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**Academic Records Management Systems (ARMS) and Students' Academic
Records Maintenance in Nigerian Universities**

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Abstract

Librarians organize information resources of all kind for easy access and retrieval; organizational records are one of such information resources that librarians organize for quick access and easy retrieval when needed by the organizations. Academic records being vital information resources that determines the future of students and the efficient workability of academic institutions like universities and other schools are to be well managed and organized so as not to get them mutilated, destroyed or missing. These academic records which include course registration, results, transcript and the likes are supposed to be well managed as they contain delicate information concerning the daily transactions of students and lecturers in the institution and they also contain evidence of academic performances of the trainees. In this 21st century universities in Nigeria are expected to be able to grow beyond managing such delicate and important records manually with the use of papers, files and cabinet to managing the records with the use of academic records management system software (ARMS) that is specially configured with the relevant and requisite modules to manage and organize academic records. Whereas a lot of universities in Nigeria are yet to upgrade to using some of these software to manage their academic records, it is pertinent for this paper to be able to expose some of such ways that these very important records can be properly and efficiently managed. This style of managing student academic records are important in order to guard against natural and artificial disasters like flood, fire, humidity, dust, mutilation, lost etc. when these records are managed with the use of the academic records management system (ARMS) it goes a long way to ensuring safety and easy access of the students academic records. So this paper presents Concepts of ARMS, Students' academic records, Types of records management systems (RMS), elements and feature of a efficient RMS, ARMS procedure, Advantages and perceived problems of using ARMS, Application of ARMS in maintenance of students academic records.

Key Words

Records, Academic records, Management system, Preservation, Conservation, Archives, Records management, ARMS, Software,

Introduction

Records are very important documents in any establishment. It refers to recorded information, regardless of form or medium, received and maintained by an agency, institution, organization or individual in pursuance of its legal obligations or in the transaction of business of any kind (Isah, 2019). This information being very important have to be mindfully kept in order to remember what was done at any point in time. This is important because human memory has a limit to what it can retain and recollect accurately.

Universities create, use and maintain a whole lot of records, most of which are academic records, hence the need for an Academic Records Management System (ARMS). ARMS are software developed and also used to manage all academic records electronically in an academic institution. This system creates fields to digitally manage all information pertaining to a student's academic activity ranging from bio-data, registration details, lecture details, continuous assessments and examination results; cumulative grade point average, transcripts, certificates etc. (Gary, 2014). All these vital academic records though still maintaining their original format or paper base are important and should be managed electronically to forestall misplacement, damage, theft or any other mishap. Other terms for it is "student information system", "student records management system" and "academic information system", they all perform the same function.

In most Nigerian universities, most records are believed to be paper-based (Okon, 2019). This means that the information is captured on paper. However, the media for information carriage can also be in other forms like machine readable disks, graphics, images, diskettes, flash drives, data bases, other virtual formats and pictorial media, be they photographic or not. Records are important historical and legal tools and are necessary for the smooth running of an institution. To recreate them in the event of a total loss would cost millions of naira. The loss of university's records or even a part of them could destroy the evidence of students' achievements, staff entitlements and jeopardize a university's rights and interests. For instance, there was an incident in the University of Uyo on June 12, 2012 when the records unit of the university was partially raised down by fire, a lot of students' records were completely destroyed and there was no possible replacement. This is an example of a great and costly loss that could possibly occur to both the university and the affected students. Such records were difficult if not impossible to be traced and recovered.

Academic activities in a university cannot be complete without students and lecturers. As a matter of fact, they are the embodiment of academic activities in universities and all they generate officially forms academic record (Okon, 2014).

Records management in developing countries, and indeed Nigeria according to Atulomah (2021) is yet to attain the level of attention and support that it has received in countries of the developed world. The foregoing seems to point to the need for a sound Academic Record Management System (ARMS) in our higher institutions. Okwilagwe and Njoku (2022) agree that the development of ARMS in Africa is due to certain inhibitive factors such as poor infrastructure, ill-trained personnel to handle equipment and absence of management information system (MIS) based policy. The above is in line with Isah (2019) who identified the afore mentioned as requirements for an efficiently based MIS at the tertiary education level. A Records Management System (RMS) was necessitated out of the fact that there were difficulties in organizing, managing and accessing records. Automating records was now considered as a panacea to several problems of losing and misplacing records. A very good records management system

need to possess all the sterling characteristics that enables it carry out desirable functions. These characteristics form the indices that would be used to evaluate its use in maintenance of students' records. Such attributes may include accuracy (completeness and consistency), timeliness, security, cost benefit, availability, implementation, records inventory/classification, flexibility, retention and disposition, effectiveness, conversion, storage and ease-of-use.

Students' Academic Records (SAR)

Academic records are very vital and delicate records containing information and items of students in all their academic activities ranging from registration details, courses, results, bio-data, certificates, papers, and further details on ones experience in the course of teaching and learning. These records are needed for the everyday running of the academic activities of an institution, virtually every semester there are input done and the records keep increasing and that means more tasks to the record keepers. Also, from time to time there are request for some of these records from various quarters in form of a student coming to request for academic transcript or for the purpose of verifying of students' result, the university authority requesting for it for computation and compilation of final result for approval. It can also be required for appraisal purposes, promotions or appointments and accreditation purposes of which it has to be retrieved as quickly as possible and without alterations or mistakes, these records can make or mar an institution and without it the institution is baseless and as such does not exist. Popoola and Oluwole (2019) observed that Nigerian university administrators are often concerned about the alarming rate of misplacement or loss of vital records and the slow speed at which needed records are retrieved from their storage. The records management system used for keeping these records is as important as the record itself, because if the records are not properly kept there can be problems like misplacement of records, damage of records, delay in retrieval, wrong record information and several other anti-record access display. This shows the need for a well-designed records management system for effective records management and control.

Academic Records Management Systems (ARMS)

Until recently, almost all records were on paper, but modern organizations are increasingly using digital media and records maintained digitally are known to records managers as electronic records (or digital records). National Archives of Australia Digital Record keeping Guidelines (2019) note that digital record include word-processed documents, spreadsheets, multimedia presentations, email, websites and online transactions. Electronic records can be found in many systems throughout the organization-including databases and business information systems, shared folders and hard drives. According to the Victorian Electronic Records Strategy (2012), electronic records are evidence of organizational activities and are generally the computerised versions of traditional paper records. Sources of electronic records range from desktop publications such as Word, Excel, and email, to corporate applications such as financial systems, human resource systems and corporate databases (Shepherd and Yaro, 2023).

Academic records management system is responsible for the efficient and systematic control of the creation, receipt, maintenance, use, and disposition of academic records, including processes for capturing and maintaining evidence of and information about academic activities and transactions in the form of records. Academic records, therefore, have value and add to the intrinsic worth of an academic institution. Academic records need to be managed in a meaningful way so they can be accessed and used in the course of daily academic functions throughout the Academic environment. As posited by Rankin (2023) academic records are recorded

information, regardless of medium or characteristics, made or received by an institution in pursuance of legal obligations or in the transaction of any academic activity.

The inefficiency of filing maintenance and storage systems can prove to be costly in terms of wasted space and resources expended searching for records, otherwise, electronic academic records management system is better recommended as it is digitally operated and as such gives fast result. An academic record is said to be inactive when it is no longer needed to conduct current academic activities but it has to be preserved until it meets the end of its retention period of which in the academic system such period is not defined, (Marquest, *et al.*,2021). These records are known to have legal, fiscal, or historical value for the entity in the future and, therefore, are required to be maintained for a short or permanent duration. Records are managed according to the retention schedule, once the life span of an academic record has been satisfied according to its predetermined period and there are no legal holds pending, it is authorized for final disposition, which may include transfer, or permanent preservation. Throughout the academic records life cycle, issues such as security, privacy, disaster recovery, theft, emerging technologies, and mergers are experienced, academic records managers are instrumental in controlling and safeguarding the information assets contained in academic record. They understand how to manage the creation, access, distribution, storage, and disposition of records and information in an efficient and cost-effective manner using the records management system methodology, principles, and best practices in compliance with records and information laws and regulations.

Top School Academic Management System (2015) provides all the tools to track students as they move towards program finishing point and graduation. The system gives Faculty members, the Registrar, academic advisors and student services teams the ability to stay on top of students' progress and assess any potential risk factors so students can be sure to receive the needed support to succeed. There is also an academic advising system which supplements the conventional advising process. It minimizes repetitive tasks performed by advisors, encourages students to adopt a proactive attitude towards advising, makes advising-related information available to remote students in a single place in electronic form and minimizes inconsistencies in the advising process (Marques *et al.*, 2021). This system supports three types of users: students, advisors and secretaries. The system advises students on course descriptions, courses to take next, based on classes they have already taken, etc. At the Methodist University College Ghana, there is a system for the management of student data: registration of students, registration of courses, setting and entering of results of students, and viewing of transcripts by students. In all these systems, the focus is on the students and their activities (Ofosu and Bemile, 2023). There is no doubt that students are important when it comes to the academia because they fuel the academic system.

Types of Records Management Systems

Academic records management is an administrative function that maintains an institution's records. According to Grayson (2020), this includes the management of academic records through retention policies, classification, storage, preservation and destruction. A record can be tangible, such as paper and microfilm, or simply consist of digital information stored electronically. Most modern organizations store the bulk of their records in digital form. Below are the types of Records Management Systems according to Grayson:

Document Management System (DMS): A document management system promotes creating, finding and sharing information. It usually takes the form of business software and assists in organizing and disseminating the organizational knowledge base. A DMS features easy access to relevant data and facilitates information mining. It often includes security features. Security is important to maintain an organization's critical data and business secrets, and DMS security features also serve to protect personal user information and customer data.

Content Management System (CMS): A content management system consists of the rules, procedures and processes used to manage work flow for an organization. A benefit of a CMS is the ability of end users to collaborate on document creation and revision. Organizations use a CMS as centralized data storage. The centralized access to documents provides a platform for end users to control, revise, publish and add commentary. A CMS also facilitates communication between users.

Library Management System (LMS): A library management system is an enterprise resource planning system for a library. It is used to track individual items and patron accounts, and to monitor a library's entire collection. The LMS consists of a centralized database and a method for the patrons and staff to interact with the system. Library members of staff have access to functionality that includes acquisitions, cataloging and circulation. Serial subscriptions are also tracked from the LMS.

Digital Imaging System (DIS): This gives organizations the ability to capture, store and distribute an enormous number of records over electronic networks. In the past, business relied on papers and microfilms for storage. A DIS speeds the search and retrieval process for documents and information. Organizations can save space because the decrease in the need for filing cabinets and other storage devices, online dissemination of data and the ability to integrate with other information management systems is the main benefit of a DIS.

Elements and Features of an Effective Academic Records Management System

In order for ARMS to be able to achieve its desired aims, there are certain features it must possess. According to Ohio State University (2014), these features enable the system to work effectively and block every loop holes. Such features include:

- i. Ability to keep records inventory and do proper classification of academic records; This include answering questions like how and where the physical records are stored, volume of storage, how they are classified, what its retention period is or its administrative value, to determine retention.
- ii. Retention Scheduling; this has to do with the life cycle of every record. In determining this, the record has to be analysed through the types of record if it's legal, fiscal, administrative, evidential, historical or informational. All these determine the retention scheduling of each record.
- iii. Records Storage and Conversion; this is developing a filing and storage strategy to address issues like classification of records for easy retrieval, access procedure for sensitive records, where and how active and inactive records are stored, presence of records hold procedure in case of litigation, procedure for transferring records of enduring historical value to the archives, storing of electronic records, identification of vital records and environmental conditions of storage facilities.
- iv. Vital Records; these are essential organizational records needed to meet operational responsibilities under emergency or disaster conditions. The system needs to be able

- to place for crucial records for business operations and create backup copies in event of disaster.
- v. Disaster Prevention and Recovery; the system must be able to create a disaster prevention and recovery plan, which is written and approved by the institution. List of vital records need be included in the plan for proper planning. The plan has to be made of the following components; a chain of command with contact information, a decision tree for appropriate actions, list of emergency management officials with contact information, list of records reclamation vendors, back up policy, systems restoration procedures etc.
 - vi. Policies and Procedures: Ultimately all the above should be rolled together into a written adopted and implemented set of policies and procedures with a manual produced to that effect. Logan (2015) added the following features; Controlled access with audit features, integration with core software (that is the adopted records management system should be able to integrate with other software if introduced), integrated search strategy, web importing ability (enabling files from emails and other electronic documents into the system), all these are great features a good academic records management system should possess. According to Ibara (2020) the following are characteristics or attributes of good record management system (although modifications can be made):
 - vii. Completeness: Complete and comprehensive records should be kept to give users all the information needed to plan and make effective decisions.
 - viii. Cost: Records should not be too expensive to keep. This means that the financial cost of collecting, analyzing, synthesizing, storing and retrieving records should be low.
 - ix. Flexibility: Data is flexible if it can be used by more than one user at different times for different purposes.
 - x. Quality: The quality of any information contained in any record must be accurate and reliable. The greater the accuracy and reliability, the higher the quality of information, and the more likely the information system is to work well.
 - xi. Relevance: A relevant record is one that is useful to the needs of the system. A good deal of irrelevant information is kept, particularly in schools. Data that is no longer relevant and not required by law should be securely disposed of.
 - xii. Retention and Disposition of Records: The disposition of records does not entirely mean destruction. Disposition can also include transfer of records to a historical achieve, to a museum, etc. In the case of schools, however, most records are disposed of when no longer needed. The public officials concerned may destroy these records upon expiration of the retention period.
 - xiii. Timeliness: Information contained in a record should be retrievable as it is needed rather than after important decisions have been made.
 - xiv. Variability: This refers to the degree of consensus arrived at among various users examining the record. The greater the consensus among users, the more accepted the record.
 - xv. Maintenance: The maintenance of records involves all activities that ensure that they are in good condition, and kept in an orderly state. This is a central function of records management.

Also very important to note is that every institution should have their students' records management policy which guides the collection, management, retrieval and archiving of every students' record.

Academic Records Management Systems Procedures

Academic records are not just managed; there are procedures and guideline that have been considered globally as posited by the International Standardization Organisation (ISO) (2010).

- a. Setting policies and standards: it is necessary for every organized academic institution to set up academic records management policies to guide the entire process.
- b. Assigning responsibilities and authorities: with this there will be division of labour and each officer will know his or her duty
- c. Establishing and promulgating procedures and guidelines
- d. Providing a range of services relating to the management and use of academic records
- e. Designing, implementing and administering specialized systems for managing academic records
- f. Integrating academic records management into university systems and processes.
- g. Planning the academic record information needs of an institution
- h. Identifying the required academic record information to be capture
- i. Creating, approving, and enforcing policies and practices regarding academic records, including their organization and disposal
- j. Developing a records storage plan, which includes the short and long-term housing of physical records and digital information
- k. Identifying, classifying, and storing academic records
- l. Coordinating access to records internally and outside of the institution, balancing the requirements of academic record confidentiality, data privacy, and public access.
- m. Executing a retention policy on the disposal of academic records which are no longer required for operational reasons; according to institutions academic record management policies, statutory requirements, and other regulations this may involve either their destruction or permanent preservation in an archive.

Advantages of Academic Records Management Systems

- i. It saves time for checking and retrieving of any academic record
- ii. It secures academic record from natural disaster, mutilation, destruction of any kind and theft
- iii. Records can be easily saved and retrieved
- iv. Easy verification of results and other delicate records
- v. Records can be accessed from any point by an authorized personnel

These concepts if properly studied, understood and implemented at various necessary quarters will change the perception, nature and mode of processing and handling of records. (Megil, 2015).

Perceived Problems Associated with ARMS

- i. Expensive to start
- ii. Poor or lack of infrastructure like good computers, power, backup systems etc
- iii. Lack of trained personnel
- iv. Poor maintenance culture

- v. Adaptability by personnel who were already used to manual system and find it difficult to adapt

The Concept of Student Records Maintenance

The university is generally an institution for the training and development of people, these people when enrolled are students. These students offer various courses and as such must maintain student records. The generated records then have to be properly managed for reference purposes and easy retrieval when needed. According to Durosaro (2022), in the interest of efficiency, records schedule are formulated and this records schedule identifies categories of student related records and these identified records series are usually common. The students' academic records schedule contains guidelines, do's and don'ts, categories of students' records and other necessary details that aid the proper management of the records for efficient and effective operations. Academic departments hold a great deal of information on their students, usually in a variety of forms and locations, and it is expected that the departments will need to be able to locate and collate the information quickly. It is therefore vital that key personnel (typically Head of Department and/or Data Protection Adviser) know what information is held and by whom. Ideally, all information relating to individual students in academic departments should be kept in central departmental student record files (paper or electronic) so that when needed, the department can be confident that all the information is easily accessible from a limited number of central sources. According to Egwuyenga (2019) Data Protection Act provides guidance as to the consultation of records. The Data Protection Act of 1998 gives individuals the right to access the information that an organization holds on them. In order to comply with this part of the Act, organizations need to have in place effective means of extracting and retrieving information from a variety of sources.

Students' academic records are indeed very vital records that need to be kept. These records according to Gary (2014) contains the courses registered by a particular student, credit hours of the courses, lecturers assigned courses and total credit units. This record is kept in order to be able to know all students that registered for each course for effective planning of the class and other academic schedules like lectures, test, examinations, attendance and results can also be prepared. This record being a vital academic record has to be filed traditionally and also saved with the use of ARMS software in the provided university academic record data base so that should the hard copy be missing or mutilated the data base can be quickly considered as a backup. This will help curtail a lot of excesses that might show up in event of any anomaly. As part of the course record also includes the student course description where each course to be taken by the student is explained and described to the understanding of the student so the student can have a fair knowledge of what to expect in the course. Another parameter is the courses to take next, this help the student to prepare for the next semester or session as the case may be. These students' course indices should form part of the students' course records which would be properly filed and saved in the database for effective academic process.

In every institution of higher learning, every student is required to carry out registration exercise before becoming a member of that institution. Without registration a student cannot be known or identified. As posited by Rankin (2023), a student on gaining admission into an institution is expected to carry out all registration formalities. The student accesses the registration data base and fills the forms containing the bio-data, where he or she is also expected to upload sets of credentials. Such student can also approach the registration office and complete certain forms and also tender original documents for sighting and possibly capturing into the database. Also

the courses registered by each student also reflects here, this record is kept in order to be able to know all students that registered for each course for effective planning of the class and other academic schedules like lectures, test, examinations, attendance and results can also be prepared. This record being a vital academic record has to be filed traditionally and also saved with the use of ARMS software in the provided university academic record data base so that should the hard copy be missing or mutilated the data base can be quickly considered as a backup. This will help curtail a lot of excesses that might show up in event of any anomaly. A student that is completely registered has all the information required of him at the university database and everything about that student can be gotten once his or her registration record is viewed.

The expectation of every student in school is to get a result which would thereafter be translated to a statement or certificate. The result of a student's performance while in school is the ultimate of his or her struggle and does not toil with it. Results are restricted records that are safely and cautiously kept, activity by activity, course by course, semester by semester until it's finally cumulated to an overall outcome of one's study. Result of every activity is its test, term paper or examination should be properly filed and inputted as it will also enhance easy procession, submission and retrieval of results. According to Durosaro (2022) characteristics of student result record should have the capacity to enter results, analyze results and set the result for access and viewing. Also at the end of one's study the student should be able to through authorization view the result and transcript. The records officer and system analyst should also be able to access results and prepare transcripts to be sent to any institution that requires same electronically or by post depending on where it is sent to and the preferred format.

Managing student academic records according to Fasasi in Osakwe (2021) is meant to enhance the performance of school administrators. An adequate record management programme coordinates and protects an institutions records, sharpens the effectiveness of records as management memory, and helps to simplify intra-organizational and communication problems. The management of records in schools, like in any other organization, is a cyclic process involving principals, teachers, students, messengers and cleaners. Most records are handled by school heads and are kept manually, hence the processing, retrieval and utilization of records is not always easy.

Application of Academic Records Management Systems in the Maintenance of Students academic Records.

In applying ARMS to maintaining students' academic records there are some merits that are observed which makes the maintained records to be very useful and effective as a legal document of an institution. Some of such merits are as discussed below as opined by Okon(2019);

Accuracy and Maintenance of Students' Records

Applying ARMS in maintenance of students' records can help the records to be accurate. Accuracy refers to validity and acceptability of information; as Information may be accurate or inaccurate, true or false. Information is accurate if it represents the situation, level, or state of an event as it really is. Inaccurate information can be as a result of errors that could have occurred during collection, processing, or report generation. Consequently, every record and records management system must be carefully checked and tracked to ensure accuracy of information.

Students' records must accurately reflect the transactions that are documented. It has to be ascertained that the right information is entered.

Timeliness and Maintenance of Students' Records

Timeliness is a measure of how responsive the information system is in providing information at the time it is required. Timeliness also refers to whether information is delivered quickly after the request is made. Academic Records are most times needed urgently and any records management system used has to be very timely. Substantial delay in academic record processing may significantly reduce its usefulness to a manager or user, it can also happen that information available at the time of decision making is incomplete and therefore additional information could be needed as fast as possible. If a record management system cannot provide that information as at when needed the information might become obsolete and the decision therefore not taken. Timeliness is a critical factor in records management because even if a record is accurate, complete and relevant but cannot be provided at the time needed it becomes useless for the purpose for which it was needed.

When information from a students' record is requested, it is usually required to be prompt and current. A principal making placement decisions about a new student needs the previous school's records immediately to assign the student to the appropriate programs and services. A well-designed students' record system need allow for timely retrieval of needed information in these, or similar, situations. Students' records should be communicated in time so that those using the records will have enough time to decide appropriate actions based on the records received.

This goes on to infer that every records management system should be able to give both past and present information for eventual future use. Most students while in school and even after graduation request for their transcript of past academic activities carried out while in school, some for post graduate admission, some for scholarship and some others for verification in their work places. In such cases the records management system should be able to retrieve every needed record and information down memory lane as required. The system should be able to help one monitor the progress of a student and to know if such student will be able to cope and continue with the study or not, there by advising the student appropriately. So the effect of time in a records' management system is very important and crucial in using ARMS in management of student academic record.

Security and Maintenance of Students' Record

Records must be secured while maintained to prevent unauthorized access, alterations, damages, theft or removal. It must be stored in a secured environment, the degree of security reflecting the sensitivity and importance of the contents. Where records are migrated across changes in technology, the evidence preserved must remain authentic and accurate. That is why adequate records management system is recommended so as to check unwanted access. Information security according to Schander (2019) may be defined as the preservation of:

- Confidentiality: protecting information from unauthorized access and disclosure;
- Integrity: safeguarding the authenticity, accuracy and completeness of information and processing methods; and
- Accountability: keeping and maintaining a balanced record as inputted from the beginning
- Availability: ensuring that information and associated services are available to authorized users when required.

Appropriate protection is required for all forms of records, paper or electronic, to ensure business continuity and efficiency, and to avoid breaches of statutory, regulatory or contractual obligations.

Organisations and their information systems face security threats likewise institutions like universities from a wide range of sources, including computer-assisted fraud, sabotage, vandalism, theft, fire or flood. Damage caused by breaches such as computer viruses and computer hacking is becoming increasingly common and sophisticated. Dependence on information systems and services means that organisations are increasingly exposed and vulnerable to security threats hence the need for every recorded information to be given the utmost records security. Penn State University (2016) noted that in managing records properly, one should be keeping them secure. This process involves an assessment of how secure it needs to be, depending on the nature, content and importance of it. Hence ARMS help in the security of students academic records.

Cost Benefit and Maintenance of Student Records

Cost benefit analysis is a very important managerial tool that is used to determine and decide what important and needed activity or action saves more cost than the other at the long run. Cost benefit is an influence to a decision for an alternative that can actually be more expensive if implemented. Every manager strives to ensure that profit is maximized at the expense of almost nothing, and the manager tailors virtually all decisions towards what would be more cost beneficial. For one to know what is more cost beneficial to the other there have to be a cost benefit analysis (CBA). Cost benefit analysis according to Boardman (2019) is a systematic approach to estimating the strengths and weaknesses of alternatives; it is used to determine options that provide the best approach to achieve benefits while preserving savings. The CBA is also defined as a systematic process for calculating and comparing benefits and costs of a decision, policy or activity. Boardman further noted that broadly, CBA has two main purposes:

- To determine if an investment/decision is sound (justification/feasibility) – verifying whether its benefits outweigh the costs,
- To provide a basis for comparing projects – which involves comparing the total expected cost of each option against its total expected benefits

On the premise of the above, it is pertinent to note that students' academic records being very vital and delicate documents need to be properly maintained and the system of maintenance needs to be weighed against the backdrop of losing the record and recovering same. The manual system of maintaining students' academic records may appear cheap but weighed on the expense of indices of interruption like delays, misplacement, destruction, theft, mutilation of records and recovering same in its original and accurate state is very costly and unimaginably expensive. The use of an academic records management system may initially appear to be expensive but ultimately cheap when weighed against the earlier mentioned indices of interruption. It will be easier to recover the students' academic records quickly, without misplacement or destruction and accurately.

A well-conceived and implemented automated students' records system can reduce the costs of handling the paperwork associated with record keeping. Even when such a system proves initially expensive and actual reductions in current costs are not achieved, it is justified given future savings and efficiency. Nevertheless, Rankin (2023) opined that system developers and implementers have to contend with two major concerns in order to maximize the cost-saving benefits of an automated system.

First, it is sometimes thought that automated data systems do not result in actual savings. Granted there are computer purchase costs and personnel needed to maintain the system. These costs, while not minimal, should pay for themselves with the usefulness of the data and the reduced time data providers have to spend on data collections. The author further noted that concerns about the reliability of computers may also lead some staff members to continue keeping their old records, for security purpose. Popoola (2020) noted that during the early stages of automating data, it is often wise to maintain the data in two places, so that glitches can be resolved before relying solely on the automated system.

Availability and Maintenance of Student Records

An effective automated students' record system should provide the information required on request, easily, and without a burdensome trial-and-error searching. From the first steps of designing the system, the queries that will follow are anticipated and accommodated. Similar to an office filing system, the adequacy of a students' record system is often judged by how much time and effort are required to find and retrieve information. Therefore, a key part of the design of a student record system is its process for access, retrieval, and reporting. The system is further expected to operate satisfactorily at every given point in time; the system has to be in an operable and committable state at all times. The system is also expected not to be affected by power outage as necessary power banks or backups like uninterrupted power supply (UPS) and inverters should be put in place to assist the system work effectively. The system should always be accessible and necessary information gotten when needed. Okwilagwe and Njoku (2022) noted that as part of availability, there is need to ensure that ARMS is actually used or implemented in the universities. In a situation where a university exists without using any records management system, then such institution can be likened to Stone Age. It is dangerous to operate a university without the use of a records management system because if anything tampers with the records of the institution, the system will collapse because those records will be irreplaceable. Wamukoya (2020) noted that the ARMS must be in a specified operable and committable state, the system must be in a functioning condition at all times, because according to Nwankwo (2019) availability of a system is typically measured as a factor of its reliability and maintainability, because if a system is always available, it can be relied upon at anytime as one is sure that the records contained therein are properly maintained which is typically what every academic institution needs. An ARMS that is available gives the impression that it will operate satisfactorily at a given point in time when used under stated conditions in an ideal support environment. This goes further to show that an academic records management system has to be up and running at every point in time so that anytime it is needed it can be consulted and result gotten at the spot.

Ease-of-Use and Maintenance of Students Records

Ease-of-use according to ISO (2016) is the extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency, and satisfaction in a specified context of use. This definition can be expanded, and made more comprehensive, by including five characteristics which must be met for the users of a product which include Effective, Efficient, Engaging, Error Tolerant and Easy to Learn. Understanding of the five characteristics (5 E's) of ease-of-use which help guide the user-centered design tasks to the goal it is designed for. The 5 Es describe the multi-faceted characteristics of ease-of -use. Interfaces are evaluated against the combination of these characteristics which best describe the user's requirements for

success and satisfaction. Ease-of-use means user-centered design which therefore means that users are satisfied when an interface is user-centered and when their goals, mental models, tasks and requirements are all met. An ARMS that takes cognizance of the user right from the design and analysis stage is more likely to be easily used and also very likely to produce results.

The academic records management system used in managing students' record should be such that can be easily used and understood by anybody that uses it at any point in time. It should not be cumbersome, having too many protocols; one should not need to undergo rigorous trainings to use the system in order to attain effectiveness and to achieve laid down objectives. The records so presented in the system should be understandable to users, Style, sentence structure and jargons should be used keeping the receivers and new users in mind. Technical jargons and protocols need be properly interpreted and directed. An academic records management system adopted by any institution should not be ambiguous with too many technicalities, it should have easy steps and each step of usage should clearly and simply direct the user appropriately to use the system and achieve its essence.

The 5E's as explained by Quesenbery (2016) are very important ingredients in ensuring that an ARMS can achieve its stated objectives. Effectiveness according to the author is the completeness and accuracy with which users achieve specified goals. It is determined by looking at whether the user's goals were met successfully and whether all work is correct. It can sometimes be difficult to separate effectiveness from efficiency, but they are not the same. Quesenbery further noted that efficiency is concerned primarily with how quickly a task can be completed, while effectiveness considers how well the work is done. Navigation design elements such as keyboard shortcuts, menus, links and other buttons all have an impact on efficiency. When they are well-designed, with clearly expressed actions, less time and effort are needed for the user to make navigation and action choices.

Recommendations

- i. The national universities commission should make it as a policy that every Nigerian university should use an academic records management system as it would help in proper maintenance of students' records
- ii. Any form of ARMS used should be properly assessed to ensure its features meet required standards
- iii. There should be training and retraining of staff members and students in the use of the system
- iv. For a start both manual and digital records management systems should be used until the system stabilizes
- v. There should be proper system backup in place in case of any system failure.

Conclusion

With the use of ARMS to maintain students' academic records in Nigerian universities, such records would be available, secured and always efficient for us. Issues of disappointments, mutilation, and destruction of academic records would be of the past. All Nigerian university should be encouraged to use an academic records management system to forestall mishaps of any kind associated with students' records.

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