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The Utilization of Educational Management Information System in Data Processing in Secondary Schools of Guji Zone, Ethiopia

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Abstract: In recent times, it is common to hear people saying" the world is becoming a small village". This is definitely because of nothing but information. To get well organize information system at a national level; it is must that each authority at the grass root level is concerned with the compilation of reliable data at the local level. Likewise, schools need to have a good data compilation system to keep themselves up to date with the changing global situations and to feed genuine information for the data compiled at the national level. The purpose of this study is to examine the utilization of educational management information system for the betterment of data processing in secondary schools of Guji Zone, Ethiopia. To attain the objectives of the study, descriptive survey research design like frequency count, percentage, mean and inferential statistics like independent sample t-test were employed. The sources of data for the study were 55 teachers, 37 school management bodies and 7 Wereda education office (WEO) ICT service core process owners in the 7 randomly selected preparatory schools. Questionnaire was used to gather data from teachers and school management bodies while unstructured interview was employed to solicit qualitative data from WEO ICT service core process owners. The findings of the study revealed that school data collection practices are moderately exercised in the target secondary schools, though there is no uniformity of rating between school managers and teachers throughout all item. School managers viewed that there is moderate access to data management tools for EMIS in the secondary schools of Guji Zone, while teachers and wereda education office ICT service core process owners explained that there is a problem of access to data management tools for EMIS. Lack of database management, lack of data cleaning and lack of data analysis skills were rated by both school managers and teachers to be the major factors impeding the implementation of EMIS in the target secondary schools. To this end, it was recommended that provision of different skill trainings for teachers and even for the school managers by wereda education office in the target secondary schools is mandatory to promote the implementation of EMIS.

Key words: Data, EMIS, Management, Secondary schools, Wereda

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I. INTRODUCTION

Information based decisions are important to improve the efficiency in an education system (World Bank 2015). Further accurate, reliable and timely information is necessary to inform policy and programs in education. The scarcity of information may result in unnecessary wastage of resources and failing to meet the formulated objective as per the plan set. In order to process school level data properly and keep themselves up-to-date with the changing world, it is must that educational managers, teachers and the whole staff members have the required knowledge and skill in Educational Management Information system. In support to this idea, Ahmed (2007) puts that successful management of today's education systems requires effective policymaking and system monitoring through data and information.

To this end, this study is aimed at assessing the utilization of Educational Management Information System (EMIS) in data processing in secondary schools of Guji Zone of Oromia Regional State, Ethiopia. Accordingly, the current data processing system practiced using EMIS and major problems affecting the practices of EMIS in the target secondary schools are the major focus areas in the study.

II. RESEARCH QUESTIONS

1. What is the current data processing system practiced using EMIS in the selected secondary schools of Guji Zone?
2. What are the major factors affecting the implementation of EMIS in the target secondary schools?

III. OBJECTIVES OF THE STUDY

The study attempted to meet the following objectives:

1. To investigate the use of EMIS in processing school level data.
2. To assess the major problems encountered by the target secondary schools in their efforts to implement the Educational Management Information System.

IV. RESEARCH DESIGN AND METHODOLOGY

In this study, descriptive survey research design was employed because it enables to get detail empirical evidence about processing school level data using educational management information system and helps to identify the major problems related to the utilization of educational management information system in secondary schools of Guji zone in Southern Nations, Nationalities and Peoples' Region of Ethiopia. As to Cohen, Manion and Morrison

(2007), descriptive survey research design helps to gather data at particular points of time with the intention of describing the nature of existing condition, identifying standards against which existing condition can be compared or determining the relationship that exist between specific events. Descriptive survey also enables a researcher to obtain pertinent and precise information about the issue under study.

V. RESEARCH METHOD

In this study both quantitative and qualitative research methods were used to triangulate the data from both sources. Using both methods is important to build upon the strength that exists between quantitative and qualitative methods in order to understand a given phenomenon than is using either quantitative or qualitative methods alone (Creswell, 2003). Accordingly, the quantitative data were gathered from teachers and school management bodies using questionnaire while the qualitative data were obtained from woreda education office ICT service core process owners.

VI. POPULATION, SAMPLES AND SAMPLING TECHNIQUES

The populations of this study were 110 teachers, 37 school management bodies and 7 Woreda education office ICT service core process owners in the 7 randomly selected preparatory schools. Accordingly, 55 teachers were selected using simple random sampling technique while the school management bodies and ICT service core process owners were chosen based on availability sampling technique because their number is small and easily manageable. The details are presented in table 1 below.

Table 1: Population, Samples and Sampling Techniques

No		P	S	Sampling Technique	Instrument employed
1	Schools	14	7	Random sampling	
2	Teachers	110	55	Random sampling	Questionnaire
3	School management bodies	37	37	Availability sampling	Questionnaire
4	Woreda education office ICT service core process owners	7	7	Availability sampling	Interview

Note: P= Population, S= Sample

VII. INSTRUMENTS

Questionnaire was used to solicit data from teachers and school management bodies, while structured interview was conducted with wereda education office ICT service core process owners. The instruments were prepared, commented by experts, pilot-tested, and distributed to the subjects of the study. The questionnaires included Likert-scale items measuring the data processing system of the target secondary schools using EMIS. Before field-testing them with samples of respondents, the instruments were reviewed by a panel of researchers to strengthen their validity. These individuals have rich experience and knowledge of the topic being studied. According to Thorndike (1997), content validity requires a set of reviewers who have knowledge of the subject matter. The preliminary instrument was then pilot tested by 20 teachers in Irba Muda preparatory school, which was excluded from the main study. The reliability test was made 67 items using Cronbach's Alpha. The coefficient of reliability test was found to be 0.79, which indicates consistency of the instruments used. Respondents were asked to rate each item based on the five-point Likert scales ranging from Strongly Disagree (1) to Strongly Agree(5). As far as rate of return for the main study is concerned, out of 55 questionnaires dispatched to teachers, 53 (96.36%) were correctly filled and returned, while all the questionnaire dispatched to school management bodies were collected and used for analysis.

The same questionnaires were prepared for teachers and school management bodies, except that different approaches were employed.

VIII. METHODS OF DATA ANALYSIS

The analysis of data was made using descriptive statistics such as percentage, mean and standard deviation as well as the inferential statistics like independent sample t-test. Specially, the t-test helped the researchers to see opinion difference between teachers and school mangers on issues pertaining to the use of educational management information system (EMIS) in school level data processing.

IX. LITERATURE REVIEW

9.1. Management Information System (MIS)

Management information system (MIS) consists of three basic components: Management, Information and the System. Management is an attempt to coordinate the effort of human and material input in order to achieve set objectives (Ahmed, 2007). It refers to all the work we do in organizing and systematizing the procedure we follow, the equipment we use, the people involved in building and using an EMIS as well as the relationship between the EMIS as a center, information and its users (Tegegn, 2003).

Information is an additional "knowledge" users employ to enhance planning, programming, monitoring, evaluation, review, research for overall management and decision making of educational development (Ibid). A System is working together to form a relationship and vision of the whole. Each component contributes to the proper functioning of the system. We may have a good data collection procedure, good data processing, and analysis in place, but if the result is never put to use in educational development, the system fails to work properly.

Integrated use of these three components enables clarity in understanding the issues involved. Impact of each component on other seemingly independent inputs but interconnected with each other. According to Waweru (2016) MIS is an integrated technique for gathering relevant information from whatever source it originates and transferring it in to useable form for the decision-makers in management.

Management information system encompasses all the information-providing systems at all levels of the organization; however, it must be stressed that is a collection systems rather than one total system (Tegegn, 2003). The word "integrating" in the definition implies some degree of integration of the multiple information systems involved. This conception of an MIS, though broader than that of fully justified because the information systems of all the organizations functions are increasingly tied together in super a system of quasi-independent information systems, so that no one information system can be viewed as entirely separated from the others(Ashenafi, 2013).

9.1.1. Educational Management Information System (EMIS)

An EMIS is an organized group of information and documentation services that collects, stores processes analyzes and disseminates information for educational planning and management (Hua, & Herstein, 2003). 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 information that can be readily retrieved, processed, analyzed, and made available for use and dissemination (Charles C., 2003).

According to Hua and Herstein (2003), EMIS is a set of formalized and integrated operational processes, procedures, and cooperative agreements by which data and information about schools and schooling, such as facilities, teachers, students, learning activities, and evaluative outputs, are regularly shared, integrated, analyzed, and disseminated for educational decision use at each level of the educational hierarchy.

An EMIS is an institutional service unit producing, managing, and disseminating educational data and information, usually within a national Ministry or Department of Education (UNESCO, 2010). As to UNESCO, the management functions of EMIS include collecting, storing, integrating, processing, organizing, outputting, and marketing educational data and statistics in a timely and reliable fashion.

Managing information through informed decision making requires the availability of accurate and timely information, which links together resource input to education, teaching and learning. An educational Management Information System is therefore, the basis of management, planning and evaluation of an education system (Ashenafi, 2013). Hence, it is demand responsive, which means that it serves the needs of the consumers or the users of information. On his study conducted in a Nairobi city of Kenya, Odhiambo (2017) puts the following regarding the importance of EMIS in the management of secondary schools:

The use of EMIS module for curriculum and instruction by principals, deputy principals and department heads drastically reduced the time for preparing time tables at the beginning of the term, thus enabling them to use the time saved for other duties (p. 147).

9.1.2. Objective and Function of EMIS

The objectives of an EMIS are: to improve the capacity for data processing, storage, analysis and providing education planners with timely data; to facilitate the use of relevant information in decision making by planners at all levels; to eliminate duplication of information for decision making; to streamline the

flow of information; and to provide information for policy dialogue (Waweru, 2016). The main objective of an EMIS is to integrate information related to management of educational activities, and to make it available in comprehensive ways to varieties of users. Education Management Information System (EMIS) plays an important role in developing appropriate plans, strategies and policies for improving the education system. Data after processing is transformed into information and information is the base for decision making process.

The most direct operational application of EMIS is to support ongoing management, planning and monitoring and evaluation activities of education system. Therefore, the aim of EMIS is to promote the development and operation of education and training management information systems for accountability, planning and monitoring to achieve quality and effective service delivery in the national education system.

9.1.3. Educational Management Information System in Ethiopia

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.

9.1.4.. Problems of Utilizing EMIS

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.

X. RESULTS

The Data Processing System of the EMIS

Respondents' views of data processing system using the EMIS in the selected target secondary schools are summarized under the following three tables. The mean scores from the data analysis were interpreted as follows:

≤ 2.59 low, 2.60–3.39 medium, ≥3.40 high.

Table 2 and 3 below summarize teachers' and school managers' views in relation to the current data processing system practiced using EMIS in the selected secondary schools. Accordingly, table 1 summarizes respondents' views of school data collection practices while table 2 addresses access to data management tools.

Table 2: Respondents Views about School Data Collecting Practices

		Current Position								t-test	
		School Managers				Teachers					
		F	%	X	SD	F	%	X	SD	T	p
In my school, all teaching staff members record the necessary data properly	SD	0	0%	2.41	0.72	1	1.89%	2.6	0.86	-1.14	0.26
	DA	26	70.30%			30	56.6%				
	UN	8	21.60%			12	22.64%				
	AG	2	5.40%			9	16.98%				
	SA	1	2.70%			1	1.89%				
In my school, all administrative staff members record necessary data properly	SD	2	5.4%	3.08	1.01	0	0%	3.34	0.88	-1.29	0.2
	DA	9	24.3%			11	20.80%				
	UN	12	32.4%			16	30.2%				
	AG	12	32.4%			23	43.4%				
	SA	2	5.4%			3	5.7%				
In my school, it is easy to collect data appropriately in a given time	SD	0	0.00%	2.68	0.88	0	0%	2.49	0.67	1.13	0.26
	DA	20	54.05%			32	86%				
	UN	11	29.73%			16	43%				
	AG	4	10.81%			5	14%				
	SA	2	5.41%			0	0%				
In my school, all levels of decision makers or planners know about data collection process	SD	0	0%	2.27	0.51	0	0%	2.64	0.83	-2.41	0.02
	DA	28	75.7%			30	56.6%				
	UN	8	21.6%			13	24.5%				
	AG	1	2.7%			9	16.98%				
	SA	0	0%			1	1.9%				
Summary Result				**2.61**	**0.49**			**2.77**	**0.46**	**-0159**	**0.11**

As indicated by item 1 of table 2, the respondents were requested to what extent all teaching staff members record all necessary data properly. Accordingly, the respondents showed their relative agreement based on their school practices. Hence, 26 (70.3%) school managers and 31 (58.5%) of teacher-respondents replied that teachers do not regularly record all necessary data in a proper manner. The remaining 3 (8.1%) school managers and 10 (18.87%) teachers responded that they have such experience. The estimated t-test value (t_{88} =-1.14; p =0.26> 0.05) indicates that there is no statistically significant opinion difference between school managers and teachers on this issue, though school managers rated low the idea that all teaching staff members record the necessary data properly ($\bar{X}$=2.41; SD=0.72) while teacher-respondents confirmed that this activity is practiced moderately ($\bar{X}$=2.6; SD=0.86).

Regarding item 2 of the same table, respondents were requested to reflect their level of agreement on how well the school administrative staff members were recording all necessary data properly. Accordingly, 14 (37.8%) school managers and 26 (49.1%) teachers respondents agreed that the school administrative staff properly recorded all the necessary data while 12 (32.4%) of school managers and 16 (30.2%) of teachers were not sure of the issue. The remaining, 11 (29.7%) school managers and 11 (20.8%) teachers disagreed with the issue. The estimated t-test value (t_{88} =-1.29; P=0.2) indicates that there is no statistically significant difference

between the two groups, which indicates that the school administrative staff members were recording all required data properly.

Item 3 was rated to be moderate by school managers ($\overline{X}$=2.68) and low by teachers ($\overline{X}$=2.49), while the 4th item was rated low by the school managers ($\overline{X} = 2.27$) and moderate by teachers. ($\overline{X} = 2.64$).

The overall mean computational results of school managers ($\overline{X}$ = 2.61) and teachers ($\overline{X}$ =2.77) show that school data collection practices are moderately exercised in the target secondary schools. Here, teachers' rating is a little bit higher than school managers' rating; however, statistically, there is no significant difference between the two groups ($t_{88} = -2.41;\ p = 0.11 > 0.05$).

The interview held with wereda education office (WEO) ICT core process owners on the adequacy of time given when data is collected from different parts of secondary schools indicated that, at school level, after the registration dead line is over, most students come to school to be registered. In this case, some schools allow students to be registered up to the mid of November to increase the enrollment rate. As a result, school data could not be finalized at the required time. Hence, the data completed and sent to concerned bodies earlier may not be fully completed and the timely provision of data was difficult according to their responses.

Table 3: Respondents View on Access of Data Management Tool for EMIS

		Current Position									
		School Managers				Teacher				T	P
		F	%	$\overline{X}$	SD	F	%	$\overline{X}$	SD		
I am involved in constructing data collection tools in my school.	SD	0	0%	3.43	0.99	2	3.8%	2.75	0.94	3.30	.001
	DA	10	27%			25	47.2%				
	Un	4	10.8%			10	18.9%				
	AG	20	54.1%			16	30.2%				
	SA	3	8.1%			0	0%				
Data collection tools are relevant to the objectives set by my school.	SD	1	2.7%	2.76	0.98	5	9.4%	2.43	0.91	1.6	.113
	DA	20	54.1%			30	56.6%				
	Un	3	8.1%			8	15.1%				
	AG	13	35.1%			10	18.9%				
	SA	0	0%			0	0%				
In my school, data collection tools are easy to understand.	SD	0	0%	2.95	0.97	1	1.9%	2.81	0.92	.667	.506
	DA	18	48.6%			23	43.4%				
	Un	3	8.1%			16	30.2%				
	AG	16	43.2%			11	20.8%				
	SA	0	0%			2	3.8%				
In my school, data collection tools are reviewed before finalizing it.	SD	1	2.7%	2.73	0.93	6	11.3%	2.53	.93	1.01	0.316
	DA	18	48.6%			23	43.4%				
	Un	9	24.3%			14	26.4%				
	AG	8	21.6%			10	18.9%				
	SA	1	2.7%			0	0%				
In my school, data collection tools are suitable to collect school level data.	SD	0	0%	2.97	0.99	1	1.9%	2.38	0.69	3.38	.001
	DA	16	43.2%			35	66%				
	Un	8	21.6%			14	26.4%				
	AG	11	29.7%			2	3.8%				
	SA	2	5.4%			1	1.9%				
Summary				**2.97**	**0.65**			**2.58**	**0.47**	**3.33**	**.001**

As shown by item 1 of the table 3, respondents were asked about their involvement in course of constructing data collection tools like questionnaire and data base designing in collaboration with the school. The majority 23(58.2%) of school managers and only 16 (30.2%) of teachers agreed that they were involved in constricting data collection tools and designing activities. While majority 27(51%) of teachers and only 10(27%) of school managers did not accept the existence of such a role in their schools. As per the above data, considerable number of secondary school managers ($\overline{X}$=3.43; SD=0.99) were involved more in constructing data collection tools compared to teachers ($\overline{X} = 2.75$), though the estimated t-test value ($t_{88} = 4.50; p = 0.001 < 0.05$) shows the existence of significant difference between the two groups.

Since teachers are among the school members who primarily use data to improve students' performance, they are required to be involved in constructing tools to gather and analyse the required data.

Australian Council for Educational Research/ACER (2006) explains that for a teacher, the central purpose of analysing data is to improve the learning of one or more particular students. Hence, school principals need to follow up teachers' activities in this area.

As illustrated by table 3 item 2, respondents were requested to put their level of agreement regarding the relevance of data collection tools to the objectives set by their schools. Accordingly, school managers showed their agreement by the mean computational result ($\bar{X}$=2.76; SD=0.74), while teachers disagreed with this idea ($\bar{X}$=2.43; SD= 0.91).The estimated t-test value ($t_{88} = 1.6; p = .113 > 0.05$) shows that there is no statistically significant difference between the two groups.

A question was raised to know if data collection tools are easy to understand. Here, 18(48.6%) of the school managers as well as 24(45.3%) of teachers agreed that the tools are not easy to understand. Apparently, 16(43.2%) of the school managers and 13(24.6%) of teachers confirmed that those tools are easy to understand. The estimated t- test value ($t_{88} = 0.67;\ p = 0.50 > 0.05$) indicates that there is no statistically significant difference between the two groups. That is, both school managers ($\bar{X}$= 2.95; SD=0.60) and teachers ($\bar{X}$= 2.81; SD=0.91) agreed that, in their schools, data collection tools are easy to understand.

Likewise, respondents were requested to assess the schools' practice of revising the data collecting tools before finalizing and putting them in to use, as presented by table 3 item 4. Out of total 90 sample respondents, the majority 19(51.3%) school managers and 29(54.7%) teachers confirmed that there was no or little practice in revising the data collecting tools before finalizing and putting them in to use. The estimated t-test value ($t_{88} = 1.01; p = 0.316 > 0.05$) shows that there is no statistically significant difference between the two groups on this issue.

The respondents were also requested to indicate their level of agreement on the premise "In my school, data collection tools are suitable to collect school level data". Accordingly, the mean computational result of school managers$\bar{X}$=2.97) indicated their agreement at the moderate level. However, teachers showed their disagreement with this item, with the mean computational result of ($\bar{X} = 2.38$). The estimated t- test value ($t_{88} = 3.38;\ p = .001 < 0.05$) shows that there is statistically significant difference between the two groups.

Overall, school managers viewed that there is moderate access to data management tools for EMIS in the target secondary schools ($\bar{X} = 2.97$), while teachers rated this item to be low ($\bar{X} = 2.58$). The final p-value result also confirms the existence of significant difference between the two groups (p=.001<0.05).

To substantiate the above information, interview was conducted with wereda education office ICT service core process owners. Accordingly, they confirmed that there is moderate access of data management tool for EMIS. Here, teachers and the interviewed respondents seem to disclose the reality while school management members appear to hide the fact as they are the ones responsible for the preparation data collection tools.

10.3. Factors Affecting the Practice of EMIS

Below are presented major factors hindering or negatively affecting the implementation of educational management information system. The responses of the two groups are compared using both descriptive and inferential statistics.

Table4: Major Factors Impeding the Implementation of EMIS

No	Computer literacy	Current Position	N	$\bar{X}$	SD	T	P
1	Lack of the required skills to prepare data collection formats	School Managers	37	2.86	0.67	2.47	.016
		Teachers	53	2.45	0.85		
2	Lack of database management skills	School Managers	37	4.32	0.97	2.09	.039
		Teacher	53	2.85	1.10		
3	Lack of data cleaning skills	School Managers	37	3.24	1.09	2.02	.047
		Teacher	53	2.75	1.16		
4	Lack of data analysis skills	School Managers	37	3.16	1.01	2.03	.045
		Teacher	53	2.68	1.17		
5	Lack of data presentation skills	School Managers	37	3.03	1.17	2.13	.036
		Teacher	53	2.47	1.25		
6	Lack of data interpretation skills	School Managers	37	2.62	0.83	0.65	.517
		Teacher	53	2.51	1.01		
7	Lack of statistical report writing skills	School Managers	37	3.08	1.09	2.53	.013
		Teacher	53	2.51	1.03		
		School mgm't	**37**	**3.12**	**1.00**	**2.82**	**.006**
	Summary result	**Teacher**	**53**	**2.60**	**0.97**		

As depicted by item 1 and 2 of table 3, school management bodies agreed that there is lack of the required skills to prepare data collection formats ($\overline{X}$=2.86) while teachers showed their disagreement with the mean computational result ($\overline{X}$=2.45). The p-values for the two items (p=.016<0.05 and p=.039) show the existence of significant difference between the two groups.

Out of all the items listed in table 3, the major factors rated to be serious by both school managers and teachers were lack of database management skills, lack of data cleaning skills and lack of data analysis skills. Even though school managers' ratings in these three items are by far higher than teachers' ratings, both groups of respondents seem to have agreed with the ideas of the three items.

In the interview conducted, the wereda education office ICT service core process owners disclosed that the schools do not seem to be acquainted well with the modern system of data processing. Again, the required information is not organized well on time and sent to the concerned bodies.

Generally, the overall result of table 3 entails that there are various factors impeding the implementation of EMIS in the target secondary schools. These factors are perceived to be more serious by school management bodies compared to teachers. They are indicated by the overall mean of school management ($\overline{X}$= 3.12) and that of teachers ($\overline{X}$= 2.60). The computed p-value (p= .006<0.05) also confirms the existence of statistically significant difference between the school management and teachers on this issue.

XI. CONCLUSION

One of the major issues raised in this study was the respondents' views of school data collecting practices. The overall mean computational results of school managers ($\overline{X}$ = 2.61) and teachers ($\overline{X}$ =2.77) showed that school data collection practices are moderately exercised in the target secondary schools. Here, teachers' rating is a little bit higher than that of school managers' rating; however, statistically, there is no significant difference between the two groups ($t_{88} = -2.41;\ p = 0.11 > 0.05$).

School managers viewed that there is moderate access to data management tools for EMIS in the target secondary schools ($\overline{X}$ =2.97), while teachers and the interviewed respondents disclosed that there is a problem of access to data management tools for EMIS.

The major factors rated to be very serious by both school managers and teachers in impeding the implementation of EMIS were lack of database management skills, lack of data cleaning skills and lack of data analysis skills. When comparing the two, school managers' ratings in these three areas are by far higher than teachers' ratings. Hence, statistically significant differences were observed between the two groups in each of the three items.

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