Design And Development Of Human Resource Information System (HRIS) For Private HEIS

Ruth G. Luciano

Abstract: This study aimed at determining the current operations of the Human Resource Office (HRO) in one of the private Higher Education Institutions (HEIs) in the Philippines. This study also tried to find out the problems encountered by the HRO in its daily operations especially in terms of ranking and promotion. To gather quantitative data, descriptive survey was used with questionnaire as research instrument. The data analysis was done using frequency, percentage and weighted mean. The HR officer major issues and concerns were on recruitment, selection, performance evaluation and ranking and promotion. On the development of the automated system, the researcher first sought the help of the private school employees on the description and features of the current operations of the human resource office. She also requested the help of ICT professionals whom she knows to comments on the system prototype presented before the final system was tested and implemented. The researcher recommends that the proposed ranking and promotion system be adopted.

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1   INTRODUCTION

School, just like every organization, employs staff and creates personnel records. According to Mary Kay Ash, "…people are definitely a company's greatest asset. It doesn't make any difference whether the product is cars or cosmetics. A company is only as good as the people it keeps" [1]. Like any other assets, staff are a resource that must be deployed to maximum advantage. A personnel records' system should run effectively whether it is in a purely paper-based environment or in the emerging electronic environment. An organization's HRM function focuses on the people side of management. It consists of practices that help the organization to deal effectively with its people during the various phases of the employment cycle, including pre-hire, staffing and post-hire. An organization's HRM function focuses on the people side of management [2]. Management of personnel records means the management of human resources of an organization. In the modern workplace, the personnel function is viewed within the context of the broader human resources management function. In that respect, personnel records support the HR Officer in performing his/her duties. The primary goal of this project is to develop a software application that supports the application specific to the HR automation in an intranet specific to the school thereby allowing the integration of all employees' records. The system also includes a comprehensive employee information database which includes ranking, promotion, work information and beneficiary information for each employee. It comes standard with employee self-service access allowing employees to update their personal information, role-based access level control that is functionally based on whether a user is an employee or an HR Officer.

Theoretical/Conceptual Frameworks

The business world is increasingly relying on information technology to survive and thrive in these competitive and constantly changing economic times [3].

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Therefore, having a computerized system in business operations and in handling employees' records is very important. Indeed, employees and employers alike rank computerization of office operations as one of the most important, if not the most important thing that a business can have. Bork (1993) mentioned that "…everyone will need to be computer literate in the society of the future because computers will be widely used in all activities" [4]. As cliché as the statement is, nothing sums it up better than the future is today. What once was an extraordinary thing is now a necessary system in almost all workplaces. To sum up the ideas above, the researcher can say that using a computerized system in an office operation is almost like driving a car. Some choose not to learn to drive at all, while most learn just the basics; they know what result is when they do certain things with pedal and levers. Others have an in-depth knowledge of the automobile and can do more than simply driving it. Then there is a final class, the professionals, who create and build the machines. Based on the above cited statement, a paradigm of the study was conceptualized as seen in Figure 1 below. The input covers the current operations and the problems encountered by the HR department in terms of keeping employees' records. The process consists of the assessment of the current HR operations in the locale where this study is conducted and the development of a Human Resource Information System for ranking and promotion. The researcher hoped to assist the research locale in enhancing their existing ranking and promotion system by offering the proposed system.
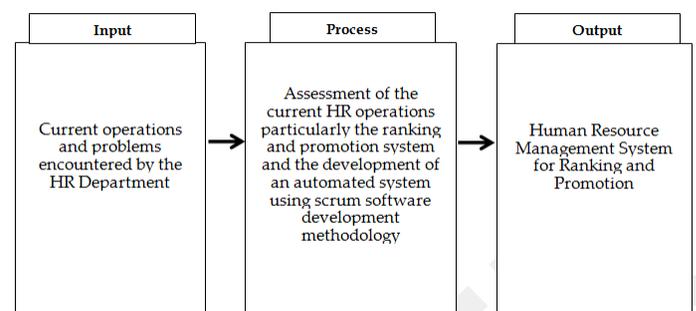

Figure 1. *Research Paradigm*

Statement of the Problem

The proposed HRIS was designed to improve the current services of the HR department of the private HEIs. To achieve this goal, the following questions were used as guides in the development of the proposed system. This s study sought to find answers to the following questions:

1. How may the current operations and problems encountered by the HR department of private HEIs be described?
2. How may an automated system for the HR department be developed?
3. How may the proposed automated system be described by the ICT practitioners and the system users?
4. How may the proposed system be implemented by the intended users?

Significance of IT-Enabled Human Resource Management

Bandyopadhyay, et al. (2012) found out that Human Resources Management also deals with the facilities and requirements the human workforce are availing and need for their working process and career growth. It is used to act as a bi-directional process flow which increases the opportunities for the "workforce" and "senior management" in collaborating requirements in a solution space. It also helps to provide a better and value added service or outcome to customer or client of the organization [5]. To make a human resource department more effective and efficient new technologies are now being introduced on a regular basis so make things much simpler and more modernized. One of the latest human resource technologies is the introduction of the HRIS. This integrated system is designed to help provide information used in HR decision making such as administration, payroll, recruiting, training, and performance analysis.

The outbound advantages of Human Resource System are:

1. It can help the employee to get "Job Satisfaction": Human Resource Management System used to operate on important criteria, i.e. "Job Satisfaction of Employee". This process involved "Higher Management" also to discuss the employee requirements which generally reduce the extra pressure from Higher Management and provide a job satisfactory environment to the clients.
2. HRIS can be used to map proper workforce to proper skill set area. Most of the organizations used a system to maintain the records of the personal, professional and academic development of its human resources. It is "Human Resource Management" groups' job to update all "Employee Detail". For a new project requirement the "Human Resource Management" team will search from the "Employee Record set" for matching skills. If the skill is not available inside the organization then a need to look for outside resources should be considered.

In connection with the above-mentioned scenario, this study focused on the idea of developing an HRIS for ranking and promotion of employees including their performance appraisal, education, training and staff development.While various studies had already been undertaken along the area of human resource management, no similar investigation had been conducted yet in school covered by this research. The previous studies reviewed are similar with the present study because they also attempted to find out the importance of an HRM system in business or company setting. On the other hand, the previous studies differ from present study because the latter involved in particular the HR Office of a particular private HEI in Cabanatuan City, Philippines. Therefore, this study does not duplicate in any manner those studies reviewed and analyzed for this purpose.

2 METHODOLOGY

For the quantitative data, descriptive method of research was used. It aims to accurately and systematically describe a situation or a phenomenon without controlling or manipulating any variables, but only observing and measuring them [6]. On the other hand, scrum software development methodology was also used in developing the proposed software. Scrum software development is a lightweight software development methodology that focuses on having small time-boxed sprints of new functionality that are incorporated into an integrated product baseline [7]. It places an emphasis on customer interaction, feedback and adjustments rather than documentation and prediction. With the results of the interviews as bases, the system prototype was developed. In the development of architecture of the said system, all the pertinent information gathered from the interviewees were closely taken into account and given utmost importance. In this study, the current operations of the HR Office in general and the ranking and promotion system in particular were described. The school's HR Officer and the Vice President for Administration were interviewed to gain ideas on HR procedures and processes. Then, a pool of ICT experts had evaluated the developed prototype for the HR officer. This pool of experts tested the system in terms of being acceptable, understandable, perceivable, operable and robust. Then, the HR Officer and VP for Administration and eight (8) other employee-respondents had evaluated the user's acceptability of the system in terms of functionality, reliability, usability, efficiency, maintainability, and portability.

Work Breakdown Structure

The activities in Scrum Software Development Methodology had been used in this study. The flow of activities in the said methodology is as follows:
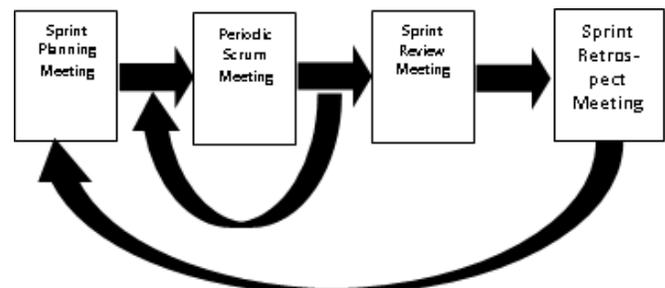

Figure 2. *Flow of Activities in Scrum Software Development*

In order to develop the system, the researcher performed the following activities:

Sprint Planning Meeting

1. Review the literature regarding HRIS especially on ranking and promotion.
2. Develop a questionnaire determining the requirement of the HRIS for ranking and promotion prototype (Appendix A, page 8).

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3. Schedule the scrum meeting with the HR officer and VP for Administration to discuss the system requirements (Appendix B, page 8).

Periodic Scrum Meeting

1. List down the requirements as recommended by the HR officer, the VP for Administration and selected employees of the School (Appendix C, page 8).
2. Make a system design based on the literature review and requirements analysis (Appendix D, page 8).
3. Create a prototype based on the requirements (Appendix E, page 9).
4. Develop a testing tool for the ranking and promotion prototype.

Sprint Review Meeting

1. Administer the testing tool for the ranking and promotion among the ICT practitioners.
2. Create a checklist of all the feedback given by the respondents. (Appendix F, page 10).
3. Design the program map as a result of the feedbacks analysis to clearly specify those that are within and those that are beyond the system boundaries (Appendix G, page 10).
4. Design the final ranking and promotion system based on the feedbacks from ICT experts (Appendix H, page 10).
5. Develop the final ranking and promotion system
6. Develop a system evaluation tool to be used by the HR officer, VP for Administration and selected school employees in assessing the proposed system.

Sprint Retrospect Meeting

1. Coordinate meeting with the clients (HR officer and VP for Administration) and ICT practitioners.
2. Administer the 2nd set of evaluation tool for to the intended users.
3. Analyze the results of the final evaluation.
4. Formulate conclusions and recommendations based on the results of the evaluation.

Research Procedure

The development of HRIS for ranking and promotion has been undertaken in the following order: First, the researcher held an interview session with the clients. This has been done to ensure that the system prototype had covered information pertinent to the proposed system.Second, based on the result of the interviews, the prototype for HRIS has been developed. In the development of this system, all pertinent information gathered from the clients had been closely taken into account. Third, a pool of ICT practitioners had tested the developed system prototype for ranking and promotion. This pool of experts evaluated the system prototype in terms of being acceptable, perceivable, operable, understandable, and robust. Lastly, clients had been asked to evaluate the system to know their perspective regarding the developed system.

The Respondents

Purposive convenience sampling was used in this study; the availability and willingness of the respondents to participate in this study were carefully considered. They are comprised of the school's HR officer, VP for Administration and eight (8) other employees from the research locale. They had been consulted on the possible features of the system prototype. To test the system prototype, five (5) ICT experts/industry practitioners were requested to conduct alpha testing to determine the readiness of the system for deployment. After the alpha test, the system was again subjected to another round of evaluation to assess the features and capabilities of the final system.

Research Instruments

Three (3) sets of questionnaires were prepared in order to solicit important information relevant to the study. One set of instrument was answered by the administrators and selected personnel of the school. Another set of the instrument was used by the ICT experts in assessing/evaluating the system during the alpha testing. The third and final set was designed for the system users to rate/evaluate the final system. ISO 9126 standard was used in formulating all the instruments used in the study. It is an international standard software quality model that helps in creating a solid framework for assessing software [8].

Treatment of Data

To analyze the results of the study, data were tabulated electronically to facilitate statistical computations and interpretations. Simple percentages and frequency counts were used. Likert scale was also used to describe the responses of each of the respondents. It is a 5-point scale which allows them to specify their level of agreement to each of the item statements. The results were obtained by calculating the weighted arithmetic mean of all the results added together.

The following scale was used in this study:

Index	Limit of Index	Verbal Description
5	4.20 – 5.00	Excellent
4	3.40 – 4.19	Very Good
3	2.60 – 3.39	Good
2	1.80 – 2.59	Fair
1	1.00 – 1.79	Poor

3 RESULTS AND DISCUSSION

The Human Resource Office of the HEI where this study was conducted caters 105 teaching and non-teaching employees. In this school, Human Resource Office is the only office that is in-charge of managing and keeping the employees' records. At time the study is conducted, the officer-in-charge has a hard time updating employees' records regularly. The office also encountered difficulty in monitoring the progress made by the employee for a particular semester or year, i.e. graduate units earned, attendance in different seminars, ranking and promotion, etc. Since the school is not yet using an automated system for this purpose, the HR Officer has to do all these tasks manually. Specifically, among the problems that the HR officer encountered were as follows: (1) recruitment and selection, (2) performance evaluation, and (3) ranking and promotion. She also has difficulty in providing reports which are needed by the heads of the different academic and non-academic offices because she has to extract everything from the existing manual records that she had. On the development of the automated system, the researcher made use of the prototyping method of system development. This method is more appropriate in developing the proposed system because it is simpler and appropriate in coming up with a unique and custom-made system like the one that is being proposed in

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this study. After satisfying the recommendations/suggestions of the HR Officer, a group of ICT practitioners were requested to further review the second prototype using the following criteria: Acceptable, Understandable, Perceivable, Operable and Robust. The discussion below presents the comments and views of five (5) ICT practitioners based on the five criteria enumerated above. In terms of acceptability component, the ICT practitioners said that six (6) out of eleven (11) criteria were complied. The remaining five (5) items which, according to them, were not achieved are the following: (1) input fields are checked for max field value. Input values greater than specified max limit should be accepted or stored in database; (2) check numeric input fields with character input values. Proper validation message should appear; (3) user should not be able to type in drop down select list; (4) dropdown field values are displayed in defined sort order; and (5) users are able to select only one radio option and any combination for checkboxes. These comments were properly integrated in the final system. As regards understandable component, two (2) of the seven (7) items were not complied and these items are on: checking if correct fields are highlighted in case of errors; and search criteria used for searching are displayed on result grid. These items were addressed in the final system by having a result grid and by highlighting fields in case of errors. With regard to perceivable component, ICT practitioners identified that the following items are for compliance before the final system is implemented: (1) All fields on page (e.g. textbox, radio options, dropdown lists) must be aligned properly; (2) all pages should have titles; (3) result grids must be displayed with proper column and row spacing; (4) need to increase the size of small fonts; and (5) check if the selection dialog shows only the supported files listed. These findings suggest that the proposed prototype system has to be enhanced in terms of its format, i.e. font size, titles, alignment of objects among others. In terms of its operability, the ICT practitioners identified some items which still need further attention. These are: (1) checking if downloadable files are pointing to correct file paths; (2) users must be able to filter results using all parameters on the page; (3) refine search functionality should load search page with all users selected search parameters; (4) result grid values must be sorted by default column; (5) pagination is enabled when there are more results than the default result count per page; (6) checking for uploaded image path; (7) checking duplicate name image upload; (8) checking image upload with image size greater than the maximum allowed size; Proper error messages are displayed; and (9) checking multiple images upload functionality. These findings imply that for the system to be operable, all the items enumerated above must be complied. As regard robustness, six (6) of eight (8) criteria were complied with in the proposed system prototype. The items which were not complied are on: broken links and CAPTCHA functionality. These features were already added in the final system.

4 DESCRIPTION OF THE PROPOSED HUMAN RESOURCE INFORMATION SYSTEM

In order to describe the quality of the proposed system, the researcher endeavoured to use a questionnaire for testing software quality. This was done to ensure that the proposed system is of quality and is worth implementing.

4.1 Functionality

The ISO 9126 standards for software quality describe system functionality based on the following characteristics: sustainability, accuracy, interoperability, security, and functionality compliance. This set of attributes bear on the existence of a set of functions and their specified properties. The functions are those that satisfy stated or implied needs. Table 1 shows the evaluation made by the respondents on the proposed system. For them, in terms of functionality, the system as a whole is excellent in all aspects as evidenced by the computed general weighted mean of 4.50 described as excellent.

Table 1. Results of the Evaluation on System Functionality

FUNCTIONALITY	Weighted Mean	Description
Sustainability	5.00	Excellent
Accuracy	4.50	Excellent
Interoperability	4.50	Excellent
Security	4.00	Very Good
Functionality compliance	4.50	Excellent
General Weighted Mean	4.50	Excellent

Above findings indicate that the proposed system is: (1) sustainable for it can be accessed using any of the browsers installed in the computer; (2) accurate for it assures validity of inputs, processes, and outputs; (3) interoperable for it can work properly without causing any problems with other systems running in the computer or internet capable gadgets; (4) secured for it allows users to create and modify his or her own password; and lastly, (5) compliant for it met the expected results needed by the users.

4.2 Reliability

The ISO 9126 standards for software quality define reliability as having the following characteristics, namely: maturity, fault-tolerance, recoverability, and reliability compliance. This software characteristic bears on the capability of the software to maintain its level of performance under stated conditions for a period of time. The data in Table 2 below show that the respondents described the proposed system as excellent with a weighted mean of 4.48. However, it is also noteworthy to mention that in terms of reliability compliance, the computed average score is only 4.00 described as very good. This finding indicates that enhancement of the system's reliability compliance must be given attention. Additional images and links can be provided to somehow address this particular item.

Table 2. Results of Evaluation on System Reliability

Criteria	Weighted Mean	Description
Maturity	4.40	Excellent
Fault-Tolerance	4.50	Excellent
Recoverability	5.00	Excellent
Reliability Compliance	4.00	Very Good
General Weighted Mean	4.48	Excellent

The findings above proposed system is reliable. It also imply that the system: (1) provides suitable functions for the intended users, (2) gives provision for data validation, and (3) ensures recoverability of data in case power interruption occurs.

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4.3 Usability

The ISO 9126 standards described software usability with the following attributes: understandability, learnability, operability, attractiveness and usability compliance. The system usability characteristic provides a set of attributes that bear on the effort needed for use, and on the individual assessment of such use, by a stated or implied set of users.

Table 3. Results of Evaluation on System Usability

Criteria	Mean	Description
Understandability	5.00	Excellent
Learnability	4.80	Excellent
Operability	4.60	Excellent
Attractiveness	5.00	Excellent
Usability Compliance	4.50	Excellent
General Weighted Mean	4.73	Excellent

Table 3 shows the rating given by the respondents on the proposed system in terms of its usability. All items were rated/evaluated excellent as evidenced by the computed mean scores ranging from 4.50 to 5.00 and the general weighted mean of 4.73, Excellent. These findings imply that for the clients, the proposed system is attractive and is easy to use. Aside from its attractiveness and visual appeal, the system also provides specific description the different features of the system.

4.4 Efficiency

The efficiency of the system is an attribute that bear on the relationship between the level of performance of the software and the amount of resources used under stated conditions. The ISO 9126 software standards define system efficiency with the following characteristics: time behavior, resource utilization and efficiency compliance. Table 4 below shows the results of the evaluation made by the respondents on the proposed system in terms of its efficiency. The data showed that all areas/items were evaluated as excellent. Time behavior, resource utilization and efficiency compliance garnered a mean score of 4.50, 4.60, and 4.40, respectively.

Table 4.Results of the Evaluation on System Efficiency

Criteria	Mean	Description
Time behavior	4.50	Excellent
Resource utilization	4.60	Excellent
Efficiency compliance	4.40	Excellent
General Weighted Mean	4.50	Excellent

The above finding further implies that the proposed system is efficient in terms of resource utilization and time consumption. It also means that the proposed system has provided ease of navigation but loading time and internet speed issues (efficiency compliance) can be given preferential attention and considerations.

4.5 Maintainability

Based on ISO 9126 standards for software quality, the maintainability of the system can be described using the following characteristics: analyzability, stability, and testability. System maintainability contains a set of attributes that bear on the effort needed to make specified modifications. Table 5 below indicates that for the respondents, the proposed system

is excellent in terms of its maintainability. This is evident by the computed general weighted mean of 4.67.

Table 5.Results of the Evaluation on System Maintainability

Criteria	Mean	Description
Analyzability	4.50	Excellent
Stability	4.50	Excellent
Testability	5.00	Excellent
General Weighted Mean	4.67	Excellent

The item with the highest mean score is testability with a mean score of 5.00. This finding implies that the system has a provision for verifications of transactions. Analyzability and stability were both given 4.50 mean scores. These data indicate that the system is easy to understand and that it provides instructions in case of need for system maintenance. In addition, data shows that the system is able to excellently provide appropriate error messages and possible solutions when the clients and other intended users had encountered errors and problems while using the system.

4.6 Portability

Portability refers to a set of attributes that bear on the ability of the software to be transferred from one environment to another. Based on the ISO 9126 standards for software quality, the portability of the system can be described with the use of the following characteristics: adaptability, installability, and portability compliance. Table 6 below shows the result of the evaluation made by the respondents in terms of system portability. It shows that all three criteria namely: adaptability, installability and portability compliance were described as excellent with mean scores of 4.50. 4.60 and 5.00, respectively.

Table 6. Results of the Evaluation on System Portability

Criteria	Mean	Description
Adaptability	4.50	Excellent
Installability	4.60	Excellent
Portability compliance	5.00	Excellent
General Weighted Mean	4.70	Excellent

The above findings indicate that the proposed system has appropriate interface. It also shows that the system is easy to install, hence, require minimum assistance when installed into a network.

4.7 Overall Evaluation

The summary of the scores given by the respondents on the evaluation of the proposed system was presented in Table 7 below.

Table 7.Summary of the Evaluation Made by the ICT Practitioners

Criteria	Weighted Mean	Verbal Description
Functionality	4.50	Excellent
Reliability	4.80	Excellent
Usability	4.73	Excellent
Efficiency	4.50	Excellent
Maintainability	4.67	Excellent
Portability	4.70	Excellent
General Weighted Mean	4.65	Excellent

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The data show that the system characteristics with the highest mean score is portability with general weighted mean score of 4.70. On the other hand, the system has lowest evaluation on functionality and efficiency areas both have a mean score of 4.50. These findings indicate that the system is ready for deployment and that it can be used by the school in keeping the records of its personnel.

5. THE IMPLEMENTATION OF THE NEW SYSTEM

The final system was thoroughly evaluated and tested before its implementation. Slight polishing was done with the system before it was finally implemented. The implementation started by building up the database. Then, a policy on the use of the system was developed and discussed to ensure data security and integrity. The availability of data was also taken into consideration. On the implementation phase, the researcher assumed that the HR officer has to be guided by someone who is knowledgeable in using the system until such a time that the HR officer can use the system on her own.

6 CONCLUSIONS

In summary, the findings above indicate that the proposed system is excellently designed to meet the needs and demands of the school's human resource office. These findings also indicate that the system has the following observable characteristics: sustainability, accuracy, interoperability, security, fault tolerance, recoverability, stability, testability, and adaptability. In other words, the proposed system is user-friendly and can be implemented to address the need of the intended users.

7 RECOMMENDATIONS

In the light of the findings and conclusions above-enumerated, the following recommendations are offered: (1) The school administrators should allot budget that can be used to automate office transactions giving attention to those that are done on a regular basis; (2) The HR officer should familiarize herself with the system. This automated system will help her in many respects provided that she will be aware of all its features and capabilities; and (3) Replication of the study in another private school/s in the province of Nueva Ecija, Philippines be made for validation purposes.

8 ACKNOWLEDGMENT

The author wishes to acknowledge and extend her sincere appreciation to the: (1) participants of this study; (2) Manuel V. Gallego Foundation Colleges, Inc; and (3) Nueva Ecija University of Science and Technology College of Information and Communications Technology She would also like to extend her profoundest gratitude to all those who had helped her in completing this study.

9 REFERENCES

[1] Ash, Mary Kay (2017). https://www.newsadvance.com/business/people-are-definitely-a-company-s-great test-asset-it-doesn/article_c85d4038-eb4b-11e2-9012-001a4bcf6878 .html. Date retrieved: December 7, 2019

[2] Ahammad, Taslim (2017). Personnel Management to Human Resource Management: How HRM Functions. https://www.researchgate.net/publication/321651611_Personnel_Management_to_Human_Resource_Management_HRM_How_HRM_Functions. Date retrieved: December 7, 2019.

[3] The importance of information technology in business today (2015). https://www.business2community.com/ tech-gadgets/importance-information-technology-busi ness-today-01393380 Date retrieved: January 6, 2020.

[4] Bork, Alfred (1993). "Technology in Education: A Historical Perspective," in Computers in Education (Cresskill, N.J.: Hampton Pr.)

[5] Bandyopadhyay, P., Chowdhury, J. and Hazra Gumanoy (2012). Integration of Human Resource Information System to DSS, CMS and other applications to increase productivity. http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.303.4581&rep=rep1&type=pdf. Date retrieved: January 6, 2020.

[6] McCombes, Shona (2019). Descriptive research. https://www.sc ribbr.com/methodology/descriptive-research/. Date retrieved: September 28, 2019.

[7] Definition of Scrum Methodology. https://www.inflec_tra.com/methodologies/scrum.aspx. Date retrieved: December 7, 2019.

[8] ISO 9126 Standard. Software Quality Characteristics. http://www.sqa.net/iso9126.html. Date retrieved: January 6, 2020.

[9] Appendix A – Questionnaire for System

Requirements Gathering

Initial Survey: Respondents' Profile

- Name, Position, Gender, Number of years working in the School, number of years as HR personnel (for HR officer only), current date.

Questions (Multiple answers)

1. What method do you use in all your HR transactions?
2. What are the common reports the employees are requesting for?
3. What particular problems do you usually encounter when employee asks for their records?
4. Have you heard about the human resource management system for ranking and promotion?
5. Would you like that an automated system be implemented in the HR Office?
6. If yes, what advantages do you think it will bring?
7. If answer in question number 5 is no, reasons are: _____
8. Comments: _____

Appendix B - Respondents for Requirements Gathering

Name	Position	Sex	Age	Years of Working Experience
Emp A	VP Administration	F	29	7
Emp B	HR Officer	F	36	2
Emp C	Dean, Criminology	M	31	7
Emp D	Dean, Accountancy	F	26	6
Emp E	Principal, Basic Education	F	35	13
Emp F	Registrar	F	42	7
Emp G	Chief Accountant	F	24	3
Emp H	Cashier	F	26	5
Emp I	Computer Technician	M	33	2
Emp J	IT Staff	M	20	1

Appendix C. Detailed Results of System

Requirements Analysis

What are the common reports the employees are requesting for?

HRO and VPA views: COE, Service Record, Employee ID

Employees: Certificate of Employment, Service Record, etc.

What particular problems do you usually encounter when employee asks for their records?

HRO and VPA views: Specifically, among the problems that the HR officer encountered are as follows: (1) recruitment and selection, (2) performance evaluation, and (3) ranking and promotion. She also has difficulty in providing reports which are needed by the heads of the different academic and non-academic offices because she has to extract everything from the existing manual records that she had.

Employees' views: Request for records/certification takes time. Would you like that an automated system be implemented in the HR Office? If yes, what advantages do you think it will bring?

HRO and VPA: Yes. It should be a system that would automate the bulk of HR transactions. The system must be able to produce an update on the achievements of each employee of the school as well as the academic ranking of each of the employees particularly the faculty members who keep on earning units in graduate studies. In return, these data can be used to assess the training needs of the employees, to evaluate their progress in terms of professional development efforts and to recommend employees for promotion.

Employees: Yes. It will make employees' record/s more accessible to the employees. It is also expected that request for records would no longer take a period of more than 3-day from the date of the application for the release of whatever document they are requesting.

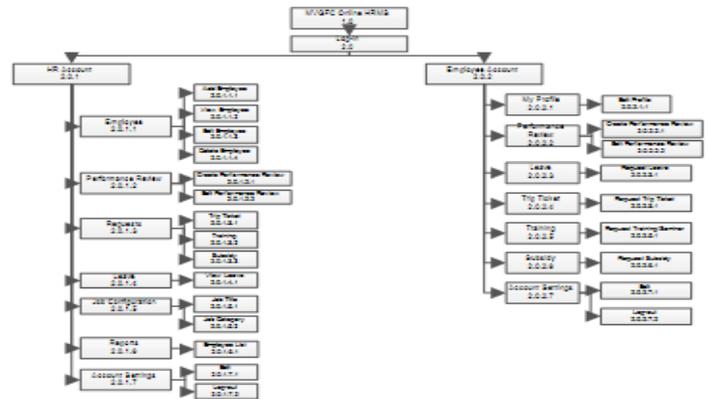## Appendix D. Use Case Diagram
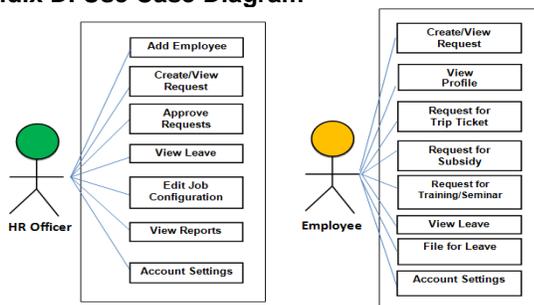
Appendix E. Screenshot of the System's Prototype
HUMAN RESOURCE SYSTEM FOR RANKING AND PROMOTION

Appendix F. Checklist of Prototype Testing Feedback

Criteria	Compliance	Remarks
1. Acceptable		
1.1	Complied	
1.2		
1.3		Not all
1.4	Complied	Not all
1.5	Complied	
1.6	Complied	
1.7		
1.8		Not all
1.9		Not all
1.10	Complied	Have not seen a radio button
1.11	Complied	
2. Understandable		
2.1	Complied	
2.2	Complied	
2.3	Complied	
2.4	Complied	
2.5		Not all
2.6	Complied	
2.7	Complied	But result grid needs to be redesigned
3. Perceivable		
3.1		
3.2	Complied	
3.3	Complied	
		Not all. Some objects need to be realigned.
3.4		
3.5	Complied	
3.6	Complied	Not all pages have titles.
3.7		
3.8	Complied	Not all result grids displayed total number of results.
3.9		
3.10	Complied	Some fonts are small.
3.11		No
4. Operable		
4.1	Complied	
4.2		
4.3	Complied	Not complied
4.4	Complied	
4.5	Complied	
4.6		Not all
4.7		Not yet fully functional
4.8		Not all
4.9		
4.10		Not complied
4.11	Complied	
4.12		No
4.13		No
4.14		Not yet
4.15	Complied	
5. Robust		
5.1	Complied	
5.2	Complied	
5.3	Complied	
5.4		
5.5	Complied	Some links are not functional.
5.6	Complied	
5.7		Not CAPTCHA
5.8	Complied	

Appendix G. Program Map

Appendix H. Screenshots of the Proposed System