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Impact of Education Management Information System (EMIS) on Teaching-Learning Development

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Abstract

In today's world, EMIS has become a critical component. It was created with the intent of monitoring the institute's educational program performance and managing the distribution and allocation of educational resources. Of course, in education, EMIS plays a particular function in assisting a school's growth. It is concerned with a system for managing a vast amount of data and information that can be quickly accessed, processed, analyzed, and disseminated. The sample was chosen at random using an automated sample calculator that indicated a minimum of 379 people. In the school administration, the questionnaire was sent electronically through email, Facebook, and WhatsApp. The total number of answers received was 115, representing a 40% return rate. To address the study questions, the researchers used descriptive statistical analysis. The researchers were able to conclude from the data analysis procedures that schools successfully utilize EMIS in terms of reported ease of use and perceived utility, as shown by the mean ratings. It was discovered that EMIS has a substantial effect on teaching and learning growth.

Keywords: EMIS, Student Performance, Teacher Performance, Administrative Performance, Teaching-Learning

Introduction

EMIS stands for education management information system, and it is a system for managing educational data. This system is known by a variety of names in various situations. According to EMIS, an EMIS can handle a wide range of data, including demographics, enrollment, discipline, and other functional elements for students; learning data such as assessment and achievement data, teacher evaluations, curriculum effectiveness data, and other factors related to progression through educational institutions. Assessing the status of education in a nation requires knowledge about the educational system's inputs, resources, governance, operations, and results. An education management information system (EMIS) offers systematic, high-quality data in a well-structured enabling environment that makes it easier to use the data in planning and policy discussions. The primary goal of this article is to sketch out the EMIS Tool's structure.

The article begins by outlining current data-related needs for enhancing education, as well as how an EMIS works to fulfill those expectations. It then goes through what's presently in EMIS systems by going over EMIS activities and emphasizing EMIS experiences that the benchmarking tool will use.

Functions of EMIS

EMIS facilitates decision-making in both structural and unistructural issue situations, as well as at all levels of the organization. It is meant to be weaved into the organization's fabric rather than standing alone. People, computers, processes, databases, interactive query tools, and other components make up MIS. It refers to the gathering, storing, and transmitting of information to prospective consumers. They're designed to be evolutionary and adaptable, as well as simple to use. We'd want to learn more about how certain data and systems might help with decision-making.

EMIS Activities

1. **Data Collection:** The necessary data is gathered and recorded on a form called a source dozed comment that serves as input to the system.
2. **Verification:** The data is edited in some manner to verify its accuracy. Sometimes the data entry operator visually verifies the data as it is displayed on the screen. Any errors are corrected at that time.
3. **Storage:** The data are stored on some medium such as diskette or tape.
4. **Security:** While the data exist in storage, it is kept secure to prevent destruction,damage,or measure.
5. **Organization:** the data can be arranged in various sequences to increase its information value.
6. **Retrieval:** the data is made available to authorized users.

Research Objectives

1. To find out the importance of EMIS during the sudden closure of institutions.
2. To find out the impact of EMIS on Teaching-Learning development.
3. To find out the impact of teachers' performance on Teaching-Learning development.
4. To find out the impact of students' performance on Teaching-Learning development.

Research Questions

1. How important is EMIS during the sudden closure of institutions?
2. What is the impact of EMIS on Teaching-Learning development?
3. What is the impact of teachers' performance on Teaching-Learning development?
4. What is the impact of students' performance on Teaching-Learning development?

Literature Review

The importance of EMIS is found abundantly in many articles on EMIS. Actually, for the betterment of any institution, its importance is beyond description. As stated by OdinahLanderocuartero and Mylene Role (2018), many public schools update their documents

honestly and carefully at the end of the school year. Thus, they can evaluate the teachers' performance in school with these updated documents because of persistent changes and progress of learner information system. Jose Martin and co-authors (2019) tried to determine the feasibility of the prevailing linear correlation between the proposed conceptual model variables. They understood that most prevailing relations are relatively strong. They also suggested carrying on further empirical research to have positive results following their model. Their research carries an innovative artifact composed of multiple dimensions and conducted at study if EMIS readily increases tertiary level students' progress or not. Finally, it proves that their progress is ensured. "The structure, cohesiveness, and deployment of the various EMIS affected the resources needed to create and manage them," according to a UNICEF East Asia and Pacific (2020) study on "Review of EMIS that Track Individual Students Data." According to the data, nations interested in pursuing individual Student Tracking would benefit from a defined strategy and implementation plan that takes into account capacity building requirements at all levels of government. Student Tracking systems were also utilized in the nations studied to monitor students in and out of school and manage dropout problems. Student Tracking was shown to offer better statistical data for national education statistics in the nations studied. There is also evidence that Student Tracking systems in government environments with high levels of interoperability between sector information systems, such as those in health, education, and social welfare, can provide a more holistic picture of each child's wellbeing and help determine whether a child is participating in mandated and essential services."

Methodology

A quantitative research design was employed to conduct this study to measure the adverse impact associated with the use of technological devices on students' performance.

Data Collection

The data is collected using the convenience sampling technique. The questionnaire survey is carried out through the internet. To achieve a sample size of 115 respondents, questionnaires were sent through a link to respondents via email, Facebook, and WhatsApp.

Questionnaire Design

The effect of utilizing EMIS for educational objectives is determined using a quantitative method. This indicates that the study is based on a questionnaire survey administered to a sample of the target population. Closed-ended questions were asked of respondents on the questionnaire to evaluate their demographic profile. Their reactions to the use of EMIS are recorded using a five-point Likert scale. The Likert scale is based on a five-point scale, with 1 indicating strong disagreement and 5 indicating strong agreement.

Research Hypotheses

Null Hypothesis

H₀1: The usage of EMIS has no impact on Teaching-Learning Development.

H₀2: Teacher performance has no impact on Teaching-Learning Development.

H₀3: Student performance has no impact on Teaching-Learning Development.

H₀4: Administrative performance has no impact on Teaching-Learning Development.

Alternative Hypothesis

H_A1: The usage of EMIS has an impact on Teaching-Learning Development.

H_A2: Teacher performance has an impact on Teaching-Learning Development.

H_A3: Student performance has an impact on Teaching-Learning Development.

H_A4: Administrative performance has an impact on Teaching-Learning Development.

Data Analysis

Descriptive Statistics

Table 1: Descriptive Statistics (Teacher Performance)

Teacher Performance	Mean Statistics	Std. Error of Mean	Std. Deviation Statistics	Variance Statistics
EMIS Creates Teacher's Awareness	4.21	0.063	0.680	0.463
EMIS fulfills the main purpose	3.42	0.100	1.077	1.159
EMIS is specially designed to monitor the performance of education programs	3.97	0.071	0.758	0.575
EMIS domains for better academic results	4.00	0.071	0.766	0.586

Teacher performance refers to how an instructor instructs students in class and how students respond to the teacher (Al Qalhati et al., 2020). As a result, this issue is critical to the advancement of education and acts as a stepping stone for students' improvement. The mean, standard deviation, and variance of 115 respondents for each item included in the teacher performance are shown in the table above. The findings indicate that the numbers for each item vary from 3.4 to 4.2, indicating a neutral to agreed reaction for the topic in question. The computed standard deviation and variance numbers also show that teacher performance in the educational system is highly successful, since they show a decreased distance from the mean.

Table 2: Descriptive Statistics (Student Performance)

Student Performance	Mean Statistics	Std. Error of Mean	Std. Deviation Statistics	Variance Statistics
EMIS fulfills the main purpose	3.42	0.100	1.077	1.159
EMIS is important for the case study of every student	4.05	0.067	0.729	0.532
EMIS is specially designed to monitor the performance of education programs	3.97	0.071	0.758	0.575
EMIS domains for better academic results	4.00	0.071	0.766	0.586

The academic achievement of students is determined by their grades. It is mainly determined by the teacher's performance and the organization's management. The table displays the mean value for each item, which ranges from 3.4 to 4.0, indicating participants' acceptance of the Teaching-Learning development's dependence on student achievement. Furthermore, the standard deviation and variance numbers are also low, indicating that using EMIS has a favorable effect on student performance.

Table 3: Descriptive Statistics (Administrative Performance)

Administrative Performance	Mean Statistics	Std. Error of Mean	Std. Deviation Statistics	Variance Statistics
Implementation of EMIS is complex for any institution	3.10	0.098	1.062	1.127
EMIS is expensive for any institution	2.83	0.111	1.114	1.241
EMIS is essential for proper decision making related to education instantly	4.03	0.071	0.765	0.585
EMIS is necessary for data collection	4.14	0.063	0.681	0.464
Educational institutions get a lot of benefits from EMIS software	4.15	0.069	0.746	0.556
Increasing the professional of statisticians is essential	3.99	0.075	0.815	0.664
Data can be leaked out due to EMIS	3.22	0.096	1.043	1.088

The effectiveness of administrative officers and assistance determines administrative performance. Furthermore, administrative efficiency is hampered by a lack of technical expertise and a lack of secrecy. Table 3 shows that the table's mean value is within the range of 2.83 – 4.15, indicating that the sample respondents' answers were neutral for each item.

Table 4: Descriptive Statistics (The usage of EMIS)

The usage of EMIS	Mean Statistics	Std. Error of Mean	Std. Deviation Statistics	Variance Statistics
Increasing the professional of statisticians is essential	3.99	0.075	0.815	0.664
EMIS is specially designed to monitor the performance of education programs	3.97	0.071	0.758	0.575
Educational institutions get a lot of benefits from EMIS software	4.15	0.069	0.746	0.556
EMIS is essential for proper decision making related to education instantly	4.03	0.071	0.765	0.585
Implementation of EMIS is complex for any institution	3.10	0.098	1.062	1.127

EMIS stands for education management information system, and it is a system for managing educational data. This system is known by a variety of names in various situations. Table 4 shows that the mean value for each item is in the range of 3.1–4.1, indicating that the willingness to use EMIS is essential for teaching-learning growth.

Table 5: Descriptive Statistics (Teaching-Learning Development)

Teaching-Learning Development	Mean Statistics	Std. Error of Mean	Std. Deviation Statistics	Variance Statistics
EMIS domains for better academic results	4.00	0.071	0.766	0.588
EMIS is specially designed to monitor the performance of education programs	3.97	0.071	0.758	0.575
For every institution EMIS is very important for development of education	4.31	0.081	0.876	0.767
Without EMIS progress in education will be less in the period of Covid-19 pandemic	3.72	0.075	0.808	0.653
EMIS is essential for proper decision making related to education instantly	4.03	0.071	0.765	0.585

The effect of student performance, teacher performance, administration performance, and EMIS use on Teaching-Learning Development is represented by this variable. The bigger the effect of their performance, the more likely the Teaching-Learning process will grow. The mean of Teaching-Learning Development, the study's dependent variable, is 3.72 – 4.03 for each item in the table above, showing that the majority of respondents believed that student-teacher-administrative performance influences Teaching-Learning development with a low standard deviation.

Inferential Statistics

A study instrument of 15 questions was utilized to evaluate the effect of the application of EMIS in the context of educational institution management, and an exploratory analysis was performed. Inferential statistics aid in the extraction of conclusions and conclusive evidence from a population's sample data (Gillet, Fouquereau, Forest, Brunault&Colombat, 2012; Inoue, Kawakami, Tsuno, Tomioka, & Nakanishi, 2012; Rita Silva & Caetano, 2014). Many variables are reduced to the most essential ones using exploratory factor analysis using SPSS (Buyukoztur, 2007; Tavsancil, 2002). The remaining elements resulted in a reliable model, which was used for reliability and validity testing, as well as route analysis.

Reliability Analysis

Table 6: Reliability analysis of variables (N=115)

Variables	Reliability Coefficient (Cronbach alpha)	Item Number
Teacher Performance (IV)	0.607	4
Student Performance (IV)	0.616	4
Administrative Performance (IV)	0.607	7
The usage of EMIS (IV)	0.614	5
Teaching-Learning Development (DV)	0.630	5

SPSS (version 25.0), a program created by IBM in Amund City, New York, was used to analyze all of the data. To determine the relevance of the data, a reliability test was performed (Nunnally, 1978; Nunnally & Bernstein, 1994). With all items included, the reliability test values in table 6 indicate acceptable results. Cronbach's alpha, for instance, is 0.616 for student achievement. Furthermore, the reliability of all variables, including dependent and independent variables, is higher than the 0.6 cut-off value, indicating that reliability is accepted (Ursachi, 2013). As a consequence, the research instrument utilized in this study assesses several elements of the significance of using EMIS, such as teacher performance, student performance, and administrative performance, all of which may aid an educational institution in improving academic outcomes.

Table 7: Regression Analysis

Variables	Unstandardized B	Coefficient Std. Error	P-Value	
(Constant)	1.621	0.461	.001	
Teacher Performance (IV)	0.137	0.094	.150	H ₀ 1Rejected
Student Performance (IV)	0.182	0.095	.058	H ₀ 2Rejected
Administrative Performance (IV)	0.253	0.092	.007	H ₀ 4Accepted
The usage of EMIS (IV)	0.030	0.066	.648	H ₀ 3 Rejected

The above table illustrates the significant impact of EMIS, student, teacher, and administrative performance on Teaching-Learning development for educational institutions. Each independent predictor gives an unstandardized and standardized beta coefficient that predicts each variable's positive or negative impact. In contrast, the *p*-value measures the significance of data at a 95% confidence interval. Table 7 shows that H1, H2, and H3 have accepted and support the research result. At the same time, H4, which states that administrative performance has a significant impact on Teaching-Learning development, is proved to be rejected.

Conclusions

In every nation, EMIS may be improved to promote equitable and high-quality education and learning (Alshamsi, et al., 2020; Javed et al., 2020). The availability of ICT facilities is significant in educational institutions. This implies that monitoring and assessment must be improved (Hossain et al., 2018). Monitoring and assessment, technical support, benchmarking, and sharing of best practices may all contribute to a long-term EMIS that reflects the school's success. As a result,

improving EMIS implementation in all educational institutions may result in higher-quality education and performance over time.

Furthermore, frequent monitoring and evaluation may aid the efficacy of EMIS in planning and execution by assessing the program's strengths and shortcomings, as well as if it helps to improving educational institutions' performance. The use of EMIS has a significant effect on the teaching-learning process. EMIS has a significant effect on all of the independent variables. Students' and instructors' performance on teaching-learning matters, while administrative performance has little bearing on teaching-learning growth. As a result, in light of the pandemic scenario, we should all work together to figure out the best methods to manage the education information system and its growth.

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