).

The proliferation of a large amount of data in schools makes data management less possible in the traditional manner and requires the use of modern data management systems to easily interact with data (Schildkamp, et al., 2013). As to Schildkamp, most education systems require schools to record information on paper, the failure of many systems to inter that information in computer, to analyze that information or to share results with school leadership has reinforced poor reporting practices at many levels. As to Mekonnen (2010 sited in Ashenafi 2013), a lot of money, time and other resources have been invested in efforts to improve data quality, to computerize many administrative and management functions, to build EMIS and encourage more data driven decision making over the past 15 years in Oromia region, Ethiopia. The results of these efforts have been mixed. While there have been some notable successes in computerizing administrative management functions in ministries throughout the region, despite years of efforts and considerable investment development of comprehensive, integrated computer-based EMIS have been slower than anticipated (Ashenafi, 2013). Different countries face challenges in developing a functional and effective EMIS, such as lack of internet connectivity, lack of human resources, limited technical capacity, financial resource constraints, disparity in allocation of funds, negative attitude towards EMIS, lack of coordination, lack of commitment by those in power, lack of clear policies, high turnover of qualified staff and lack of a standard system for data collection (Kornkaew, 2012).

According to the World Bank (2015), the main challenges to the effective use of data for secondary school were reported to be lack of time, particularly time to update and analyze the data, difficulties in applying data to classroom situations, limitations of data. The data collected/ recorded were too narrow/ academic or did not accommodate individual needs and ICT-related issues.

2.7. Some of the empirical studies

Inadequate funding: How to fund EMIS development and maintenance is no doubt the biggest challenge facing some countries including Nigeria. This is an issue beyond the scope of the current review. Inadequate funding has prevented most schools from having well equipped computer laboratories.

Inability to integrate data and data systems: Integration is the most significant supply- side challenge facing those responsible for EMIS development in Nigeria today. As observed by shoo bridge (2006), most of the integration challenge has to do with organizational constraints. There is much more reliable and useful data and information available today in most countries than in the past but even in the countries considered to be leading in terms of EMIS development, e.g., Chile, Mexico, Argentina, Brazil, data is rarely integrated in ways that make it readily available to support monitoring and evaluation, policy analysis and planning at multiple levels. This is largely difficult because past efforts to improve data quality were efforts designed to meet the particular needs of specific ministry offices and extra organizations.

Haiyan and Herstein (2003) maintenance of an integrated EMIS requires a high degree of coordination and collaboration at all levels in the educational system as well as with other ministries and with external agencies. This is not an easy task as organizations are as complex as educational systems tend to resist change. More timely integration of data across units will only be possible if standard definitions and coding schemes are developed and put in place across the system

Inadequate development of skills in data use at all levels: Considerable knowledge and skills are required to build, maintain and use an EMIS.

Lack of available human resource capacity significantly limits EMIS development. Building human resource capacity has long been known as a critical factor in the success of EMIS development. Limited capacity for more effective use of data in management and decision making, particularly at the school levels is often cited by local educators and external evaluators as a critical factor limiting the development of EMIS in Nigeria.

Several categories of knowledge and skills are often referenced as deficient: (i) knowledge and skills to lead and manage EMIS development; (ii) knowledge and skills to use technology; and (iii) knowledge and skills to use data effectively for decision making, policy analysis and planning (AEPM, 2007).

Inability to capture expenditure and budget data in EMIS: The lack of access to desegregate data on educational expenditures or even education budgets is often cited as a major constraint to more informed dialogue on education policy. The lack of budget transparency has been cited as a serious limitation to wider citizen participation in policy debates in Nigeria. Salako, C. T.University of Jos Demonstration Secondary School, Jos, Nigeria

Inability to develop student-record based EMIS: The debate in Nigeria is about whether, or not, to pursue the development of individual student-based EMIS. Proponents of such systems often point to the need for individual student records to monitor the progress of all students and to support student-based financing schemes, which are emerging in a number of countries. The implications for EMIS of a decision to build a student-based EMIS and maintain student records at state and federal levels are considerable. The development of a student-based system is conceptually straight-forward and not particularly difficult to accomplish technically. The challenge, when building and maintaining a national EMIS based on individual student records is how to manage the complexities involved with tracking and updating student records from year to year.

The administrative- management demands of such a system are considerable. Maintaining national level student- record based EMIS requires a level of administrative and management discipline that is often beyond the means of current administrative-bureaucratic-management systems. Most systems are not disciplined enough to sustain such systems for a long time (AEPM, 2007). Experience in other countries suggests that the decision to build an EMIS up from individual student records should be weighed carefully against existing management capacities, administrative-bureaucratic discipline and available resources (Stephen and Cummings, 2009).

Given the complicated environment in which data collection takes place and the politics surrounding federal-state relationships, the government faces an enormous challenge to develop an EMIS capable of capturing the inputs and outputs to the educational system, not to mention issues with measuring the efficiency of resource allocation.

These challenges are inadequate funding, inability to integrate data and data systems, inadequate development of skills in data use at all levels, inability to capture expenditure and budget data in EMIS and inability to develop student-record based EMIS. The government and donor communities cognize these challenges and need to embark on a series of major reforms, including the development of structures to improve coordination at the federal level and to focus resources on creating a sustainable EMIS at the state level. Achieving the goals of quality, equality and equity requires new knowledge and skills at all levels and in all job categories from teachers and principals to state and national-level educators.

Based on these findings, it is recommended that adequate funding should be provided for EMIS development, data should be integrated into the data system, and skills in data use should be developed at all levels, budget data and capturing of expenditure should be encouraged, and finally, student based EMISE should have been built

2.9. Conceptual frame work

The study conceptualizes that the use of EMIS in the management of a school is attached on how a school functions to meet its objectives. The study is based on the supposition that secondary schools in Kafa zone have ICT infrastructure and that the school organizations are familiar with the various EMIS use in school management. From the framework, the independent variables reflect the three mission areas where EMIS are used in school management namely the extent of use of EMIS by stake holders, the extent of data and information management and the extent of EMIS development in school .,. The intervening variables are the training established, access to technology and the ICT infrastructure which have an impact on the use of EMIS in school management. The consistent use of EMIS facilities would ultimately influence the school management in terms of summary workloads, easy packing of information and closer communication.

Variables	
Dependent	Independent
• The extent of use of EMIS by stake holders, • , The extent of data and information management • The extent of EMIS development in school	• Tiring established • Accesses to technology • ICT infrastructure

CHAPTER THREE

THE RESEARCH DESIGN AND METHODOLOGY

3.1 Research Design

This research study use descriptive survey design. Franken and Wallen (2014) describe the survey method as that which involves asking a large group of people questions about a particular issue, the main aim is to obtain precise decision of the characteristics of the subject under the study and how frequently it happens. According Creswell and Clark (2007) ,such design enables data to be collected from wide area quite cheaply and produces valid and reliable generalization. In this study, data was collected from varies respondents (woreda education officers principals, deputy principals, department heads and teachers) to help give clear picture of using EMIS on management of secondary schools of Kaffa zone. Data was collected quantitatively through survey questions and qualitatively through interview and document analysis at the same time. Data was analyzed and interpreted quantitatively by descriptive statistics and infertile statistics such as Cronbach's alpha and one independent t-test and qualitatively by content analysis.

3.2. The Research Method

This student researcher would utilize mixed method approach through collecting and analyzing both qualitative and quantitative data. The researcher initially used quantitative method through survey questionnaires, while he also used semi-structured interviews to substrate the qualitative data. There were some rationales to use mixed method approach for this study. First using such method was advantageous to examine the same phenomenon from multiple perspectives (Cohen et al, 2007). Second, mixed method approach was important to build upon the strength that exists between quantitative and qualitative method in order to understand a given phenomenon that is possible using either quantitative or qualitative methods alone (Creswell, 2003)

3.3 Data Sources

In order to strength the findings of the research relevant data for the study was from both primary and secondary sources.

3.3.1. Primary Sources of Data

In this study primary data sources were employed to obtain reliable information about the study. The sources of primary data were woreda education officers, school principals, deputy principals, department heads and teachers in government secondary schools in kafa zone. Because education officers, principals, vice-principals and department heads are management teams with delegate responsibilities and duties in managing school and school related activities (MOE, 1994).

3.3.2 Secondary sources of Data

Secondary data sources were annual survey reports of the school, staff record information, student record information, financial reports, student record information and staff and student attendance were used for this study.

3.4.Population, Sample Seize and Sampling Techniques

In Kaffa zone there are eleven woreds and one administration town with the total of forty-three general secondary schools, 43 principals, 43 deputy principals and 516 department heads. For this study the student researcher categorizes the zone in to clusters based on geographical location. The first cluster contains three woreda's namely Gewatworeda, Gesha woreda and Sayilem woreda. The second cluster contains five woredas which are Bonga Gimbo, chena Shishinda and Bita . The third cluster contains four woredas which are Decha, Adiyo, Tello and Cheta woreda. The student researcher includes all 15 secondary school in selected cluster of the zone by using purposive sampling techniques. In these selected schools there were 301 teachers, 15 principals, 15 vice-principals and 16 unit leaders and 4 woreda education officers. Out of these 15 principals, 15 vice-principals 16 unit leaders and 4woreda education officer would be included in the study by using purposive sampling techniques 106- teacher were selected by using simple random sampling techniques.

Table 3.1: List of Schools Population and Sample size of Respondents

List of woreda	No.of schools	Variables	Population			Sample			%	Sampling techniques
			M	F	T	M	F	T		
,Bita	3	Worda EMIS officers	1		4	4		4	100	Censuses
		School leaders	8	1	9	8	1	9	100	Censuses
		Teacher	54	7	61	22	4	26	42	multistage
Chena,	2	Worda EMIS officers	1		1	1		1	100	Censuses
		School leaders	6		6	6		6	100	Censuses
		Teacher	25	6	31	10	2	12	35	Multistage
Shshnda	3	Worda EMIS officers	1		1	1		1	100	Censuses
		School leaders	9		9	9		9	1O0	Censuses
		Teacher	52	5	57	18	2	22	35	
Bonga	2	Worda EMIS officers	1		1	1		1	100	Censuses
		School leaders	4	2	6	4		6	100	Censuses
		Teacher	57	12	69	20	4	26	35	Multistage
Gimbo	5	Worda EMIS officers			1	1		1	100	Censuses
		School leaders	14	3	16	14	3	16	100	Censuses
		Teacher	76	7	8	26	2	2	35	Multistage
Total	15	Worda EMIS officers	5		5	5		5	100	Censuses
		School leaders	40	6	46	40	6	46	100	Censuses
		Teacher	264	37	301	96	1o	106	35	Random

3.5. Data Collection Instruments

This study would be mainly employed questionnaires, interviews and observation

3.5.1.Questionnaires

This study used 152 copies of questionnaires to collect data from15 principals, 15 vice principals and 106 teachers. Because survey questionnaires are most appropriate tool together large data from large number of respondents in short time and low cost. The questionnaires were prepared for gathering data from teachers, vice-principal, and principal. The questionnaires contain two parts: the closed ended items and semi-structured items. The close ended items are organized in to five points liker scale (very high , high medium, low and very low) and semi structures items are provided for the respondents to express their ideas. The questionnaires have two categories.

The respondent's personal characteristics and items are relevant under investigation. The students researcher compute the quantitative data using mean item scores from 1.0_5.0, with higher scores indicating higher response score and lower score indicating low response of respondents. The scoring scale for the porpoise of this study was counted according to the relativity of the total 4 divided for 3as the highest score was 5 for very high and the lowest score for very low.

3.5. 2.Interview

Interviewee gives the needed information face to face basis at his/her own office. The interview was conducted by the researcher. The student researcher uses semi structured interview guide to gather qualitative data from Woreda education EMIS officers. .Thus, with this five semi- structure interview guides were used to collect deep information on issues related to practice and challenges of education management information system. The interview question are prepared idn English because the respondents are more familiar with the EMIS key in English than other local languages. The interview is deal with worked education officers. The interview is deal with woreda education officers.

Observation checklist:

According to Fraenkel and Wallen (2014), an observation is intended to indicate whether a particular behavior is present or absent and that observation checklist is used to record data on an event or activity directly rather than relying on people's willingness to provide information. Kothar(2004) states that under the observation method, the information is sought by way of the investigator's own direct observation without asking from the respondent.

In this study, an observation checklist was constructed and used to check the presence of the computer laboratory and set up, the number of computer available, internet connectivity, and other communication equipment in use in the schools. Observation provided the opportunity to experience real-life situations of aspects for which data is being collected. The researcher carried out observations during visits and recorded the number of ICT facilities that were available. For each item observed, appropriate remarks were made against the item in the observation checklist. The observation checklist enabled the researcher to cross check with the information provided by the respondents in the questionnaires for purposes of triangulation.

3.5 .3 Document Analysis

To examine adequate and reliable information the student researcher analyzes quantitatively and qualitatively the annual survey reports of the school, staff record information, student achievement record information, financial reports, student record information and staff and students attendance were used for this study.

3.6. Validity and Reliability of the Study

According to Kothari (2004) and Maree (2007), validity refers to the degree to which an instrument measures what it is supposed to measure. To be sure of the validity, the advisors from Dilla University and experienced teachers of Chena secondary school were consulted to give their comment. Based on their comments, the instruments were improved before they were administered to the major participants of the study to reduce errors. The participants of the pilot test were also primary clued-up about the objectives and how to fill, assess and give feedback on the significance of the contents, item length, simplicity of items, and details of the questionnaire.

Moreover, to confirm the validity of the instrument, the questionnaire with sufficient number of items addressing all objectives of the study were administered to secondary school teachers in one woreda of Kaffa Zone and then, were collected with high return rate of 100%. Triangulation of data

gathering tools was executed by using interview and document analysis in each sample schools. Information sources were also multi-faceted by using variety of respondents such as, principals vice-principals, teacher woreda education officers .

As a result of the pilot test, three irrelevant items were removed; two lengthy items were shortened, and many unclear items were made clear.

Reliably has to do which the consistency or repeatability of measure or an instrument and high reliability is obtained when the measure or instrument gives the same result if the research is repeated on the same sample (Maree,2007 Pilot study was conducted prior to the final administration of the questionnaires to all respondents. The pilot test was conducted to protect the truthfulness of the instruments with the objective of assessment whether or not the items enclosed in the instruments enable the researcher to gather relevant and valid information. Besides, the purpose of pilot testing was to make necessary changes so as to correct confusing questions. Chena and Shishinda Secondary Schools were taken through purposive sampling technique to fill the questionnaires. The school principals and department head teachers were purposively taken to be participants. Then, the prepared questionnaires were spread for the sample subjects for the pilot study. Therefore, the 25 teachers and principals of Chena and Shishinda secondary schools filled the questionnaires. The end result of the pilot testing was consulted with advisors before the delivery of data gathering tools. The result of the pilot testing was statistically computed by the SPSS version-20 program. The Cronbach's Alpha Model was used for analysis the data. Based on the pilot test, the reliability coefficient of the instrument was found to be (0.759 to 0.859) and, hence, was taken to be reliable. That is the instrument was found to be reliable as statistical literature recommend a test result of 0.65 (65% reliability) and above as reliable (George &Mallery, 2003).

Table: 3. 2 Reliability test results with Cronbach's alph

No	Detail description of the title of the questions	Reliability coefficient
1	The extent of using EMIS in school management by stakeholders	
1.1	The extent of data management process	0.846
	The extent of effective use of data	0.859
1.3	The extent of EMIS development in the school	0.759
Average Reliability Coefficient		0.821

3.7. Procedures for Data Collection

The researcher used a series of data gathering procedures. The researcher after obtaining a clearance letter from the department of Educational Administration and Planning of the University of Dilla, applied for authorization to undertake the research. He then proceeded to the department of kafa zone education to inform them of the intent research to be conducted in their area of jurisdiction. The sampled schools were subsequently visited and the researcher explained to the respondents the purpose of the study. It is during the visits that dates were booked for administration of the instruments. The researcher administered and personally collected the questionnaires once they were filled. Data from observations were taken during administration of the instruments while the interviews with selected were conducted by the principals on agreed days. Observations took place on the day of the administration of the questionnaires. The facilities were inspected with the permission of the school authorities each time a school was visited.

3.8. Method Data Analysis

In this study quantitative data that were collected through the survey questionnaire including liker scale items were processed and analyzed by employing different statistical tools such as percentage and t-test. Quantitative data collected were coded and entered using the SPSS software version 20 program. The Cronbach's Alpha Model (0.05) was used for analysis the data. The significance level was between 0.01-0.05. The student researcher also used descriptive statistics such as percentage mean, and standardization to analyze quantitative data. Inferential statistics such as t-test and Cronbach's Alpha to analyze quantitative data to determine the extent of use of EMIS by stake holders in education management in secondary schools On the other hand, the qualitative data which are gather from respondents through interviews were summarized by qualitatively describing it using content analyzes approach. Using this method enable the student researcher to organize the data, break them in to manageable units, and then search and come up with them.

3.9. Ethical consideration

Taking the severity of the ethical considerations in mind, this study would be done with highest importance placed on ethics, confidentiality, and anonymity. In this study confidentiality and anonymity of the respondents are emphasized to protect their privacy and the dignity Cochin et al (2007, pp.369-370). Thus, on the cover page of the survey questionnaire (see appendix- A), the student researcher clearly presented how to protect confidentiality and anonymity of the participants, informing them at involvement in the study was voluntary, the involvement is free of any intended risk, and their names of their schools would be kept anonymous.

CHAPTER FOUR

DATA ANALYSIS, INTERPRETATION AND DISCUSSION

4.1. Introduction

This chapter comprises data analysis, interpretation and discussion of research findings.

4.2. Data analysis

The study investigated the practice and challenges of Education management information system in government secondary schools of kafa Zone. The analysis was based on the following research objectives which sought to: establish the extent to which ICT facilities are accessible to managers of secondary schools; find out the extent of stakeholders in using EMIS in school management; and to investigate the challenges face the school managers in using EMIS in school management.

Table 4.1: Questionnaire return rate

Respondents	Expected Actual		return rate	
	f	%	F	%
School leaders	46	100	46	100
Teacher	106	100	106	100

As shown in Table 4.1, the return rate was 100 percent. The response rate was therefore statistically representative as recommended by Bryman (2004) who avers that a response rate of more than 70 per cent is good for meaningful generalization.

4.3. Demographic Characteristics of the Respondent

Gender, Age and Professional Qualifications of the Respondents

This section describes gender, age and professional qualifications. To show this demographic data of the respondent's descriptive statistics were calculated in relation to each demographic item and the findings are presented as follow.

Table 4.2:Gender, Age and Professional Qualifications of the Respondents

Category of respondents demographic Characteristics		School leaders		Teachers	
		F	%	F	%
Gender	Male	46		69	81
	Female			37	19
age distribution	Below 30 years			10	9
	30-39 years old	38	83	72	68
	40-49years old	6	13	20	19
	50-59 years old	2	4	4	4
education qualification	Phd				
	MA	12	26	8	8
	BA/BED	29	63	87	82
	DEP.ED	5	11	11	10
Work experience	1-5 year			12	11.3
	6-10 year			21	19.8
	11-15 year	11	23.9	33	31.1
	16-2o year	19	41.3	28	26.41
	20 nad above	16	34.7	12	11.3

4.3.1 Respondents' Gender

This study sought to find out the respondents' gender. The disaggregation of respondents according to gender is important because this is one of the factors that may affect the use of EMIS in school management. According to Becta (2004) there is evidence that suggests that gender may have an influence on the degree to which teachers use ICT with female teachers reporting greater levels of computer anxiety than their male counterparts.

4.3.2. Gender of Principals, Department head teachers and Vice Principals

Gender of school leaders and teachers may affect the use of EMIS in school management. According to Becta (2004) there is evidence that suggests that gender may have an influence on the degree to which teachers use ICT with female teachers reporting greater levels of computer anxiety than their male counterparts. As shown in Table 4.2, there were no female school leaders 0% of the sample in the study. Male leaders constituted 100 percent of the sample. Table 4.2 also shows that the unequal distribution 0f gender in school management implies that no considerations were given for empowering females in the study area

Age of Principals

As shown in Table 4.2, a majority of leaders were in the 30-39 year age bracket comprising 83 percent of the leaders. The Table also shows that 13 percent of the leaders were aged between 40-49 years while there were no leaders below 30 years or above 60 years. The finding that more than half of the principals were below 40 years is an indication that those who have accumulated experience in teaching are the ones likely to be appointed to administrative positions as principals. The age of an individual may influence the adoption of ICT in management. According to study findings done on principals in Iran, it was found that younger school administrators tended to use technology more compared to older ones (Afshari, Bakar, Luan, Samah & Fooi, 2010). Similarly a study in Australia on use of ICT among teachers found that resistance to technological change tends to be among older than younger teachers meaning that age may have an influence on an individual's bid to embrace change (Romina, Burnnet, Glenn & Glenice, 2006).

Age of teacher

According to Table 4.2, the highest number of teachers were aged between 30-39 years (68 percent) followed by those who were aged below 30 years at 30 percent, while 19 percent were aged between 40-49 years. Those who were aged below 30 years were 9 percent. Those who were aged between50-59 years were (4percent). From the distribution, there were a sizable number of relatively young teachers aged between 30-49 years. This implies that education sector accommodates a number of teachers each year

Respondents' Professional Qualifications

The study sought to establish information on the professional qualifications of the respondents. It is widely assumed that the more one advances professionally, the higher the chances of using technology in managing tasks. According to Afshari, Bakar, Luan, Samah and Fooi (2010), higher professional qualifications is likely to make one exhibit transformational leadership behaviors, significantly contributing to higher levels of computer use.

Professional qualifications of principals

As shown in Table 4.2, 12(26%) of the leaders were M.A. holders. This was the highest professional qualification held by the leaders. The table also shows that a sizable number 29(63.%) held BA/BED qualifications. This shows that many school leaders lead the school without full filling the minimum requirement qualification which is MA degree in the study area. In addition to this it also implies the competition for leader ship positions does not consider educational qualification. A smaller proportion, 5(11%) had a diploma in education. This means that the principals have professional degrees in education hence some degree of skill and knowledge in educational management.

Professional qualifications of teachers

As shown in Table 4.2, 8(8%) of the teachers were M.A. holders. This was the highest professional qualification held by the teacher. The table also shows that a sizable number 87(82. %) held BA/BED qualifications.

This shows that many school teacher full filling the minimum requirement qualification which is BED degree in the study area. 11(10 %) had a diploma in education. This means that there is still of satisfied need of trained human resource.

4.4. The Accessibility of ICT facility for school managers

Data was gathered from 15 principals 15 vice principals, and 16 unit leaders and 106 teachers on the accessibility of ICT facility for school leaders for managerial duties were presented below the table.

Table 4.3:5AccessibilityICT facility for school managers

Accessibility of ICT facility	School leaders				teachers			
	Yes		No		Yes		No	
	F	%	F	%	F	%	F	%
Computer	22	48	24	52	8	8	98	92
Telephone	4	9	42	91			106	100
Internet			46	100			106	100
Photo copier	14	30	32	70			106	100
Printer	6	13	40	87			106	100
Digital video camera			46	100			106	100
Fax machine			46	100			106	100

As shown in the table 4:3 school leaders and teachers asked closed ended questions to rate their response. As indicated in the table 4.3: 52% of leaders were not accessible computer facility for their managerial duties. Only 48% of the leaders were accessible computer for their managerial duties. 9% of leaders use telephone and 91% of the leaders in the selected sample schools were not used telephone. 100 % of the sample schools in study area was not accessible for Internet service. Only 1 4 (30%) of leaders rate as they use photocopier for their managerial duties but 32(70%) of the largest sized leaders answered that as they were not used photocopier for their management tasks. The only 6(13%) of school leaders used printer for their management activities

the larger group of leaders that is 40(87%) leaders not accessible for printer in their school. No one of teachers were accessible for printer in sample schools of study area digital video camera and fax machine were not used for duties in the sample schools of study area. None accessibilities of ICT and ICT infrastructure was strengthening by interview.

.woreda education officer one who said that "the allocation of budget, provision of important software for data analysis and storage , the absence of ICT facility and infra stature and the absence of power are the challenges on EMIS.

Table 4.4: Data analysis in the Observation

Items	Observation frequencies			
	Yes		No	
	Frequencies	%	Frequencies	%
. There is annual data completion manual in the school	8	100	0	0
. There is a guideline on using EMIS on school management		0	8	100
There is data producing, data gathering, and data using plan in the school		0	8	100
There is manual how to use ICT in education management.		0	8	100
varies types of education indicators are identified and data are gathered	6	75	2	25

Direct observation was carried at 8 sample schools by student researcher by purposively by assuming schools those which can have ICT accessibility and can represent the whole. The observation checklist includes two parts. The first part contains five questions which enable to gather information of the accessibility of manuals, guidelines, plans on data gathering and producing data. The second part of the checklist contains the guides that enable student researcher to gather data from school documents. The finding shows that 100% of observed schools have annual data completion manual. However, the schools have not used the manual to complete the data or information about student, staff and instructional process. 100% of schools in the study area have not guideline in using EMIS on school management. 100% of observed schools do not have plan on data producing, gathering and using .100 % of observed schools do not have manuals that enable to use ICT on school managements. 75% of observed schools identified education efficiency indicators. In the observed school's student attendance management was seen weak because of absenteeism was high. There was also a number of missed class uncovered lessons were observed. There were no reports on the current student achievement progress and discipline of student in 8 observed schools. This indicates that the extent of ICT facility was low. This implies that school management involves traditional way of EMIS system.

4.5. The extent of data management process

Table 4.5: Response on The extent of data management process

No	Items	Group	N	X	S. D	t-value	p-value
1	The school prepared EMIS strategic plan	Leaders	46	2.07	.854	-1.963	.052
		Teachers	106	2.38	.920		
2	National and regional development goals are defined in order to produce meaning full data for decision makers	Leaders	46	2.20	.910	-1.445	.150
		Teachers	106	2.44	.996		
3	The school identifies stakeholders need in using data	Leaders	46	2.13	1.067	-1.212	.227
		Teachers	106	2.33	.870		
4	The school plan togather data analyze and sore data	Leaders	46	2.46	1.130	.237	.813
		Teachers	106	2.42	.924		
5	Data is stored using data base system in school for further use	Leaders	46	2.48	1.090	.385	.700
		Teachers	106	2.42	.849		
6	The short coming and strength of data management process is evaluated	Leaders	46	2.48	1.070	.656	.513
		Teachers	106	2.37	.898		
7	There are pre-prepared checklists and formats in the school to gather the dta	Leaders	46	2.28	.834	-.847	.399
		Teachers	106	2.42	.995		
8	The plan and produce annual statistical abstract, quick reference and indicator reports according to stakeholders need	Leaders	46	2.54	1.089	.321	.749
		Teachers	106	2.48	1.106		
9	The leaders use EMIS data in decision making	Leaders	46	2.43	1.025	.461	.645
		Teachers	106	2.36	.896		
10	The school has set standards for data to keep quality and reliability	Leaders	46	2.46	1.069	-.201	.841
		Teachers	106	2.49	.908		
11	There is a focal person in school to manage data	Leaders	46	2.33	.990	-.266	.790
		Teachers	106	2.37	.843		

Key: N= number, X= mean, SD= standard deviation,

46 leaders and 106 teachers provided question that states positively as there was strategic EMIS plan in school in table 4.5 items 1

The mean (X) and standard deviation attained from this task for school leaders was 2.07 and 0.87. These indicate that the trend of developing strategic EMIS plan was low.

The mean(x) and standard deviation from teacher's respondent for the same item was 2.38 and 0.92. As that of school leader's response, teacher's response indicated that preparing strategic plan at school level is founded at low. This implies that stake holders traditionally use EMIS without plan. The relatively un-able plan EMIS strategic plan. As shown in table 4.5 there was not significant difference in mean between leaders and teachers .The t-test was not significant because p-value was greater than 0.05. The none significant t-test indicate that the school leaders and teachers were not used EMIS in planed manner can be attributed to lack of knowledge on EMIS use

The men scored from the item 2 in table 4.5 that states as the school concern national and regional development goal in order to produce meaning full data for decision maker from School leaders was 2.2 and 0.91. The mean was low and this implies that stakeholders were not consider national and regional development goals while implementing EMIS in School management in order to produce meaning full data for decision makers. Similarly, the mean and standard deviation attained on the same item from teachers was 2.44 and 0.99. The scored mean on this task was low similarly as that of school leaders. This indicates teachers respond stake holders did not consider national and regional goals while implementing EMIS in school management. The P-Value and t-value for two group respondent items 2 was 0.15 and -1.445. The t-test was not significant because p-value was greater than 0.05. The none significant t-test indicate that the school leaders and teachers were respond equally as stake holders did not consider while using EMIS in school management. This can be due the none existence of accountability. ..

According to plan for action it is mandates of the Constitution on education on and other relevant educational legislation have to be carefully reviewed with reference to the development of the management information system.

The mean attained from the school leaders on item 3 table 4.5 that asked to what extent did the school identified stack holder's need of data using for decision making was 2..13 and standard deviation was 2.33.This indicate that education data collected by the schools were not based on the data need of all stake holders . The mean scored from teachers on the same item, in table 4.5 that asked to what extent did the school identified stack holder's need of data using for decision making was 2.33 and standard deviation was 0.87 .This also indicate as that of school leaders response education data collected by the schools were not based on the data need of all stake holders. The p-value and t-value were 0.7 and 0.38. The t-test was not significant because p-value was greater than 0.05. Th e none significant t-test indicate that weak communication and consultation between schools and stake holders. . According to the descriptive and infertile analysis of respondent's response the practices of schools in the identification of the need of stakeholder in data using was at low extent. However according to plan for action the necessary data needed to support the various measures in determining the attainment of the objectives of the system shall be carefully identified through consultations with the different respectively sectors, and key officials' school administrators and other potential data users.

The mean (X) and standard deviation (SD obtained from the extent of planning of schools to gathers and analyse data on school leaders in table 4.5 items 4 was 2.46 and 1.130. This indicates that the extent of planning of schools to gathers and analyse data was moderate. The mean (X) and standard deviation (SD) obtained for the extent of planning of schools to gathers and analyse data from the group teacher for the same item was 2.24 and 0.92.the mean was low. This indicates that data gathering and analysing task was at low extent.

The p-value and t-value were 0.81and 0.23 for two group respondent. The t-test was not significant. The non-significance of t-test indicates the mean of two group respondent lay under low scale category. .From this data student researcher generalized that the practices of school planning to gather data and analyse data was at low .This implies that the practices of schools to use EMIS to manage school by using education data to make informed decision was at low extent. Un able to use data can limited EMIS development in school. Limited capacity for more effective use of data in management and decision making, particularly at the school levels is often cited by local educators and external evaluators as a critical factor limiting the development of EMIS in Nigeria (AEPM, 2007).

The mean and standard deviation scored on the task of data storing by using data base system for further use was In table 4.5 items 5 of school leaders school leaders were 2.48 and 1.09 this informs as data storing using data base system was at medium extent. Schools store data traditionally in manual system. And The mean(X) and standard deviation (SD) from teacher respondents on the same item was were 2.42and 0.84 .As that of school leaders the mean indicates the practices on moderate this showed that data was stored manually in traditional way for further use was . The p-value and t-vale of two group respondent were 0.7 and 0.385.The t-test was not significant since the p-value was greater than 0.05.The none significance of t-test indicates that no mean significant mean variation between two groups. This implies that schools were used traditional and manual database in storing EMIS data in school management.

Database is an integrated collection of data and information, organized and stored in a manner that facilitates retrieval. Both manual and computer based databases determine the nature of the files or the filing system. Proper labeling of these databases and the corresponding data elements is necessary for easy viewing and access to the hard/printed copies. The label is patterned after the cluster of similar data or related to the major component of the programmed student' teacher's curriculum, finances, physical facilities and equipment, and others

The mean (X) and standard deviation (SD) scored on evaluating the short coming and strengthening of data management process by school leaders was 2.48 and 1.07 in table 4.5 items 6. This implies that the practice of evaluating data management process was at low extent The mean (X) and standard deviations (SD) from teacher respondents were 2.37 and 0.87 respectively. The p-value and t-value was 0.5138 and 0.65.

The t-test was not significant. Because p-value was greater than 0.05 The none significance of t-test implies that the practice of evaluating data management process was similarly responded as it was at low extent. This implies that the goal of producing EMIS data was not dedicated or known by the school. The ultimate end of an EMIS is to produce relevant and timely information of good quality. Towards this end, an evaluation mechanism should be designed to identify the strengths and shortcomings encountered in the development and operation of the EMIS. The results of the evaluation process are the basis for the strengthening of the system. (Plan for action)

In table 4.5 items 7 School leaders and teachers were also asked question if pre-prepared check lists is there in the school to enable teacher to gather data. The mean(X) and standard deviation(SD) of leaders were 2.28and 0.830 and the mean (X) and standard deviation(SD) for teacher respondent were 2.42 and 0.99 respectively. The mean(X) of both group respondent is less than the average mean(X). This implies that the practices of preparing check lists in the school that enable teachers to gatherer data was at low state. Because of the p-vale and t-values were greater than alpha, there is no statistical difference between two group means.

Other question asked In table 4.5 items 8 by respondents was whether the school plan to produce the annual statistical abstract quick reference and indicate report. They gave their response as indicated in the table4.5.

The mean(X) and standard deviation(SD) of school leaders response were 2.54 and 1.08 and the mean (X) and standard deviation(SD) of teachers were 2.48 and 1.106 was indicated-.P-Value and t-value were 0.749 and 0.321.and greater than 0.05.This implies that there is no significant statistical difference between two group means and The two means failed under lower licker scale category. From this the student researcher generalized that the practices of schools leaders to plan to produce the annual statistical abstract, quick reference and indicate report was at low extent t.

In table 4.5 items 9 School leaders and teachers were asked the question that states as the school use EMIS data for decision making purpose The mean(X) and standard deviation (SD) of the school leaders were 2 .43 and 1.025. The mean(X) and standard deviation of (SD) from sample teacher respondents response for the same item were 2.36 and 0.896 respectively. The p-value and t-value was 0.64 and 0.46 for two group .These value shows that none existence of significant difference between group means. The means were also below the average. From this data the researcher generalized that the leaders have had limitation in using EMIS data in decision making.

In table 4.5 items 10 Leaders and teachers asked if the school sets standards for collected EMIS data to be qualified and reliable. The mean(X) and standard deviation (SD) on the response of sample of school leader on the question was 2.46 and 1.06. The p-value and t-value were 0.84 and -0.201 and the t-test was not significant. Because of p-value is greater than alpha **(0.05).** The none significant of t-test indicated the none existence of statistical mean difference between the groups.) This implies that the respondents respond as schools failed in setting standards to collect quality and reliable data. This is to say that schools collected none qualified EMIS data. According to Hua and Jhon Herestien more timely integration of data across units will only be possible if standard definitions and coding schemes are developed and put in place across the system

. The mean(X) and standard deviation (SD) of school leaders for the item 11 table 4.5 was 2.33and 0.99.This indicate he absence of legally appointed focal person in the school in order to manage EMIS data. The mean (X) and standard deviation (SD) for teacher respondents on the same on the same were 2.34and .84. . The p-value and t-value were 0.79 and -0.266. The t-test was not significant. Because of p-value is greater than alpha **(0.05).** This also indicated that nonexistence of significant difference between two means. This implies that the schools do not have EMIS focal person that responsible for EMIS related work with in the schools of study area. Generally, the total average mean for the basic question two was 2.36. It is under low scale category. This indicates that the extent of EMIS data management process in the schools of study area was at low extent.

Table 4.6: The extent of effective use of data

No	Items	Group	N	X	S. D	t-value	p-value
1	The school identifies education indicators to collect data	Leaders	46	2.48	1.130	-.179	.858
		Teachers	106	2.51	.918		
2	The school leaders highly used EMIS data for decision making	Leaders	46	2.43	1.068	-.053	.958
		Teachers	106	2.44	.840		
3	The school leaders have enough knowledge in using different computer programs	Leaders	46	2.59	.956	1.126	.262
		Teachers	106	2.41	.892		
4	The school leaders and stakeholders have skill in using EMIS	Leaders	46	2.17	1.060	-1.722	.087
		Teachers	106	2.46	.896		
5	There is responsible person to disseminate tools to gather data and recollect data in school	Leaders	46	2.37	1.103	-.045	.964
		Teachers	106	2.38	.910		
6	There is strong established EMIS system in school	Leaders	46	2.48	.960	.392	.696
		Teachers	106	2.42	.893		
7	There is strong attention to plan, produce and disseminate data	Leaders	46	2.48	1.090	.551	.582
		Teachers	106	2.39	.868		
8	Support and follow up is given by concerned bodies in using EMIS	Leaders	46	2.37	.853	-1.507	.134
		Teachers	106	2.62	.990		
9	There is quick and timely information exchange with in departments and	Leaders	46	2.50	.983	-.057	.955
		Teachers	106	2.51	.918		

Key: N= number, X= mean, SD= standard deviation.

4.6. Response on Effective use of EMIS

The mean) and standard deviation (SD) scored on identification of education indicators to collect data by School leaders in the item1 table 4.6 were 2 .5 and 1.1 and The mean) and standard deviation (SD) scored on the same item by teacher respondent from sample schools was 2.4 and 0.9 respectively.. The p-value and t-value from sample t-test for this item was-1.79.and 0, 58. The t-test is significant. Because p-value was less than 0.05

The significant of t-test indicate that the existence of mean difference. The mean of school leaders was failed under medium scale category and the p-value was -1.79 which was less than 0.05 (alpha constant) .Form this one can conclude that teachers and leaders respond differently .According to teachers response identification of education indicators were at low extent .But according to school leaders response the mean failed at medium scale category. This shows that the education educators understood differently by teachers and school leaders. This also implies that the of creating awareness about the necessary aspects of education quality data.

The necessary data needed to support the various measures in determining the attainment of the objectives of the system shall be carefully identified through consultations with the different sectors, and key officials' school administrators and other potential data users. This will ensure that the data requirements and needs of the policy and decision-makers and other key users are taken care of while at the same time minimizing overloads of unnecessary data.

The mean(X) and standard deviation on the response of sample respondents of school leaders for the question that sates as the school leaders highly used EMIS data for decision making was 2.43 and 1.06. The mean(X=2.44) and standard deviation (SD=0.84) for teachers. The P-Value for this item is 0.9. The t-test was not significant, because p-value was greater than 0.05. the none significance of t-test indicate the similarity of means between two groups. This shows that school leaders used EMIS data for decision making was at low extent. This also implies that decisions made by schools leaders were poor due to lack of skill. Poor decision may have affected education quality and the EMIS system.

"Lack of knowledge and skills to use data and information is not so much limiting the EMIS development as it is limiting development of the education system" (Cassidy 2006, 19).

The mean and standard deviation obtained on the question that sates as the school leaders have enough knowledge in using different computer programs indicated in the table 4.7 above by school leaders was 2.59and0.95. The mean and standard deviation on the same item by teachers was. 2.41 and 0.89) The p-value and t-value from sample t-test was 2.62.and 1.12. .The t-test was not significant, because p-value was greater than 0.05. the none significance of t-test indicate the similarity of means between two groups. This data implies that the school leaders

has certain experience in using computer than teacher have had skill gap regarding in using different computer program.

. This Indeed ,Jhuree (2005), point out the school managers are also involved in variety of work that require technology such as computation of school performance for certain year keeping record of employs and preparation of school budget.Maki (2006) argues that the 21st century school manager to be effective in the discharge of his duties, he must possess technical, human, and conceptual skills including the use of new technology to deal with emerging managing, challenges, such managers would therefore be able to use the skill to gained to easily integrated technology in the management practice.

School leaders and teachers were asked if the school leaders and stakeholders have skill in using EMIS. They gave their response as indicated in the table 4.6. The mean(X) and standard deviation (SD) of school leaders were 2.17 and 1.06.

The mean (X) and standard deviation (SD) for teacher respondent was 2.46 and 0.89 teacher respondent and the p-value and t-value was 0.87 and-1.78.the t-test was not significant, Because. the p-value was greater than 0.05. The none significance of t-test indicated none existence mean difference between of two groups.

This implies that the existence of problem regarding with skill in stack holders in using EMIS in school management. Several categories of knowledge and skills are often referenced as deficient: (i) knowledge and skills to lead and manage EMIS development; (ii) knowledge and skills to use technology; and (iii) knowledge and skills to use data effectively for decision making, policy analysis and planning (AEPM, 2007)

The mean(X) and standard deviation (SD) obtained by school leaders about existence of responsible person to disseminate tools to gather data and recollect data in school was 2.37 amd1.01. The mean (X) and standard deviation (SD) for the same item was 2.38and 0.91for teacher respondent. The p-value and t-value was 0.964 and -0.0453 for school leaders and teachers. The t-test was not significant since the p-value was greater than 0.05. The none development significance of t-test indicates that none existence mean variation between two groups. This indicate that un availability of responsible person or lack of human resource to

strengthen EMI development in school. This also implies that it is impossible producing quick and right data at right time

The mean(X) and standard deviation (SD) obtained by school leaders about the establishment of EMIS system in school was 2.48 and 0.96. The mean (X) and standard deviation (SD) for the same item was 2.42 and 0.89 for teacher respondent. The p-value and t-value was 0.39and 0.69.for school leaders and teachers. The t-test was not significant since the p-value was greater than 0.05. The none significance of t-test indicates that none existence mean variation between two groups. This indicate that the weakness of commitment of local and regional government, the school and stake holders in establishing strong EMIS system. This implies that the lack of redness and awareness to use simply available ICT tools such as Internet watt sap and websites and unable to provide EMIS budget

The mean(X) and standard deviation (SD) obtained by school leaders on attention with in stakeholders to plan, produce and disseminate data. was 2.48 and 1.09. The mean (X) and standard deviation (SD) for the same item was 2.39 and 0,868 for teacher respondent. The p-value and t-value was 0.582and 0.551.for school leaders and teachers. The t-test was not significant since the p-value was greater than 0.05. The none significance of t-test indicates that none existence mean variation between two groups. This indicate that accountability was not given for school leaders and stake holders to produce and disseminate EMIS data for decision makers. . This implies that policy makers, planners, donors and other agencies didn't consider EMIS data that are produced at grace root level.

The mean(X) and standard deviation (SD) obtained by school leaders on the exchange of quick and timely information with in departments and school was 2.62and 0.853. The mean (X) and standard deviation (SD) for the same item was 2.37 and 0.998 for teacher respondent. The p-value and t-value were 0.134and -1.057 for. School leaders and teachers. The t-test was not significant since the p-value was greater than 0.05. The none significance of t-test indicates that none existence mean variation between two groups. This indicate that support and follow up was not given for school leaders and stake holders. This implies that the weakness of communication to develop EMIS system throughout schools

The mean(X) and standard deviation (SD) obtained by school leaders on the Support and follow up given by concerned bodies in using EMIS for stakeholders and school leaders was

were 2.59 and 0..983and The mean (X) and standard deviation (SD) for the same item was 2.51 and 0.918 for teacher respondent. The p-value and t-value were 0.134and -1.057 for school leaders and teachers. The t-test was not significant since the p-value was greater than 0.05.The none significance of t-test indicates that none existence mean variation between two groups. This implies that communication between schools and within school was at low extent

. This implies that the quality of education input used and the output produced at each stage in education system was not evaluated .

Generally, the total average mean for the basic question two was 2.43. It is under low scale category. This implies that the extent of using EMIS data in school management is at low extent. This also proved buy conducting interview.

Four woreda education office development EMIS agents were interviewed on the extent of using EMIS data on school management. The first question presented for interviewee was how do they explain the use of EMIS in educational management? The first interviewee explained as follow;

> The question was "EMIS'' is very important component and
>
> it also powerful management tool in education sectors.
>
> However stack holder use EMIS in traditional way and low extent. ''

Another respondent who said that

> "The extent of using EMIS in educational management system is low.
>
> Because the absent of ICT facility skill to use computer and useful
>
> Software to Educational data and store data

Table4.7: The extent of EMIS development in school

No	Items	Group	N	X	S. D	t-value	p-value
1	Guidelines and manuals are developed to enable for using EMIS	Leaders	46	2.41	.956	-.425	.672
		Teachers	106	2.48	.886		
2	Professional development are carried out to build capacity on using EMIS	Leaders	46	2.43	1.167	-.750	.454
		Teachers	106	2.57	.905		
3	EMIS rooms are preserved in the school for data management	Leaders	46	2.24	.822	-1.780	.077
		Teachers	106	2.52	.918		
4	The school develops EMIS policy	Leaders	46	2.43	1.148	-.637	.525
		Teachers	106	2.55	.927		
5	The school has equipped with ICT facility and infrastructure for data management	Leaders	46	2.30	1.171	-1.811	.072
		Teachers	106	2.62	.910		
6	Budget is allocated for EMIS development	Leaders	46	2.37	1.218	-.811	.419
		Teachers	106	2.52	.958		
7	Accountability is set by the school to effect EMIS	Leaders	46	2.26	1.124	-1.896	.060
		Teachers	106	2.58	.893		
8	The school create awareness in using EMIS within stakeholders	Leaders	46	2.48	1.188	-.016	.987
		Teachers	106	2.48	.948		
9	memos are used for information exchange between departments	Leaders	46	2.26	.976	-.461	.646
		Teachers	106	2.34	.965		

Key: N= number, X= mean, SD= standard deviation,

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The mean(X) and standard deviation (SD) obtained by school leaders on the task of developing guide lines and manuals that to enable the school leaders to use EMIS in school management was 2.41 and 0..983and The mean (X) and standard deviation (SD) for the same item was 2.488 and 0.888 for teacher respondent. The p-value and t-value were 0.42and –0.67 for school leaders and teachers. The t-test was not significant since the p-value was greater than 0.05.The none significance of t-test indicates that none existence mean variation between two groups. This indicates that school leaders use EMIS in traditional way without improvement, bellow standard, and at low extent. This also implies that efforts made to develop and strengthen EMIS in order produce the necessary education data and provide such data for decision makers.

The mean(X) and standard deviation (SD) obtained by school leaders on weather professional development is carried out to develop capacity on using EMIS in school management was 2.43 and 1.167 and The mean (X) and standard deviation (SD) for the same item was 2.57 and 0.905 for teacher respondent. The p-value and t-value were 0.45 and -0.75. for school leaders and teachers. The t-test was not significant since the p-value was greater than 0.05. The none significance of t-test indicates that none existence mean variation between two groups.

This indicates that professional development was not carried out to develop capacity on using EMIS in school management. This also implies that school managers operate their day to day activity in traditional and passive way. The mean(X) and standard deviation (SD) obtained by school leaders about EMIS rooms are preserved in the school for data management in the school was 2:24and 0.822 and The mean (X) and standard deviation (SD) for the same item was 2 :528 and 0.918 for teacher respondent. The p-value and t-value were 0.77 and 1.78 for school leaders and teachers. The t-test was not significant since the p-value was greater than 0.05. The none significance of t-test indicates that none existence mean variation between two groups.

This indicates that the school did not enable the school environment in order to strengthen EMIS. This also implies that EMIS development in school was at low extent.

. The mean(X) and standard deviation (SD) obtained by school leaders school about development of EMIS policy at school level to facilitate EMIS management was 2:43and 1.142 and The mean (X) and standard deviation (SD) for the same item was 2 :558 and 0.9278 for teacher respondent. The p-value and t-value were 0.52and 0.63 for school leaders and teachers. The t-test was not significant since the p-value was greater than 0.05. The none significance of t-test indicates that none existence mean variation between two groups.

This indicates that the school did not have EMIS policy that enables the school how to operate day to day activities using the principle of EMIS in school management. This implies that stake holders were not given responsibilities or accountability to apply EMIS in school management by using locally available ICT tools to communicate, to gather da ta ,to disseminate data and recollect comment..

The mean(X) and standard deviation (SD) scored by school leaders school about to what extent the schools has equipped with ICT facility and infrastructure for data management was 2.37 and 1.17and The mean (X) and standard deviation (SD) for the same item 2.33 and 0.918 for teacher respondent. The p-value and t-value were is 0.07 and 1.811for school leaders and teachers. The t-test was not significant since the p-value was greater than 0.05.The none significance of t-test indicates that none existence mean variation between two groups.

This indicates that equipping school with ICT facility and infrastructure for data management was at low extent. This implies inadequate ICT facility and infrastructure is due to inadequate funding, lack of supervision and less effort of schools to equip the school with ICT facility and infrastructure

The mean(X) and standard deviation (SD) scored by school leaders school about whether school allocated budget for EMIS development was 2.21 and 1.12 and the mean (X) and standard deviation (SD) for the same item 2.583 and 0.89.
for teacher respondent. The p-value and t-value were was 0.60 and-1.89 for school leaders and teachers. The t-test was not significant since the p-value was greater than 0.05. The none significance of t-test indicates that none existence mean variation between two groups.

This indicates that no budget allocated by school for EMIS development. Unable allocate budget for EMIS development implies that school leaders failed to plan and implement school improvement plan (SIP) under GEQIP program. Because GEQIP is the successes of SIP and EMIS development is one of the task of SIP

School leaders and teacher asked in table 4.7 item 7 whether aaccountability was set by the school to affect EMIS. The mean(x) and standard deviation (SD) for group School leaders 2.48 and 1.18 and the mean(x) and standard deviation (SD) for group teachers were 2.48 and 0,948.
The p-value and t-value were 0.987 and -0.016. The t-test was not significant since the p-value was greater than 0.05.The none significance of t-test indicates that none existence mean variation between two groups .The means were failed under low scale category. This implies that accountability did not set by the school in the schools of study area.

Given the complex of school management Haddada and Jurich(2001); contended that an EMIS could be used to do the following ; assist school administration in the efficient management of official function enhancing the supervision of progress improving of school resource management promotion of communication between school unit parent and school administration and in so doing cultivating responsibility on the part of school management enhancing transparence in administrative action as well a the interlinking of school networks.

School leaders and teacher asked in table 4.7 item 8 whether the school create awareness in using EMIS within stakeholders. The mean(x) and standard deviation (SD) for group 2.34 and 0.965 for group school leader and the mean(x) and standard deviation (SD0 teacher were 2.26 and the (P) value) 0.646 and t-value -0.461.The means of two groups fall under low scale category. This implies that creating awareness among stack holders in using EMIS in school management was at low extent.

Another data were gathered in table 4.7 item 9 from respondent on the use of memos for information exchange among departments and within the school. The mean (x) is 2.50 and standard deviation (SD) is 0.894 for school leaders and the mean (X) from teacher was 2.48 and standard deviation (SD) was 1.358. The average mean of group respondent is low and the standard deviation was small. More over there is no significant statistical mean difference between two group respondent because of p-value was greater than alpha. This implies that information exchange between stake holders using memo was at low extent.

Normally the total average mean for the basic question two was 2.43. It is further down low scale grouping. This suggests that the extent of EMIS development in school was at low extent. From this the student researcher can conclude that the stake holder's attitude and government commitment was low to develop EMIS in school. This also proved buy the data from interview. For woreda education officers approved that the existence of resistance from stockholders and local government in order to provide adequate budget. From this student researcher concluded that the non-actuality of awareness among stakeholders toward the benefit of EMIS

4.7. Response on Training on Using EMIS in School Management

This section deals about the data gathered from sample respondents through questioner The section highlight about to what extent do stack holders have had ICT training on school management and on using EMIS.

Table 4.8: The data of training on using EMIS in school management

Item	School leaders				Teacher			
	YES		NO		YES		NO	
	f	%	f	%	f	%	f	%
ICT training in school management	18	39	28	61	10	10	96	90
Availability of ICT facility	11	24	35	76				
Is there accessibility of Internet in the school	-		106	100	- -		106	100
Training on the use of EMIS on the school management	10	24	36	76			106	100

Key: f=frequency

As it indicates in the table 4:7 only (39%) of the school leaders had trading on the ICT in school management. But the large portion of school principal 28(61%) were response as they were not had any trading on the ICT in school management.

The same question was presented for teachers: 10(10%) of them were response as they were had training ICT on the school management and 96(90%) of teachers was answer ‘’NO ‘about the taking of ICT training on school management. This implies that the majority of school leaders have skill gap in school management.

The third question presented for school leaders and teacher was the trend of using internet by the school. No one of school leaders answered yes and 16(100%% them answer ‘no’ for the question. Likewise any teachers were answered yes and 40 (100%) of them answered’ no’. This implies that the school not properly implement GEQIP set by minster of education. (MOE) Using ICT is one of the programs in GEQIP.

The second question in this part was do the schools have ICT policy? 11(24%school leaders answered ‘Yes ’and 35(76 %%) of school leaders answered ‘No’. 21(20%) teachers answer Yes and 95 (80%) of them answered ‘No’

This implies that majority of the schools do not have ICT policy in their school that enable them how-to use and equip schools with ICT facility and infrastructure. Another question presented for respondent was training on the use of EMIS in the school management.

As indicate in the table: 4:9 10(24%) of school leader responses they were have had trained how to use EMIS in school management and 36(76) of school leader responded as they haven’t had any training on using EMIS in school management .7(6.6%) of teacher were answer’ Yes’ and 99(94.4) of them were answered ‘No’. This implies that majority of school leaders not have moderate skills and knowledge on using EMIS in the school management and majority of teachers require training on using EMIS in school management.

Challenges

6 principals and 106 teacher were asked on challenge face them in school management was presented in the table; 4; 8

Table 4.9: The data on challenges in use of EMIS in school management

Challenge raised by respondents	School leaders		Teachers		rank
	f	%	f	%	
The absent of ICT facility for managerial duty	28	61	80	75	2
Skill gap on using ICT in school management	30	56.2	98	92.	1
The absent of electric power	26	56.6	64	60	3
Lack of budget	20	43			
Useful software to analyse data and store data	46	100	106	100	

Key.f=frequency

As indicated in the table 4.10 skill gaps is major challenge in using ICT in the school management. The second large size challenged was the absent of powers with in the sample school of the study area The absent of ICT facility was another challenge raised by the respondents in using EMIS in school management and the first and large size challenge raised by the respondent was the absent of software to analyses and store useful education data

The third interview guide used to gather information from respondents was the challenge that affects the effective use of EMIS in school management. The challenge also strengthens by conducting interviewee.

Woreda education office development EMIS agents were interviewed to explain challenges that affect effective use of EMIS data .

The first question presented for interview was to examine the extent of using EMIS in? The first interviewee explained as follow;

> '' attitude of stock holders in using EMIS, skill in using computer, shortage of ICT, Facility, and low government and non-governmental support in strengths education are challenge ineffective use of EMIS ''

The second interviewee said that

> "The skill gap in using computer in school management, the absence of ICT facility and power supply were storage were challenges for effective use of EMIS in school management

The third interviewer said,

> "The allocation of budget provision of important software for data analysis and storage Were challenges for effective use of EMIS in school management
> The shortage of ICT facility and absent of training on using EMIS in educational Management were the challenge in effective use of EMIS.''

The fourth interviewer said that

> The absence of provision of budget for purpose of equipping school with ICT Facility and the absence of adequate training on capacity building in using EMIS In Education management"

in the above interviewee the attitude of stake holders to ward using EMIS. skill gap the provision of hard ware and software inaccessibility of ICT facility the provision of budget were raised as challenges ineffective use of EMIS data in school management.

Becta (2004) study shows that inaccessibility to ICT resources is not always merely due to non-availability of the hardware and software or other ICT materials within the school but it may be the result of one of a number of factors such as poor organization of resources, poor quality hardware, inappropriate software or lack of personal access for teachers. Lack of accessibility may have a negative impact on management of schools since a lot of time is lost doing work that would have otherwise been done much earlier. This would end up reducing productivity in a school due to the resultant stress levels.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter focuses on the major findings of the study, makes conclusions and recommendations**.**

5.2. Summary of the Study

This study investigates practice and challenges of EMIS in government secondary school of kaffa zone. The study was guided by the following objectives: Finding out the extent to which ICT facilities are accessible to school managers in government secondary schools of kaffa zone, find out the extent of use of EMIS in school management in and examining factors that affect the effective use of EMIS in school management in secondary schools of kaffa zone.

The study was conducted by mixed research method. The target population was 4 worda education officer, 46 school leaders and 301 teachers in selected sample general secondary school of kaffa zone. The sampling techniques were used simple random sampling techniques for teachers and purposive sampling technique for school leaders woreda education officer, and cluster sampling for selecting school. The validation was established by testing questionnaires using principals and departments head teachers in two secondary and preparatory schools.

The reliability coefficient was determine using Cormbach alpha formula and was founded to be 0.821.Descriptive and inferential statistics were used to analyse data with help of SPSS software 20 version

5.3.Summary of the Finding of the Study

Accessibility of ICT facility

The ICT facilities computer, printer, telephone, photo copier were accessibility for principals in varying degree at their office.

Internet, digital video camera fax machine were not accessible for principals and teachers. Majority of department head teachers could not accessed for computer, printer telephone and Photocopier in their office.

Findings from observation showed that there was an average of two computers on in selected sample school of study area. Some of the school were not used these computers for management purpose due to the absence of power and adequate skill in using computer.

The extent of use of EMIS in school management

considering national and regional development goals in order to produce meaning full data fore decision makers, planning EMIS strategic plan to achieve the goal of EMIS, planning operational plan to produce data, and analyse data were found at low extent .the trend of identifying data requirements of stakeholders and producing data according to the need of stockholders that enable them to make sounded decision were at low extent.

Providing prepared checklists for teachers and concerned bodies in order enable them to understand what kind of data to be gathered at school level was to be low

Set standards for data to be collected using data base system in order to use data for quick reference, viewer and for further use was at low extent. The skill and knowledge of school leaders and stockholders in using different computer programs and capacity of using EMIS data in decision making at school level was investigated weak

Giving attention to plan and produce data, establishing strong EMIS system in school and the provision of support and follow up was found low

Developing manuals and guide lines to enable the schools to use EMIE in proper way developing ICT policy ,equipping school with ICT facility and infrastructure, conducting professional development and creating awareness among school leaders and stack holders was funded weak.

“Empowering the community to manage to school, ICT facility gives on job training on using ICT in school management. ’Identifying problem regarding with using EMIS and planning to reduce the problem were found to be strategy to improve forth

Training and challenges

Training

School leaders have had training at different extent on some school management related topics. Principals trained how to use EMIS in school management better than they have had training *ICT* in using school management. The research reveal that more than 90% of department head teachers were not took training in the use of EMIS on school management and the use of ICT in school managemen

Challenges

The study also reveals that the challenge on using EMIS in using school management. The data from the questionnaire and interview revealed the challenge. The data gathered from teachers and school leaders showed that none of schools in the study area where accessible for internet access and majority of the schools not able to have ICT Policy.

The inadequate accessibility of schools for ICT facility , the skill gap among school managers , the absence of power supply in some schools and unable to provide useful software from concerned bodies , the attitude toward using EMIS in school management from stakeholders were challenges identified in this study.

5.4 CONCLUSION

The research sought to find out the practice and challenges of EMIS in selected secondary school of kafa zone. Having analysing and interpreting the data the finding were that generally the accessibility of ICT facility for school managers in government secondary schools of kafa zone were not accessible for school leaders and teachers. The extent of data management process, the effective use of EMIS and development EMIS in school, were found at low extent. The challenges that affect the effective use of EMIS in school management were the skill gap in school leaders and stack holders in using EMIS and ICT in school management, training , in adequate ICT facility and ICT infrastructure and power for using ICT were found challenges of EMIS. The commitment of government to provide resource and the need and attitude of stakeholders at different hierarchy to produce and use EMIS data were the source of the problem,. Unable to produce and use EMIS data in decision making and planning limits stack holders to gauge the current states of student performance the quality of

5.5. Recommendation

Based on the finding of study, the following recommendations were suggested for concerned bodies. Accessibility of ICT facility, skill gap power supply and organizational commitment were fond as problem in using EMIS in school management, Therefor Kaffa zone education department should seek for more funding to enable School to buy equipment in order to develop the school with ICT facility.

Kaffa zone education department advised to enable the schools to build partnership with Kaffa zone ICT department in order get technical and material support.

Kaffa zone education department advised to device strategy that enables the school teacher to have standardized not books in order to record data related to teaching learning, student performance data and behavior and simultaneously tablet computers for school leaders which are portable and can be used by ordinary train. As importantly, smaller computers (note books/"classmates"/even tablet computers) can now be used with much lower requirements for cooling, security, and electricity. Tablet computers, and, to some extent "netbooks," hold the promise of both lower cost and highly portable and adaptable instruments to place more information into more stakeholders' hands than ever before. Tablets lend themselves to classroom observation, easy presentation of graphics; can be used with minimal training, and lower the cost for moving educational information closer to the school and classroom level.

They also support the Regional and National level's need to be informed

At school level KETB, PTA, and woreda education office should institute ICT policy that enable the school managers and other staff to accesses and use ICT facility.

The study find out that the extent of use of EMIS by stakeholders was low. The challenge for this weakness was found the weakness of training. Therefore woreda education and the school should plan to give professional development at school level on using EMIS in school management and the use of ICT in school management for school managers. As pointed by Muluken (2003) training focus on ICT use in different aspects of management has stronger effect on over usage of ICT than training on basic ICT

PTA, KETB, woreda education and the school collaboratively with together advised to work on community mobilization in order to support schools with finance to equip schools with ICT facility and ICT infrastructure.

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