

Modelling and Implementation of Staff Record Management System of Federal Polytechnics in the North-East

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Abstract:- Record Management System (RMS) is a significant domain for keeping, analyzing, controlling, coordinating, and searching records effectively. To address issues affecting RMS, various models and frameworks have been developed to solve specific problems. The models have several redundant investigation processes, concepts, activities, and task-schedules which made RMS domain not user-friendly and dynamic among end users. Therefore, there is lack of viable and dependable framework to facilitate the management, sharing, and reusing RMS task and activities. The aim of this research is to investigate difficulties and challenges of staff record management and to develop a standard Staff Record Management System (SRMS) model using PHP, Java Script, Angular Json, My SQL, HTML and Bootstrap. The primary data was collected using questionnaires and average coded with frequency observation was used for data analysis and discussion. The investigation found that there is persistent challenges and issues in staff record management among the polytechnics. The proposed SRMS have been developed and found to effective and efficient for record management system.

I. INTRODUCTION

Accessing staff record is sometimes very difficult because records are being scattered or misplaced. Usually, it takes longer time for one to locate records due to data redundancy. Similarly, much energy is wasted in searching staff records. Also, due to poor record management, it is very difficult to forecast budgets for future development and to process promotion exercises. Staff Record Management System (SRMS) is a significant domain for keeping, analyzing, controlling, coordinating, sharing, and searching records effectively for immediate and future use. Record management is very vital for sustainability of any organization (Walia, and Gill 2014, Gabbitaet *al.*, 2002). Individual staff possesses different information for unique identification at any point in time. This information needs to be put together for proper record management, planning, monitoring and evaluation so that it can be accessed easily, effectively and efficiently. Information and Communication Technology (ICT) is capable of handling electronic records and other digital images effectively (Mnjama and Wamukoya 2007). To address challenges and issues of SRMS, various proposed software models have been documented. Some of the models focused on specific scenarios while others focused on generic scenarios.

However, none of the existing models is viable and dependable for managing staff records issues. To achieve effective staff's record management, there is need to develop viable and dependable software. Therefore, this research is aimed to investigate difficulties and challenges of staff record management and to develop a standard Staff Record Management System Model (SRMSM) using PHP, Java Script, Angular Json, My SQL, HTML and Bootstrap. The proposed model will responsible for sorting records, budget forecasts, and promotion exercises. This paper is organized as follows to include literature review, methodology, results analysis and discussion, and concluding remarks with suggestion for future work.

II. LITERATURE REVIEW

Walia and Gill (2014) conducted a study which aimed at producing a framework for Web Based Students' Record Management System (SRMS) using PHP. The study used XAMPP methodology to develop the SRMS software. The result of the study revealed that the students could obtain their desired information whenever needed without any difficulties. This result was supported by (Gabbitaet *al.*, Petrovic, M. and Van Bruwaene, 2004 and Burgioet *al.*, 1990). Gabbitaet *al.*, (2002) revealed that managing the workflow for processing service orders among a variety of organizations within a telecommunications company was very effective. Similarly, the result obtained by (Petrovic, M. and Van Bruwaene, 2004) discovered that a user-friendly system had been developed by which the resource data relevant to a selected event can be viewed graphically on a computer screen in the form of a table or a Gantt-like chart. This result is equally supported by Burgioet *al.* (1990), who determines staff management system for maintaining improvements in continence with elderly nursing home residents. The research found that staff training and management process with self-monitoring and evaluation of performance will allow geriatric assistants to develop and perform maintenance in a geriatric nursing home. This finding was recently substantiated (Carret *al.*, 2013).

In a research conducted by Miller and Sim (2004), qualitative study was carried to determine the implementation of Electronic Medical Record (EMRs) by physician. Ninety interviewers were interviewed between mid-2000 and the end of 2002 with EMR managers and physician among thirty organizations that had implemented an EMR. The research found that quality improvement depends heavily on physicians' use of the EMR—and not

paper—for most of their daily tasks. This research finding is consistent with the results of other published works (Fields, *et al.*, 1992, Mayaud, 1998, Evans, 1999, Lavin and Nathan, 1998). In another study by Mayaud (1998) which investigates prescription management system found that there is an effective access of comprehensive drug information. Also, it shows that new multi-drug packages and dispensing could be achieved through remote data retrieval architecture as well as email between physician-to-pharmacy and physician-to-physician. Similarly, Evans (1999) studied electronic medical record system and noted that the system could analyze, update, evaluate and electronically explain patient records effectively. Likewise, Lavin and Nathan (1998) examines method for managing patient medical records and the study establishes that the system could be responsible for scheduling appointments, entering, examining, diagnosing, updating, evaluation and displaying patient data simultaneously to physician.

Walia and Gill (2014) developed an effective SRMS software but has the disadvantage that it is limited only to universities and colleges. This indicates that there is a need to develop similar software for polytechnics and other higher institution of learning. The study conducted by Gabbita *et al.* (2002) has no adopted methodology and it covered only telecommunication companies. One of the shortcomings of Petrovic and Van (2004), their study did not address adopted methodology and is restricted to resource management system. Similarly, a study conducted by Burgio *et al.*, (1990), centered on nursing home and there is no specific methodology.

The result of Miller and Sim (2004), shows the acceptability EMRs but the number of users interviewed were inadequate to generalize the results. Mayaud (1998) developed an effective system for accessing comprehensive drug information without stating the methodology adopted and the study is limited to prescription of management system. One of the major drawbacks of Fields *et al.* (1992), Lavin and Nathan (1998) and Evans (1999), their methodology were not clearly stated and limited to management of patient medical records only. Therefore, more researches need to be carried out in other fields of human endeavor.

The literatures reviewed thus far pointed out that most of the recent and past studies on record management centered on Students' Record Management System (SRMS), and patient medical record management. Therefore, this research will focus on the investigation of challenges and problems of Staff Record Management System (SRMS) from selected polytechnics in the North-East and to develop a standard software model for addressing such constraints.

III. METHODOLOGY

This research intends to identify and solve a problem relating to staff record management. The adopted epistemology is the interpretive and constructionist approach where the researcher is allowed to get into the organizations and not only understand the problems but

have adequate and in-depth nature and extent of such problems (Moon & Blackman, 2014). Case study research has been considered appropriate for this research. This gives an in-depth understanding of the institutions record management problems and addressing them. Questionnaire was distributed to the targeted staff (management staff as well as the senior and intermediate carder of the registry staff). This has helped to describe and understand the phenomenon studied by capturing and communicating participants' experiences in their own words via observation and interviews (Yimaz, 2013).

To effectively develop the proposed model data were documented accordingly from each institution for both general and specific problems related to record management. The proposed model takes care of the problems identified as well as additional support features for data management such as automatic savings and tracking activity of any user. XAMPP, Java Scripts, Angular, Bootstrap and jQuery will be used to develop the proposed software. XAMPP stands for Cross-Platform (X), Apache (A), MySQL (M), PHP (P) and Perl (P) (Walia and Gill 2014). The integration of these scripting languages will make the model more secure from hackers, and dynamic for users' accessibility. This research has focused on five polytechnics in the North-East, Federal Polytechnic Bali, Taraba state, Federal Polytechnic Mubi, Adamawa state, Federal Polytechnic Bauchi, Bauchi state, Federal Polytechnic Damaturu, Yobe state and Ramat Polytechnic Maiduguri, Borno state. Data was collected through focused group (Management and Registry Staff). The approach of data collection and analysis is based on grounded theory, qualitative methods of data collection and analysis (Dagona, 2014). Two hundred and fifty (250) questionnaires were distributed and an average of 242 staff were responded from each polytechnics. Moreover, an in-depth literature review was carried out through journals, textbooks and internet. Microsoft excel application package was used to analyze the collected data using average coded and frequency observation. This has helped in obtaining viable and dependable solutions for the problems/challenges of record management.

IV. RESULT ANALYSIS AND DISCUSSION

A. Analysis

The scales used to carry out the research were represented as follows: SA (Strongly Agree), A (Agree), D (Disagree) and SD (Strongly Disagree). About two hundred and fifty (250) questions were distributed among five polytechnics in the North-East and average of two hundred and forty three (242) was responded.

The scales used in obtaining responses were coded as follows: SA = 4, A = 3, D = 2 and SD = 1. Average coded response scale from 2.50 and above indicates significant result while response scale less than 2.50 indicates insignificant result. The information in Tables 1-5 indicates average coded responses obtained from the five polytechnics.

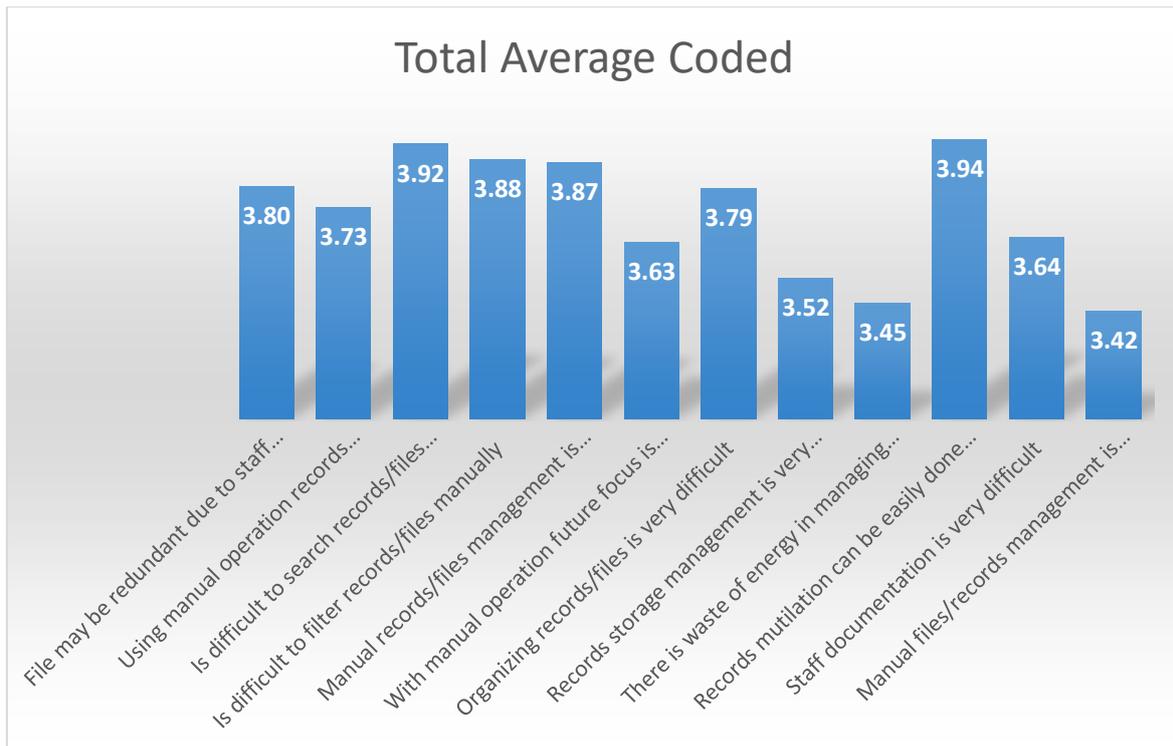


Fig. 1: Average coded responses for Federal Polytechnic Bali, Mubi, Maiduguri, Damaturu and Bauchi (Challenges and Problems of Staff Records)

B. Discussion

From the analysis in Figure 1, it was revealed that problems and challenges of staff records management system is very significant. Records mutilation appear to be the major challenge and problem of staff records management with significant value of 3.94. Likewise, it is difficult to search records/files manually with significant value of 3.92. Similarly, it is difficult to filter records/files manually, manual records/files management is time consuming and file may be redundant due to staff transfer, death and otherwise with significant values of 3.88, 3.87 and 3.80 respectively. Also, it was recorded manual files/records management is too expensive with significant value of 3.42.

From the above analyses, it was found that the polytechnics in the North-East are seriously affected with issues of staff records management. As a result of this problem, the polytechnics are unable to manage their records effectively and cannot carry out future forecast. This findings correspond with Utulu (2001), who pointed out that manual record management adversely affect planning and provision of structures and facilities, adequate funding, proper formulation and review of policies. Similarly, Egwunyenga (2009) discovered that lack of record manual and filing guidelines led to loss of vital information. Equally, Egunleti (2000) found that there is difficulty in record retrieval and lack of appreciation by management and staff for the need of effective record control.

V. IMPLEMENTATION

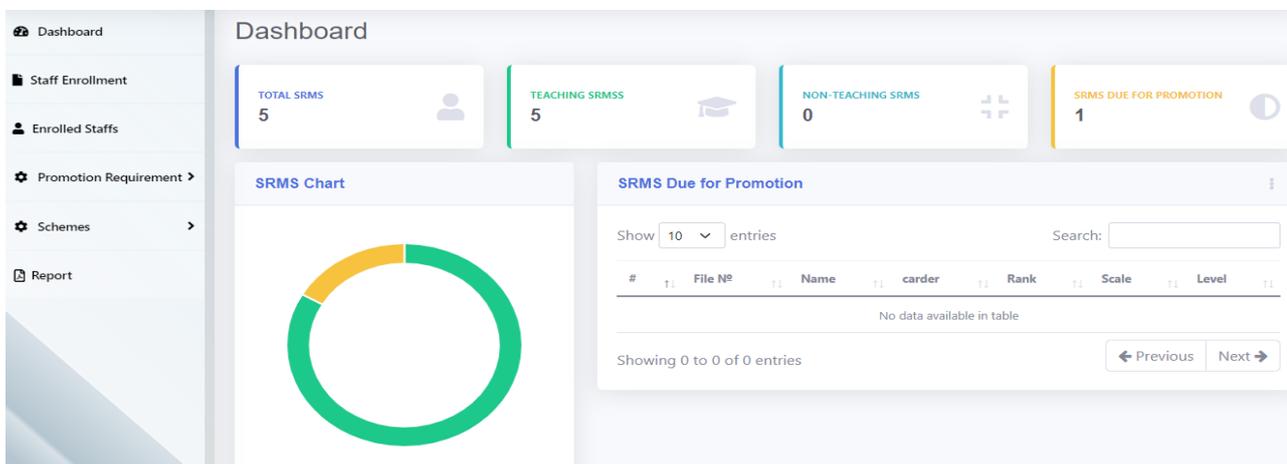


Fig. 2: SRMS Dashboard

The dashboard present an overview of the total number of teaching staff, non-teaching staff, staff due for promotion and staff chart.

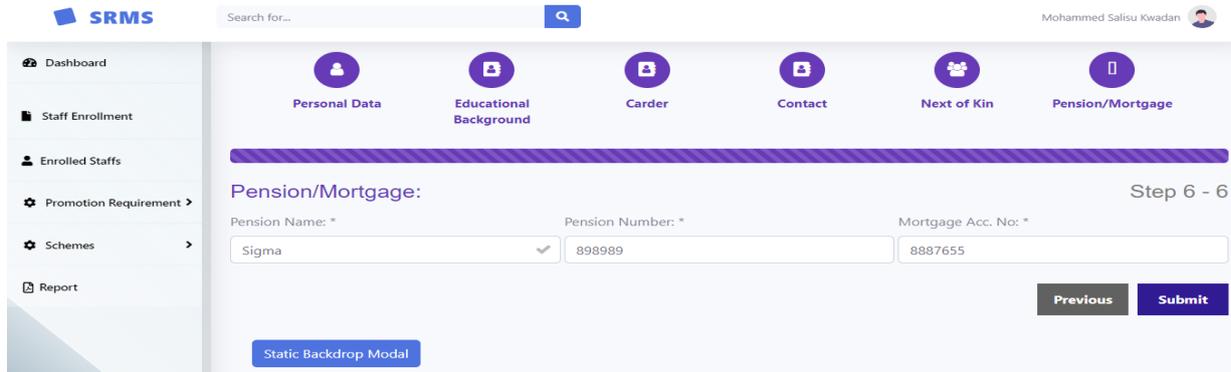


Fig 3: Staff Enrolment

Staff enrolment display a step by step enrolling new staff into Staff Record Management System (SRMS). First step is personal data, follow by educational background, carder, contact, and next of kin and finally pension/mortgage.

C. Promotion Requirement

This page consist of four features: additional qualification, publication, academic activities and responsibility. Each of this feature allow user to input specific data into database for processing as well as editing as shown in figure 4, 5, 6, and 7 below

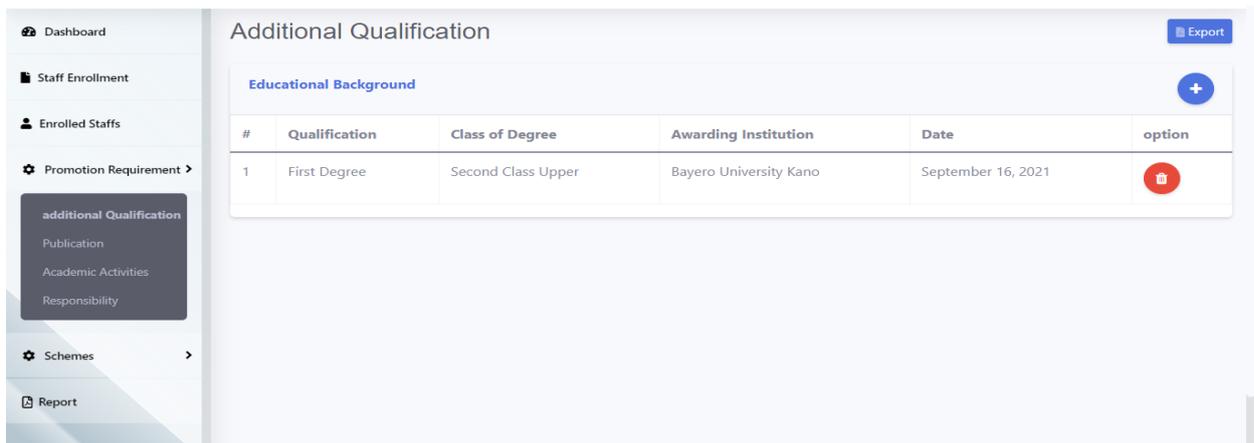


Fig 4: Additional Qualification

This page allows the user to input additional qualification(s) for the purpose of promotion record update.

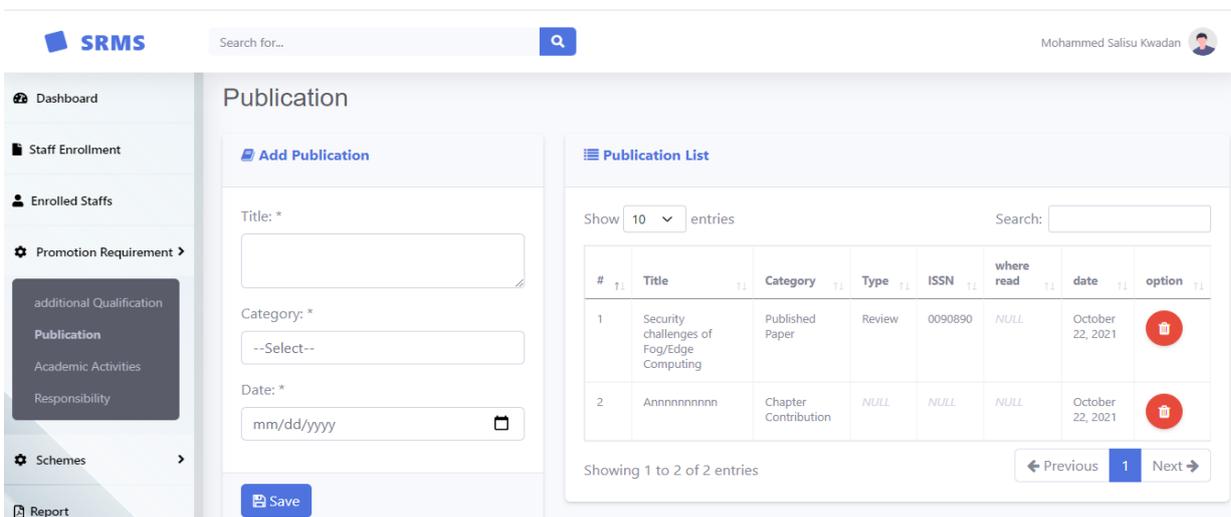


Fig. 5: Publication

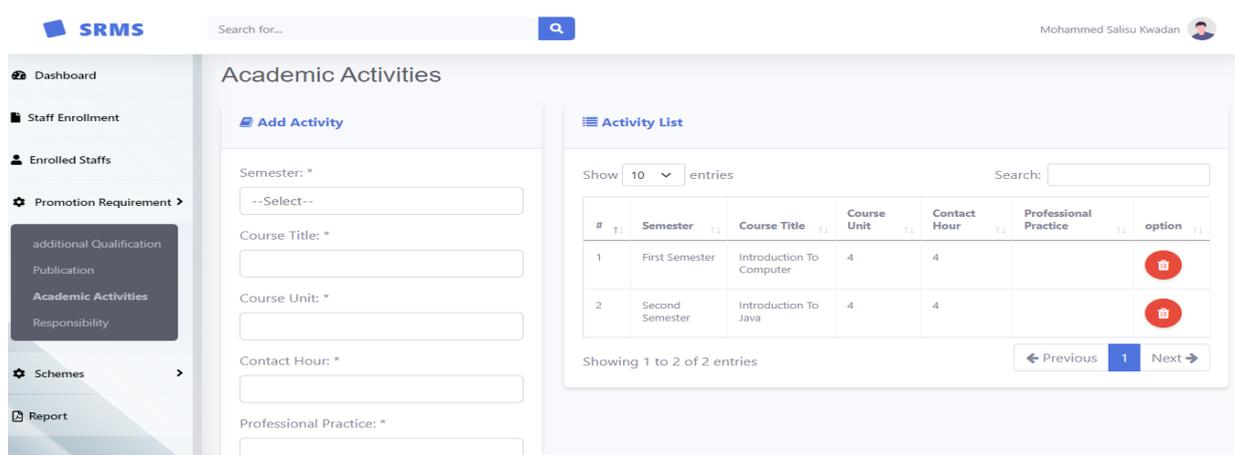


Fig. 6: Academic Activities

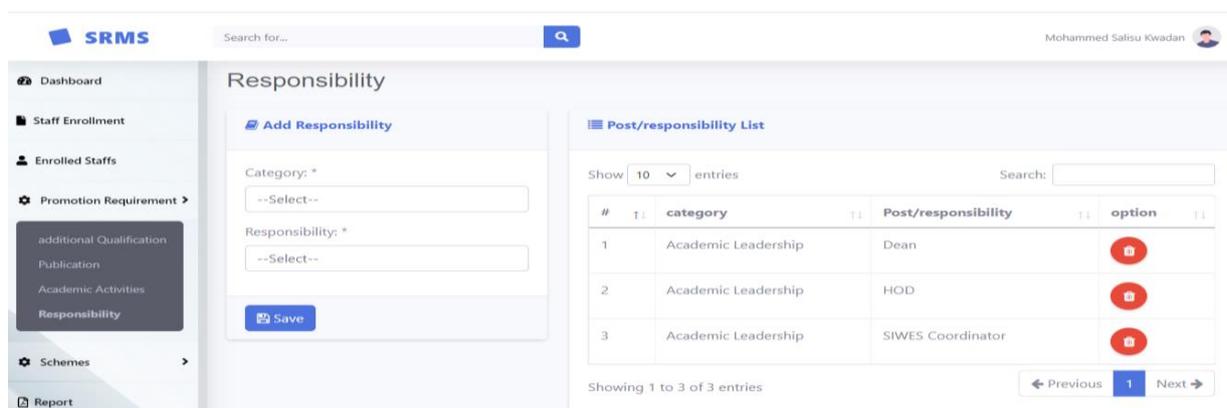


Fig. 7: Responsibility

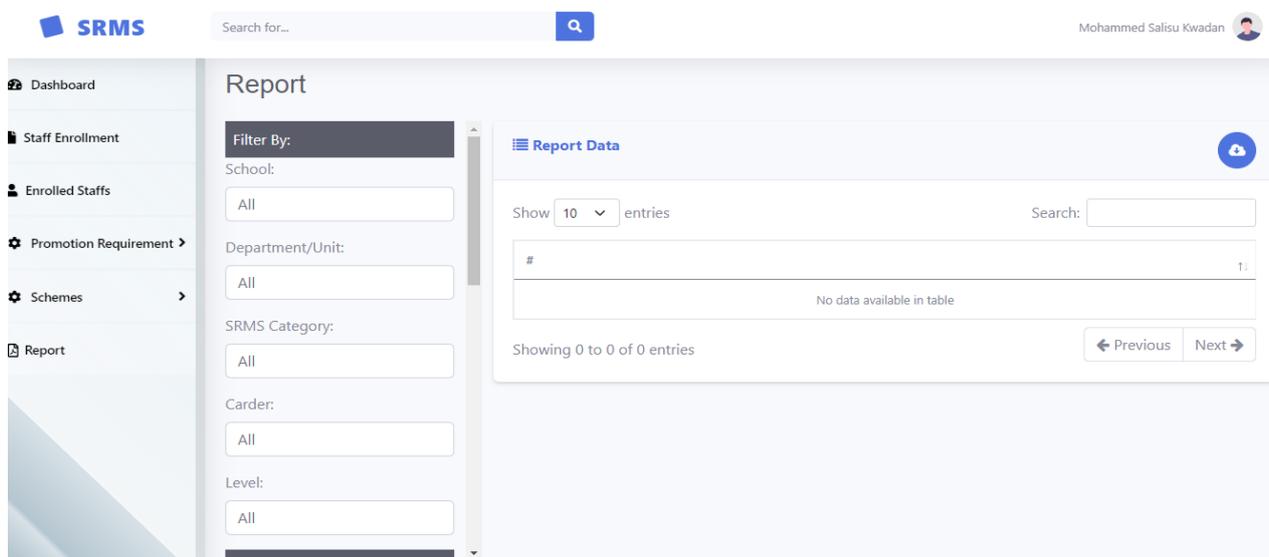


Fig. 8: Report

This page provides different reports according to the need of end users (administrators). Also it allows filtering and searching record dynamically.

VI. CONCLUSION

This research has investigated the challenges and issues affecting staff records management system from five selected polytechnics in the North-East. The investigation found that there is records redundancy, mutilation and misplacement. Also, it is very difficult to search, filter, organize, document and store records effectively. Furthermore, the research found that there is waste of energy, high cost of operation, time consumption and lack of future forecast in managing the records. This has seriously hampered effective record management system. Therefore, experimental results of the proposed Staff Record Management System (SRMS) model reveals that the model is viable and dependable for managing staff records effectively. However, biometric.

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REFERENCE

- [1.] Burgio, L.D., Engel, B.T., Hawkins, A., McCormick, K., Scheve, A. and Jones, L.T., 1990. A staff management system for maintaining improvements in continence with elderly nursing home residents. *Journal of Applied Behavior Analysis*, 23(1), pp.111-118. Cited by 122.
- [2.] Carr, J.E., Wilder, D.A., Majdalany, L., Mathisen, D. and Strain, L.A., 2013. An Assessment-based solution to a human-service employee performance problem. *Behavior analysis in practice*, 6(1), pp.16-32.
- [3.] Dagona, Z. K., 2014. *An analysis of trauma resilience among Hausa young people affected by ethno-religious violence in Jos* (Doctoral dissertation, University of Bradford).
- [4.] Evans, J.A., Azron Incorporated, 1999. Electronic medical records system. U.S. Patent 5,924,074.
- [5.] Egunleti, M. F. (2000). Record keeping/management problems in schools. *Record Management Course Manual, Lagos State Public Service, Staff. Magodo. February, 7.*
- [6.] Fields, R.K., Quinn, P.R. and Blackley, T., Mrs. Fields, Inc., 1992. System and method for making staff schedules as a function of available resources as well as employee skill level, availability and priority. U.S. Patent 5,111,391.
- [7.] Gabbita, S., Goldfedder, B., Hopson, C.K., Park, R.E. and Troup, D., MCI WorldCom, Inc., 2002. System and method for managing the workflow for processing service orders among a variety of organizations within a telecommunications company. U.S. Patent 6,349,238.
- [8.] Lavin, M. and Nathan, M., Emc, Inc, 1998. System and method for managing patient medical records. U.S. Patent 5,772,585.
- [9.] Mayaud, C., Advanced Health Med-E-Systems Corporation, 1998. Prescription management system. U.S. Patent 5,845,255.
- [10.] Mnjama, N. and Wamukoya, J., 2007. E-government and records management: an assessment tool for e-records readiness in government. *The Electronic Library*, 25(3), pp.274-284.
- [11.] Moon, K., and Blackman, D., 2014. A guide to understanding social science research for natural scientists. *Conservation Biology*, 28(5), pp. 1167-1177.
- [12.] Miller, R.H.& Sim, I., 2004. Physicians' use of electronic medical records: barriers and solutions. *Health affairs*, 23(2), pp. 116-126.
- [13.] Oketunji, S. F. (2002). Information provision to academic research and development organizations in the 21st century. *The Information Manager*, 2(1), 1-9.
- [14.] Petrovic, M. and Van Bruwaene, S., Klocwork Solutions Corporation, 2004. System for linking a resource management system with an event of a project in a project management system and a method therefor. U.S. Patent 6,678,671.
- [15.] Utulu, C. C. (2001). Quality of University education in Nigeria: Problems and solutions. *Journal of the Commonwealth Council for Educational Administration and Management*, 29(1), 58-66.
- [16.] Walia, E.S. and Gill, E.S.K., 2014. A framework for web based student record management system using PHP. *International Journal of Computer Science and Mobile Computing*, 3(8), pp.24-33. Cited by 16.
- [17.] Yilmaz, K., 2013. Comparison of quantitative and qualitative research traditions: Epistemological, theoretical, and methodological differences. *European Journal of Education*, 48(2), pp.311-325.