

***Information Management Practices and Challenges in School Governance:  
Basis for Localized Digital Archive***

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**Abstract**

Information plays a vital role in school governance as it is a primary basis for policy planning and development. The Department of Education recognizes this significance as it launched its own management information systems known as EBEIS (Electronic Basic Education Information Systems). In the school level, however, technology and resources for information management remain a challenge. To address this concern, this research examined the data management practices and challenges in a local public secondary school in the Philippines to develop a school-based online information management system. Focus group discussions were conducted among school administrators and personnel who are directly in charge of managing school data. The existing information management process involves: 1) data gathering and receiving of reports, 2) filing and storage, and 3) retrieval of data. Time consumed in the filing and retrieval of data; unorganized storage of paper-based documents; and absence of school policy on information management were observed as primary challenges of the existing process. Hence, project GEARS (GEANHS' Electronic Archiving & Retrieval System) was developed and introduced for pilot testing. The system is an online archive of school data, utilizing a free-hosting website and a cloud storage application to remain economical for a public school. Implications on the new system were positive and were observed as efficient, accessible, organized, and secure. The new system can be modified for information management needs of both local secondary and elementary public schools.

Keywords: information management, data, archive, system, school governance

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## **Introduction**

The systematic control of all information is known as data management (Pali, 2009). It can be done either in electronic format or printed materials from their creation until its final disposition. The process includes the development and application of standards to the creation, use, storage, retrieval, disposal and archival preservation of recorded information. Makhura (2005), suggested the two phases in the life cycle of data. The first phase in the life cycle of a record is the creation and receipt. A paper document is in this phase when the document is written; an electronic document is in this phase when it is sent from a person to another. The second phase is maintenance and use. This is the part for which the life of a records exists. A record's purpose is for retrieval of information used in daily operations. In summary, an effective data management program will ensure that records are available for use when needed, that privacy and confidentiality are maintained, that redundant records are destroyed and that records ultimately contribute towards sustaining service delivery.

At present, however, some organizations still maintain a paper-based data management system, which in turn, faces a major challenge (Gregg, 2013), in terms of accessibility. Since paper-based information can only exist in a single location at a time, only one person can access that information at any given time. This serialized method to information management does not play well in today's "I need it now" business environment. Hence, data management has evolved from a paper-based function to technology-based investments (Mokhtar and Yusof, 2009). Electronic data management gives unlimited storage space as compared to conventional method of office cataloging that allow for retrieval when needed (Iziomo, 2014).

Institutions, especially public schools, produce increasingly large volumes of information in both paper and electronic forms, which should be stored, managed and preserved in an organized system that "leads to quick decision making, saves office space and promotes good corporate governance" (Adu, 2014).

The setting of the study is a large school in City of Imus, Gen. Emilio Aguinaldo National High School (GEANHS). As of March 2017, GEANHS has a total enrollment of 7,854 students. 26% of which are Grade 7, 26% are Grade 8, 24% are Grade 9, and 28% are Grade 10. Moreover, founded in 2017, the Special Education Program has an enrollment of 58 students. As the enrollment ballooned since its founding in 1996, the number of teachers also increased. As of February 2017, GEANHS has 304 teachers and 7 Head Teachers, divided into the 8 subject departments.

The school is required to submit important information, reports, and documents in various time frames (i.e. monthly, quarterly, and annually). The monthly reports include Supervisory Plan and Report, Canteen Report, Monthly Accomplishment Report, Learning Action Cell (LAC) Plan and Report, Feeding Report, Narrative Reports (i.e. Monthly School Celebrations, Awards, Seminars) School Form 2, and School Form 4. Quarterly reports include Adopt-a-School, Gulayan sa Paaralan, Quarterly Accomplishment Report, Mean SD MPS per Subject Area, and Personnel Services Itemization and Plantilla of Personnel (PSI-POP). Other reports are submitted during either or both the start and end of the school year, such as

Nutritional Status Report, Brigada Eskwela Report, NSBI, BED and BAR, and School Forms 1 to 7.

GEANHS' huge population contributes to the heavy flow of administrative information that the school needs to produce, submit, and store. Moreover, the School Improvement Plan (SIP) to be submitted by the end of the school year requires all the data produced and submitted during the entire school year. Hence, data must be stored effectively, with an accessible way of retrieval for future use.

With varied data as discussed, an attempt was made to develop a school data storage and retrieval system, focusing on administrative information, for enabling data search and retrieval from a digital interface. This study aims to improve the data management process of Gen. Emilio Aguinaldo National High School. Specifically, it sought to answer the following:

1. What are the data management practices in the school?
2. What are the challenges in data management?
3. What are the factors for designing an effective data management system?
4. How does electronic archiving and retrieval system improve the school's data storage and management system?

In order to answer these questions, the study used the qualitative research method in gathering and analyzing data. Qualitative research uses methods such as participant observation or case studies which result in a narrative, descriptive account of a setting or practice. The research aimed to identify the administrative offices' viewpoint on the data management practices before and after the creation of an electronic data management system.

Participants in the study are 14 individuals who are directly involved in the production and safekeeping of various administrative reports and documents. These include the: 8 Department Heads, 3 Principal's Office personnel, and 3 E-BEIS personnel. To gather data for the study, a focus group discussion was conducted among the participants of the study. Focus group methodology is useful in exploring and examining what people think, how they think, and why they think the way they do about the issues of importance to them without pressuring them into making decisions or reaching a consensus. There were two sets of focus group discussion with the participants. The first set concentrated on the participants' experiences and opinions on existing archiving and retrieval practices before a new system was created and implemented. This set answer the first three research questions. The second focus group discussion was conducted to identify the participant's views on the new system and its implications to the school's data management process, shedding light to the final research question. Since the study focused on individual experiences, beliefs, and perceptions of the participants towards data management, thematic data analysis was employed. Using open-ended questions and conversational inquiry allows research participants to talk about a topic in their own words, free of the constraints imposed by fixed-response questions that are generally seen in quantitative studies. The conversations were transcribed and noted down. The responses were then coded and organized into emerging themes for analysis.

## Findings

The themes identified within the data include: (a) the existing management practices, (b) challenges in the existing data archiving and retrieval process, (c) participants' suggestions on how to improve the data archiving and retrieval system, (d) the design and implementation of project GEARS and (e) their perceived implications of the new system on the data management process in school.

### Existing Data Management Practices

The analysis of participants' experiences led to an understanding of the existing process of data management in the school: a) data gathering and receiving of reports/documents by E-BEIS and Principal's Office, b) filing and storage, and c) retrieval of data. Figure 5 shows the overview of the existing management process.

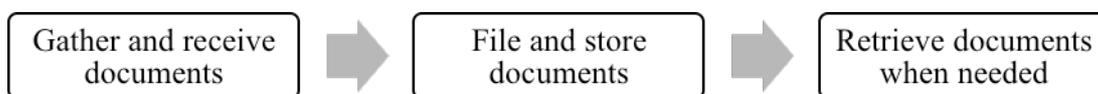


Figure 1. Data Management Process of Administrative Offices in Gen. Emilio Aguinaldo National High School

**Data Gathering and Receiving of Reports.** Data gathering in data management involves the process of submission of required reports and documents by teacher/department head to the E-BEIS and the Principal's Office. An E-BEIS personnel described that *“to ensure that all necessary data are gathered, the offices inform the concerned teacher either personally or through electronic forms of communication such as a text message, a phone call, or an online message (Facebook)”*. Submission of data to the offices occur in two ways: a) handing a printed copy of the document, and b) sending a softcopy of the file. In handing a printed copy of the report, the submitting party prepares three copies of the report—a copy each for the E-BEIS and Principal's Office, and one as a receiving copy. On the other hand, a softcopy can be sent through email, Facebook, or external memory stick.

**Filing and Storage.** The E-BEIS and Principal's Office also serve as a storage facility for submitted documents and reports. Both have cabinets filled with filing boxes and binders which are labelled according to content (e.g. Supervisory Plan and Report, School Form, Memoranda, etc.). The document, once received by an office personnel, is assessed according to content and placed in its appropriate box/binder. For softcopy files, .doc, .xls, and .pdf files are saved in the internal memory of one of the computers in either the E-BEIS or the Principal's Office. Often, these files are saved in “My Documents”, a default folder in a Windows computer. Another practice in saving softcopy files is through the use of Facebook groups. This feature of Facebook is used as a cloud storage where files are uploaded and stored.

**Retrieval of Data.** In cases when teachers, department heads, school head, or the Schools Division of Imus City personnel asks for data, retrieval of archived documents is necessary. E-BEIS and Principal's Office personnel will look for the document in the boxes/binders, produce a photocopy of the document, and return the document to the same box/binder. Softcopy files are retrieved in two ways. If the file is saved in the computer's internal memory, the office personnel searches through the files until the document is found. Another option is by finding and downloading the uploaded document in Facebook group.

### **Challenges in the Existing Process**

In the course of the focus group discussion, participants recalled their experiences with data management. They were asked to tell about challenges or struggles that they encountered with any part of the data management process they have defined previously. In the reflections of the participants, two themes emerged: a) time, and b) organization.

**Time.** The present process was identified by one of the participants as a “traditional form of data management, involving filing of printed documents”. Upon reflection, they considered the existing process as time-consuming, particularly the sub-processes of filing and retrieval of data. When filing data, the office personnel needs to look for the appropriate box among the cabinets in the office. Once found, the personnel will search for the folder where the document belongs to. If no such folder exists, the personnel will have to make one by printing a label and pasting it to the folder. Afterwards, the box will be put into its original position in the cabinet. A common struggle in this filing method, encountered by the participants, is the lack of proper labels. Once a personnel forgets to put a label onto the box, it will be difficult to find the most appropriate box/binder to which the document will be filed. The same issue is observed with retrieving data. When asked for a document, the personnel will have to search through the cabinets, boxes, and binders, to get the required data. Often, the party asking for the document will have to wait until the data is found.

**Organization.** The participants were asked to clarify what they meant by lack of organization in the current process. Most of the participants defined organization as “a state of sorting and storing documents”, as in an archive. Both the E-BEIS and the Principal’s Office lack room for storage, given that they keep documents dated as far as three years ago. One of the challenges faced by office personnel is how to keep all the documents well-sorted out, properly labelled, and easily retrieved when necessary. Once the documents are not properly sorted, it leads to missing or misplaced files and data. On the contrary, one participant defined lack of organization as “*redundant style of data management*”. When asked to explain further, she pointed out that it was “*redundant to have two offices store the same documents*”. It was a waste of space, energy, and time to have two offices file the same data, with neither being able to retrieve data as quickly as possible, without the need to search through boxes and folders.

### **The New System: GEANHS’ Electronic Archiving and Retrieval System (GEARS)**

Upon identifying the participants’ challenges with regards to data management, they also shared their ideas on how to make the process more efficient for all personnel involved. Their unified response to this matter is having a data bank for the school. They described data bank as a platform which is more secure, safe, timely, and organized, addressing the concerns and challenges previously mentioned. Hence, upon hearing the concerns and suggestions of the participants, the Principal’s Office initiated a project entitled GEARS or GEANHS’ Electronic Archiving & Retrieval System. The project involved creating a Google Drive account for the school where all documents submitted to the office are scanned and stored. Links to these

documents are placed in a Wix.com website in an organized manner so that these files could easily be retrieved.

Wix and Google Sites, web hosts, and Google Drive, a cloud service database management system, were chosen for developing Project GEARS. The main online platform chosen is Wix.com, a cloud-based development platform, which allows users to create web sites through the use of online drag and drop tools, with no coding needed. To serve as a back-up platform, Google Sites was also be utilized. Google Sites is a structured web page creation tool that allows users to create a team-oriented site where multiple people can collaborate and share files. Google Drive, to be used together with Google Sites, is a file storage and synchronization device that allows users to store files in the cloud, synchronize files across devices, and share files.

The Home Page of the Data Bank contains three important parts: The Upload Box is used to add files to the archive; the Menu Tab enables a user-friendly navigation through monthly, quarterly, semiannual and annual reports, and; the Search Box gives instant results for reports typed. A special feature of the site is the clock, which symbolizes timeliness of reports. Once a user clicks any tab from the menu bar, it gives a menu containing links to different reports, which are categorized as monthly, quarterly, semiannual and annual documents. Clicking on a link, for instance, Supervisory Report, will open a Lightbox (similar to a Pop-Up Page), which contains links to the google docs format of the reports. Scanned documents are saved as Google Docs files, and stored in the school's Google Drive account, which is then linked to Wix.com and Google Sites. Once the links are clicked, the copy of the document corresponding to the clicked link will appear on a new tab on the browser.

As designed, the system stores: 1) all reports submitted to the Schools Division Office, sorted by monthly, quarterly, biannual, and annual basis; 2) Narrative Reports; and 3) School Memoranda. Once uploaded, these reports can also be retrieved by simply clicking the link on the website. The administrative offices, particularly the Principal's Office, Department Heads' Office, and the E-BEIS office will act as the main consumers and suppliers of data on the system.

### **Implications of GEARS**

The purpose of GEARS was to address the challenges that reflected on the prior focus group discussion with the participants. After a two-week dry run on the implementation of the new system, a focus group discussion was again made in order to gain the insights of the research participants. For the second phase of the interview, they were asked about the implications of the project with the data management process of the school. As codes and thematically organized, the responses of the participants were categorized into four: 1) efficient, 2) accessible 3) organized, and 4) secure.

**Efficient.** Through project GEARS, the participants observed important changes in the data management practice, particularly in saving time and finances. A Principal's Office personnel noted that the new system enabled "an easier way of storing, organizing and retrieving documents, which saves about half of the time spent on the old process." In the new process, the document is scanned and saved in the Google drive. This, according to a clerk, "spares us from manually labeling each file and

folders. We also do not have to purchase many folders, binders, and filing boxes because documents are already stored in the cloud.” This is similar to Richmond’s (2010) findings that electronic filing saves production cost for the company, which also enhances productivity. Costs are reduced by an effective data management system because less money are spent for equipment.

**Accessible.** Another significant change in the new system is its advocacy for transparency and accessibility. Since all documents are linked to the Wix.com site, they can be easily accessed anytime and anywhere with internet connection. This is especially necessary for an organization that is geographically dispersed, such as GEANHS which has faculties and offices in different building around the campus. According to Gregg (2013), when there is only one file of the data, managing the printed document involved becomes a physical challenge. Through the new system, this challenge is addressed. One of the Department Heads stated that they “do not need to go to the E-BEIS or Principal’s Office to retrieve data we need; as long as we have internet connection, we can easily access all the documents, saving us the time, effort, and energy.” When the schools division office also asks for information on school data, “clerks can simply turn to the website, click on the links of the documents or use the search button, and they easily access the information needed.”

**Organized.** Since the uploaded documents are sorted into categories, it is much easier to organize data, as compared to the manual filing which involved pasting labels to folders and putting them in boxes and cabinets. Data are organized and it is simpler to retrieve data for there is no need to search for boxes and folders. Moreover, electronic data management gives unlimited storage space as compared to conventional method that involves categorizing several printed papers in a cabinet to allow for retrieval when needed (Iziomo, 2014).

**Secure.** As a participant stated, with the new system, “there is no fear of getting data lost.” As mentioned earlier, all files in electronic format are saved in Google drive and Wix.com, aside from the server’s internal storage. An office clerk narrated that “with manual filing, natural disasters, like the typhoon and flooding we experienced in the past, damaged most of our documents. We managed to save the papers but the data written on them were already lost since they were drenched.” By safekeeping electronic files of printed documents, data is more secure and protected.

## **Conclusions**

The existing data management practices in the school involves: 1) data gathering and receiving of reports/ documents by E-BEIS and Principal’s Office, 2) filing and storage, and 3) retrieval of data. The same process is undergone by both the hardcopy and the softcopy of a files. A printed document is received personally by an E-BEIS or Principal’s Office staff; assessed and labeled according to content before being filed in folders, boxes, and cabinets; and retrieved by locating the folder where it was placed. A softcopy, on the other hand, is received by the E-BEIS or Principal’s Office staff through email or Facebook; saved in the computer’s internal memory or uploaded in Facebook group; and retrieved by clicking links in the group or by asking for a copy from the offices. Challenges in the existing process mainly revolves around time, and organization. The existing process was time-consuming, particularly with filing and retrieval of data. When filing data, the office personnel needs to look for the

appropriate box among the cabinets in the office. When retrieving, the personnel will have to search through the cabinets, boxes, and binders, to get the required data.

The new system introduced is project GEARS or GEANHS' Electronic Archiving & Retrieval System. The project involved creating a Google Drive account for the school where all documents submitted to the office are scanned and stored, and linked to a Wix.com website for retrieval. Implications on the new system were positive and was observed as efficient, accessible, organized, and secure. First, the project helped saved time and finances in data management. Second, files can be easily accessed anytime and anywhere with internet connection. Third, organizing files became easier, as compared to the manual filing. Finally, data is more secure and protected by saving electronic formats in the cloud.

The study reveals the importance of a data bank manager/ coordinator. It is imperative for the school to appoint a coordinator whose responsibilities will be compilation, maintenance and utilization of the data bank and the documents filed within. Records management function should be incorporated into the organization-wide strategic planning initiatives. Most importantly, senior management should embrace the records management function to ensure its effectiveness and should be incorporated into their performance management targets. It is also necessary that administrators and key personnel are trained on data management, particularly on the use of online data bank. This will ensure sustainability of the project and will encourage future improvements of the system.

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