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Management Information Systems and its Impact on Productivity in Higher Education: A Case of Colleges of Education in Ghana

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Abstract

The use of information technology in educational management has swiftly increased due to its efficiency and effectiveness. In the initial stages of its development, management information systems' (MIS) main purpose was to improve the efficiency of school, office activities. Overall review of literature highlighted positive impact of MIS on school administration and management including better accessibility to information, more efficient administration, higher utilization of school resources, reduction in workload, better time management, and improvement in the quality of reports. In spite of all the successes chalked in the development of educational management; most educational institutions are confronted with numerous challenges especially in the area of Information and Communications Technology. A study into the Management Information Systems and its impact on productivity in higher educational institutions was undertaken among others to examine the relevance of MIS in improving educational management, assess ways MIS could improve capacities in data processing, storage, analysis and the timely supply of educational information to management and administrators to enhance quick and efficient decision making. Stratified and purposive sampling techniques were the main sampling techniques employed. Questionnaire and observational schedule were used to gather relevant data. Statistical Package for Social Sciences (SPSS version 25) was used to analyze the data. The study revealed that cost, lack of competent Information Technology staff to operate the system, lack of computer systems and accessories and inferiority complex (technology phobia) were the major constraints militating against the implementation of MIS in the understudy institutions. Recommendations together with suggestions for further studies were therefore made to arrest the challenges unearthed.

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1. Introduction

Computers are seen to have the potential to make a significant contribution to the teaching, learning, and administration in schools. An extensive amount of investment that has gone into introducing information and communications technology (ICT) into schools including hardware, software, networking, and staff development will be considered worthwhile if there is evidence that it has made a commensurate impact on school performance and effectiveness [1]. Today, which we call information age as many technological developments have been experienced; the biggest risk that an organization could take is to stay insensitive to change. Many significant factors such as continuous developments in information technologies, information exchange, increasing expectations of the society, modern managing perceptions and applications cause organizations all over the world to develop new applications in order to survive [2].

The use of information technology in educational management has rapidly increased due to its efficiency and effectiveness. School managers who used to spend large amount of time in solving complex allocation problems (e.g., staff allocation, resource allocation, timetabling) and monitoring the school operations have now better options due to enhanced technology. Information technologies facilitate the decentralization of work tasks and their coordination in an interactive network of communication in real time [3]. They allow for greater available flexibility and networking that emphasizes interdependence, interaction, and constant adaptation to an ever-changing environment [4].

Management information systems (MIS) are being used by schools to support a range of administrative activities including attendance monitoring, assessment records, reporting, financial management, and resource and staff allocation. MIS provides managers with the information required to manage organizations efficiently and effectively. These systems are distinct from other information systems in that they are designed to be used to analyze and facilitate strategic and operational activities in the organization [5]. Reference [6] describes management information system (MIS) as an organizational method of providing past, present and projected information related to internal operations and external intelligence. It supports the planning, control and operation functions of an organization by furnishing uniform information in the proper time frame to assist the decision makers'. Reference [7] defines MIS as 'a management information system designed to match the structure, management task, instructional processes, and special needs of the school'[5] referred to MIS as 'a term given to the discipline focused on the integration of computer systems with the aims and objectives of an organization'. Based on the foregoing definitions, MIS refers to a system that uses the information required by the organization's management at every level in making operational, tactical, and strategic decisions. Its main objective is to design and implement procedures, processes, and routines that provide suitably detailed reports in an accurate, consistent, and timely manner.

MIS plays a vital role in the area of decision making as it can monitor by itself disturbances in a system, determine a course of action and take action to get the system in control. It is also relevant in non-programmed

decisions as it provides support by supplying information for the search, the analysis, the evaluation and the choice and implementation process of decision making[8]. These systems have the ability to provide its users the processed information, analytical models, real-time updates and hypothetical scenarios to assist their decision making process. Management information systems have also changed school management in the areas of leadership, decision making, workload, human resource management, communication, responsibility and planning [9]. Strategically, management information systems help the manager in determining the aims of the school, making long term plans, distributing resources, and forming educational methods of future, determining performances of teachers and success of the school [10]. In this way, management information systems can also be used as a tool to initiate and use educational leadership of the manager [7]. Even though MIS functionally facilitates institutional management, there is limited empirical evidence on the actual value MIS brings to academic organizations. While research studies on this subject matter have been done extensively in other countries, very little has been explored in the context of Ghanaian higher educational institutions. In arguable terms, research studies on the impact of MIS on productivity in higher educational institutions have not been explored in the Ghanaian Colleges of Education. This study sought to examine the impact of MIS on productivity in higher educational institutions with particular reference to Colleges of Education in Ghana. The study principally addressed the research questions below:

1. What is the relevance of MIS in Higher Educational Institutions?
2. In what ways can MIS be used to increase productivity in Higher Educational Institutions?

2. Literature Review

Theoretical Framework

The theoretical framework of a study is a makeup that can support a theory of a research work. It presents the theory which explains why the problem under study exists [11].Therefore, the theoretical framework(s) that would ground this study are Task-Technology theory and Social Technical theory.

2.1 Task-Technology theory

Task-technology fit (TTF) theory holds that information Technology (IT) is more likely to have a positive impact on individual performance and be used if the capabilities of the IT match the tasks that the user must perform (Goodhue &Thompson, 1995)[12]. Reference [12] developed a measure of task-technology fit that consists of 8 factors: quality, authorization, and compatibility, ease of use/training, production timeliness, systems reliability, and relationship with users. Each factor is measured using between two and ten questions with responses on a seven point scale ranging from strongly disagree to strongly agree. Reference [12] found the TTF measure, in conjunction with utilization, to be a significant predictor of user reports of improved job performance and effectiveness that was attributable to their use of the system under investigation.

2.2 Socio-technical theory

Socio-technical theory emphasizes the need for consistency among independent subsystems for the larger

system to achieve optimal performance [13]. The technical subsystem comprises the devices, tools and techniques needed to transform inputs into outputs in a way which enhances the economic performance of the organization. The social system comprises the employees (at all levels) and the knowledge, skills, attitudes, values and needs they bring to the work environment as well as the reward system and authority structures that exist in the organization. The cornerstone of the socio-technical approach was that, the fit was achieved by a design process aiming at the joint optimization of the subsystems: any organizational systems will maximize performance only if the interdependency of these subsystems is explicitly recognized. Hence any design or redesign must seek out the impact each subsystem has on the other and design must aim to achieve superior results by ensuring that all the subsystems are working in harmony [13].

2.3 Overview of Management Information System

The most initial school administrative computer applications started its development in the late 1970s. In the early1980s, several loose, non-integrated clerical and administrative applications were developed but these applications limited the possibilities for management support as the relationships among data could not be analyzed [14]. During the initial stages the main purpose of software development and usage was to improve the efficiency of school office activities. The use of computers and technologies in educational institutes was mainly to store student and personnel data[15]. The value of management information was recognized during the integration stages. As a result, many projects were initiated by the governments in many developed countries that provided the stimulus to enter a higher development stage. These projects were directed toward the production of better school information systems which meant increased school efficiency and effectiveness. The focus was the development of a standard system for as many schools as possible with maximum flexibility. The professional approach to systems design was not widespread at this time [14]. In the 1990s, the emphasis on using ICT to collect educational data and to improve the administration of educational systems began to increase in the developing countries.

Reference [16] believes that MIS can provide administrators and teachers with the information required for informed planning, policy-making, and evaluation. [9] claimed that MIS have changed school management in the areas of leadership, decision making, workload, human resource management, communication, responsibility, and planning. These systems can assist the school manager in determining the aims of the school, formulating strategic plans, distributing resources, and evaluating staff performance as well as organizational success [10;7]. Reference [17] indicates that the growing interest in MIS's and the trend toward thoughtful, long-range planning for MIS implementation stem from the belief within the school community that such systems allow for better site and district management, empower staff at all levels, and increase a school or district's accountability to the community it serves. Efficient and quick decisions could be made possible when school managers get accurate and up-to-date information by MIS [18].

Several surveys have been designed in recent years to gather information on the extent to which schools are developing the capacity to integrate ICT into learning, teaching, and management processes. A steady increase in the number of computers and other technologies over time has been evident in the literature, with most schools achieving the baseline targets for computer-to-pupil ratios [1]. This finding, to a degree, masks

considerable variation within and across schools with regard to regular access to reliable technologies and broadband connectivity [1]. Reference [19] have focused on the impact of MIS usage on school management abilities. Their study looked at the role of support in bringing about such processes as well as their implications for the future. However, it was clear that an important feature to consider was the relationship of data collection and collation to data use, since school managers needed quite different forms of analysis in some respect to those that were needed by teachers.

Reference [20] brought together a series of studies from a range of countries that highlighted important features of computerized school information and management systems, their implementation in a range of schools, the outcomes of this implementation, and implications for the future in terms of further research. Their studies offer the widest view of ICT and school management from the perspective of MIS. However, it was clear from their review that most concern was being focused on data entry and collation, rather than upon data transfer or analysis. Reference [21] investigated the impact of ICT on management practices in smart schools in Malaysia. Their analysis revealed some positive changes including the enrichment of ICT culture in schools, better accessibility to information, more efficient administration, and a higher utilization of school resources. The challenges encountered by the participant schools were time constraints, higher administrative costs, negative acceptance/support from untrained staff, abuse of the ICT facilities, and problems related to the imposed rigid procedural requirements.

Reduction in workload, beneficial impact on time management, and improvement in the quality of reports have been highlighted as major impact of MIS on school administration and management. Some studies show that, as staff in schools have acquired and developed ICT skills and confidence in using the technologies; they have experienced a reduction in some aspects of their workload [1;23].

Cunningham and his colleagues (2004) [23] claimed that ICT use was valued by senior management in developing school systems for administration and easing management tasks. Reference [24] found that staff of his selected schools believed that use of technologies had made administrative work easier with regard to accounts, attendance data, and the sharing of confidential information. In other words, school management information systems increase effectiveness and efficiency by saving time and facilitating development of alternative solutions for sophisticated problems [20;25]. Reference [2] surveyed 98 elementary school principals in Turkey to explore their perceptions about MIS and their use in primary schools' management. The study indicated that although technologic infrastructures of elementary schools were insufficient, MIS had an important contribution to school management. Reference [2] suggested that school managers should be encouraged to use information systems and they must believe that data are valuable sources for decision making and that the MIS back up the implementation of educational reforms.

3. Methodology

This study employed quantitative approach underpinned by positivist paradigm with its design being cross-sectional survey in the sense that it would present the researchers with numerous advantages such as looking at the relationships between variables and establishing the cause and effect in highly controlled circumstances.

Also this method often reduces and restructures a complex problem to a limited number of variables.

A. Methods

Two (2) main sampling techniques were employed being stratified sampling and purposive sampling. The stratified sampling was used to group the sample size into 2 main categories; namely: Administrative Staff and Management. These groupings would enable the data required from each stratum to be collected and analyzed. Purposive sampling was then employed to collect data from respondents from the institutions following their persistent interactions and usage of data to promote the growth of the educational organizations. The two sampling techniques were employed since they enabled the researchers to collect data relevant to the study and to reduce percentage errors during data analysis.

A sample of 120 respondents was purposively chosen based on their constant access to data within the institutions. A breakdown of the sample size is as follows; six (6) Heads of Department, Student Records and Examinations with their respective sectional heads and administrative assistants were observed via observational schedule. Further, Five (5) members of staff from the Central Accounts Units, Four (4) from the Audit Units, and five (5) from the students Accounts Units. The Head of General Administration, Planning and the Development Departments together with their sectional heads, the secretaries and clerks were selected. The total number of individuals chosen from the three (3) departments was 25; comprising Deans, School Administrative Officers, Accountants and Heads of Departments were chosen to answer the questionnaires. Four (4) management staff with their respective sectional heads and clerks was selected. Examinations officers together with their assistants too were observed using observational schedule since they work on examination activities. An observational schedule was considered very important since people do not always do what they claim. The data from the observational schedule was as well quantitized and added to the questionnaire data to solidify and complement the data analysis of the study.

B. Data Source

Primary data was collected from the population of the study. The population of the study comprised management and administrative staff of St. Joseph's, Berekum and St. Ambrose Colleges of Education. The numerical strengths of the population based on the existing data of the said institutions amount to 175. In line with this, taking inspiration from [26] table for determining sample size of a given population, the acceptable sample size became 120 which fairly represented the finite population. The choice of the population became necessary since the said colleges possess similar characteristics of other colleges of education in Ghana with respective to Management Information System usage in educational management and planning activities. It then captured individuals who participate in the day-to-day running of the institutions. Management staff includes the principals, vice-principals, registrars/secretaries and the finance officers. The administrative staff includes the individuals whose activities ensure that there is a constant flow of data either from management to staff or vice versa.

4. Data Analysis And Results

Educational Qualification of Respondents

Concerning the educational qualification of the respondents, it came to light that only 5 people posses a qualification below diploma. This means that overwhelming majority of the respondents have academic qualifications above diploma level depicting their readiness and preparedness to acknowledge, accept and adopt any newly introduced system vis-à-vis the system's perceived ease of use and usability friendliness. This astronomical number of respondents with requisite qualifications makes up the well-versed people forming the fulcrum of the study.

T**able 4.1.1:** Educational Qualification of the Respondents.

Level	Frequency	Percent	Cumulative Percent
Diploma	5	4.2	4.2
Undergraduate	65	54.2	58.4
Postgraduate	38	31.6	90.0
Others	12	10	100.0
Total	120	100	

Source: Field Data July 2022

Departments and Units Covered by the Study

Judging from the percentage of the data from various departments and units, it is apparent that individuals from the admissions, examinations, students' records, students' accounts, central accounts and others, were really fascinated in the research with their cumulative percentages of 92.3 %.The others are mainly Staff from General Administration Department and Departments within the various units in the institutions who are frequently processing data. This means that countless majority of the administrative staff that frequently process data are given full representation in the conduct of the research.

Table 4.1.2: Departments covered and units by the Study.

Department	Frequency	Percent	Cumulative Percent
Admissions	6	5.0	5.0
Examinations	18	15.0	20.0
Students' Records	5	4.2	24.2
Students' Accounts	4	3.3	27.5
Central Accounts	12	10.0	37.5
Others	75	62.5	100.0
Total	120	100.0	

Source: Field Data July 2022

Years of Service in the Colleges of Education

A study on the number of years spent by the respondents within the colleges indicates that a larger percentage of 97.5 % of the respondents have worked within the institutions for a period more than 6 years. This means that, they are abreast with the procedures and processes within the institutions and would be able to provide information about their work processes now, and what difference they predict MIS has the potential to bring to bear.

Table 4.1.3: Years of Service in the Colleges of Education.

Office	Years Served	Frequency	Percent	Cumulative Percent
Management	6	3	2.5	2.5
Administrative	15	30	25.0	27.5
Others	20	87	72.5	100.0
Total		120	100.0	

Source: Field Data July 2022

Traditional Data Processing

Results from the respondents depict undoubtedly that manual processing of data within the institution takes a longer period of time and this is evident with a cumulative percentage of 86.7 %. This means that without the use of computers, 86.7% of all work processes would take very substantial amount of time to be completed and this affects job performance and productivity.

Table 4.2.1: Traditional Data Processing.

Duration	Frequency	Percent	Cumulative Percent
Short	6	5.0	5.0
Very short	10	8.3	13.3
Long	35	29.2	42.5
Very Long	69	57.5	100
Total	120	100	

Source: Field Data July 2022

Knowledge on Management Information System

Regarding respondents' knowledge level of MIS, it is very explicit that unimaginable majority of the administrative staff have adequate knowledge about the system.

This could be deduced from the overwhelming cumulative percentage (96.4%) of the respondents having average know-how to commensurate with Management Information System usage and its relevance in educational management.

Table 4.2.2: Respondents' Knowledge Level on MIS.

Knowledge type	Frequency	Percent	Cumulative Percent
Shallow Knowledge	13	10.8	10.8
Average	32	26.7	37.5
Above Average	50	41.7	79.2
Outstanding	25	20.8	100.0
Total	120	100.0	

Source: Field Data July 2022

Incorporation of MIS in Educational Management

A careful observation at the level of satisfaction of the sampled respondents clearly portrays that, overwhelming majority of the administrative staff with a cumulative percentage of 95.8% are really enthused with the incorporation of Management Information System to ensure safe, secure ,consistent and reliable flow of data within the institutions. This obvious eagerness by staff members could be a good sign for the success of the implementation of MIS development in the institutions.

Table 4.2.3: Incorporation of MIS in Educational Management.

Interest Level	Frequency	Percent	Cumulative Percent
Unsure	5	4.2	4.2
Somehow	10	8.3	12.5
Interesting	70	58.3	70.8
Much Interesting	35	29.2	100.0
Total	120	100	

Source: Field Data July 2022

Factors militating against smooth implementation of MIS Educational Management

Management information systems (MIS) are being used by schools to support a range of administrative activities including attendance monitoring, assessment records, reporting, financial management, and resource and staff allocation. MIS also provide managers with the information required to manage organizations efficiently and effectively. These systems are distinct from other information systems in that they are designed to be used to analyze and facilitate strategic and operational activities in the organization [5]. This notwithstanding, the implementation of MIS in educational management and for that matter Colleges of Education has been greeted with untold challenges associated with it. This is therefore mirrored from the reactions of the respondents as follows: the cost involved in the procurement, implementation and managing the system has always been a matter of a great concern. Data collected indicated that 37.5% of the respondents revealed the issue of cost has inhibited the implementation of the MIS usage in the institutions. An additional 16.7% of the respondents concluded that the problem stems from ignorance on the part of management who

have deliberately refused to welcome the immense contribution of MIS in other educational set-ups. To some of the respondents (20.0%) in one breath; stipulate that the issue affecting the implementation of the system is inadequate capable staff to manage the system. In another breath, other sentiments expressed on this theme by the respondents (25.8%) were attributed to insufficient computers and accessories, staff members' nervousness about change and computer illiterate staff.

Table 4.2.4: Factors militating against smooth implementation MIS in Educational Management.

Item	Frequency	Percent	Cumulative Frequency
Cost	45	37.5	37.5
Management Ignorance	20	16.7	54.2
Incompetent Staff	24	20.0	74.2
Inadequate Computing Resources	31	25.8	100
Total	120	100	

Source: Field Data July 2022

5. Discussion

6. The role of MIS in shaping educational management

Management Information System is seen to play very essential roles in educational management especially in keeping students' personal data, assigning index numbers, course allocation among others. It has been discovered from the results that Management Information System contributes a lot to efficient and effective educational management as 95.8% of respondents agreed that the incorporation of MIS would have a high impact on effective decision within the Colleges of Education.

This is very consistent with [9] who claimed that MIS have changed school management in the areas of leadership, decision making, workload, human resource management, communication, responsibility, and planning. Similarly, [18] buttressed this point that efficient and quick decisions could be made possible when school managers get accurate and up-to-date information by MIS.

In view of the fact that decisions could be made accurately and fast, it would ensure realistic numerical and financial growth within the institutions. It should be noted with serious concern that the incorporation of MIS helps to add value to the flow of data within departments and between departments, hence it becomes easier for all individuals to easily access data for effective decision making.

In another breath supporting this same finding, [8] concurred that MIS plays a vital role in the area of decision making as it can monitor by itself disturbances in a system, determine a course of action and take action to get the system in control. It is also relevant in non-programmed decisions as it provides support by supplying information for the search, the analysis, the evaluation and the choice and implementation process of decision making.

Impact of MIS in enhancing capacities in data processing, storage, handling, analysis and the timely distribution of information to management and staff

The deployment of MIS in educational management is to assist data storage and processing. Traditional data processing and handling which has been with us for centuries has exacerbated the slow pace at which information is gathered and accessed in the institutions.

The distribution of data through the use of traditional paper for correspondence and reports really slows down data transfer. It is therefore without any slightest doubt that over eighty (85%) percent of respondents consented the incorporation of MIS would ensure appropriate data storage. Additionally, overwhelming majority of the respondents (95.8%) further consented that MIS would accelerate the implementation of decisions taken within a department. In congruence with this result [10;7] opined that strategically, management information systems help the manager in determining the aims of the school, making long term plans, distributing resources, and forming educational methods of future, determining performances of teachers and success of the school.

Similarly, when asked on departmental coordination, over ninety five percent (95%) of respondents concurred that the implementation of MIS would improve departmental coordination and ensure improved efficiency in performance. In accordance with this finding, [9] supported that these systems have the ability to provide its users the processed information, analytical models, real-time updates and hypothetical scenarios to assist their decision making process. To substantiate this same finding, [16] believes that MIS can provide administrators and teachers with the information required for informed planning, policy-making, and evaluation.

Relevance of MIS in educational planning, coordination and implementation

To guarantee an effective coordination and implementation of educational activities, it is imperative that the right management procedures are employed. The implementation of MIS in the Colleges of Education, according to majority of the respondents, has been in expectation for a very long time in order to assist educational planning and coordination. Nevertheless, the cost involved in the procurement, implementation and managing the system has always been greeted with untold constraint. Data collected indicated that 37.5% of the respondents revealed the issue of cost has inhibited the implementation of the MIS usage in the institutions. An additional 16.7% of the respondents concluded that the problem stems from ignorance on the part of management who have deliberately refused to welcome the immense contribution of MIS in other educational set-ups. To some of the respondents (20.0%) in one breath; stipulate that the issue affecting the implementation of the system is inadequate capable staff to manage the system. In another breath, other sentiments expressed on this theme by the respondents (25.8%) were attributed to insufficient computers and accessories, staff members' nervousness about change and computer illiterate staff. In consistency with this finding [27;28]. Reference [29] revealed that lack of training, lack of senior management support, lack of technical support, lack of ICT resources, lack of a genuinely supportive culture and lack of staff individual confidence and motivation are considered as some of the inhibiting factors. In a related development [29,15] as well concluded that some of the important barriers highlighted in research specifically for ICT use in educational management are the lack of data analysis skills among administrators, lack of training in using ICT-based management tools, and lack of

user-friendly software for analyzing test results at the school level.

MIS capability in dealing with data redundancy and addressing information dissemination challenges

It is imperative that information dissemination within the institutions is correctly addressed to guarantee fast, effective and efficient decision making. In respect of the results, it was clear that data redundancy is one of the biggest challenges that confront staff members always. 86.7% of the respondents concurred that they are faced with data duplication challenges on a daily basis at work and this undoubtedly doubles financial commitments on stationery procurement. Added to that, 95.0% supported that there are countless information dissemination gaps when data transmission is done manually hence inefficiencies in data storage and editing affect the entire productivity. Quite substantial amount of data and for matter information are missing hence some files can neither be traced at all nor found in nick of time for efficient and relevant decision making processes. Next of importance, hence information collated from meetings are used in decision making processes and eventually for educational planning, 95.8% of respondents supported that with the appropriate system in place, precious decisions could be effected swiftly and certain plans made to guarantee rigorous progression and growth of the institutions. To make this finding very relevant, [1,23] claimed that reduction in workload, beneficial impact on time management, and improvement in the quality of reports have been highlighted as major impact of MIS on school administration and management. Similarly, [24] found that staff of his selected schools believed that use of technologies had made administrative work easier with regard to accounts, attendance data, and the sharing of confidential information.

7. Conclusion and Recommendations

The study of Management Information System and its impact on productivity in Higher Educational Institutions is not usually considered in most tertiary space (Colleges of Education) principally for the simple reason being that, it is perceived, with the right Information and Communication Technologies in place, all potential challenges that come with information flow would the addressed. Nonetheless, this study has uncovered that MIS is not just the configuration of computer systems, its relevant computer software and accessories but the motivation of management to acquire the appropriate hardware and software, the willingness of the administrators and other supporting staff to use the system and the availability of knowledgeable ICT personnel to support the operational use of the system. Information technology in educational management is a relatively new field that not only needs in-depth studies on systems utilization in schools but also on their effects on the school processes and maybe outcomes [30].

Reference [2] further supports this argument stating that although there are many studies on the role of information systems on class and teaching, few studies have been done on the use of them in educational management and their effects on the managers. Reference [31] states that one of the key priority areas for future research is the investigation of MIS assistance in effective school management. There are issues in this area both with the forms of technology being used, and with the lack of techniques available to enable users to make use of data currently available. Research could have a major role to play in supporting educational endeavour and practice in this area. Management information systems have greatly improved over the last two decades and

most of them incorporate several important functions required by school administration; however, every institution has its own specific needs. Further studies are needed to explore the areas of improvement in MIS as most of these systems are not developed according to the site-based needs. Studies on MIS should also focus on finding ways of enhancing its use by school principals and administrators. Appropriate training and effective leadership could escalate the benefits of MIS in the area of school management.

8. Limitation

The data was obtained from only three Colleges of Education which constituted 120 respondents in the Ahafo and Bono regions of Ghana. As a result, the sample and its findings may not represent all Colleges of Education in Ghana and other countries where differences in technology implementation and usage exist.

Authorship Contribution

Benjamin Baiden: Manuscript writing, editing and data analysis

John Nimako-Koduah: Coding of data for analysis

Victor King Anyanful: Manuscript proof reading

Daniel Oppong: References' organisation

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