**Informatics College Manila**

**Online Result-Based Performance Management System with Data Analytics for DepEd Division Office Manila**

A Thesis/Capstone Project

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**CHAPTER I**

**Problem Domain**

*This chapter presents the introduction to the study. The purpose of this study is to solve the problems of the organization. The developers had gathered all the needed information to arise with the study. This includes the Objectives of the study, problems, scope and limitation and significance of the study.*

**Introduction**

Data Analytics in education has revolutionized the landscape of the sector and helps institutional mentors in devising and crafting scholastic experiences. Data Analytics are now applied in education system attaining groundbreaking and tremendous result. This has led to an increase in the engagement of the teachers and students towards studies. Paradigms of education are now making a shift to incorporate mutual online, hybrid and blended learning and teaching. Data analytics can enhance the operational process of decision making besides assessing educational performance against institutional objectives. (Radhika G.,2018) Education is the foundation of one’s learning, experience and knowledge. It also means helping people to learn how to do things and support them to think about what they learn. It’s also important for educators to teach ways to find and use information. These educators are the teachers. Teachers must have the ability to develop relationship with their students, dedication to teaching and engaged students in learning. Professional Teachers plan their professional development. To be able to be a competitive educator, teachers reflect from knowledge, wisdom, understanding and skills that they may be able to impart as they commit to accomplish the role of a teacher.

Department of Education ensures that teachers focus work efforts towards achieving the organization’s Vision, Mission and Values through the help of Performance Management System. Performance management is important for an organization. It helps in ensuring that employees are working hard in achieving the organization’s mission and objectives. It also sets expectations for employee performance and motivates employees to work hard in ways that are expected of the organization. In the Department of Education (DepEd), the Results-Based Performance Management System (RPMS) is being used a performance management tool for both the teachers and the non-teaching staff. The Result-Based Performance Management System is an integrated tool that serves as a single performance management, monitoring, and measurement system for the teachers. The system primarily seeks to rationalize, harmonize, streamline, simplify, integrate, and unify the performance management systems and activities of oversight government agencies. Performance monitoring, evaluation, information and reporting are essential components of an effective and efficient performance management system.

Most of the people are not comfortable working with a computer and perform better with the paper and pencil system and this is the current procedure in Result-Based Performance Management System. Teachers manually create their portfolio which consumes time and effort. Principals are challenged in consolidating the portfolios of teachers since this is being submitted in the form of file and folders. Division Office validate the report sent by the principal, but the process is tedious as they need to retrieve the file and folders from a compact disk. These manual system works even if the electricity is off but one of the disadvantages is the amount of time most put into it. There are also many deficiencies and duplication that have been noted in the present performance monitoring systems and processes used by government agencies that have resulted in redundant data, reports in different formats, delay in submissions, inaccurate results, inefficiencies in performance monitoring, evaluation, and reporting, consolidating of reports, retrieval of data and storage of data. Since the manual Result-Based Performance Management System consumes a lot of time and effort, it would be helpful to develop a system for Division Office to centralize the process, eliminate the use of paper and data redundancy, increase the efficiency and productivity of all employees and reduced the time and effort in creating reports. The developed system is essential to Division Office, Principals, Department Head and Teacher as the system automates the current RPMS system which provide a more efficient process, avoid inaccurate results and helped the organization in decision making through the reports that can be produced by the system and with the integration of data analytics.

**Background of the Study**

Education in the Philippines has undergone several stages of development from the pre-Spanish times to the present. In meeting the needs of the society, education serves as focus of emphases/priorities of the leadership at certain periods/epochs in our national struggle as a race.

In August 2001, Republic Act 9155, otherwise called the Governance of Basic Education Act, was passed transforming the name of the Department of Education, Culture and Sports (DECS) to the Department of Education (DepEd) and redefining the role of field offices (regional offices, division offices, district offices and schools). RA 9155 provides the overall framework for (i) school head empowerment by strengthening their leadership roles and (ii) school-based management within the context of transparency and local accountability. The goal of basic education is to provide the school age population and young adults with skills, knowledge, and values to become caring, self-reliant, productive and patriotic citizens.

The Department of Education was established through the Education Decree of 1863 as the Superior Commission of Primary Instruction under a Chairman. The Education agency underwent many reorganization efforts in the 20th century in order to better define its purpose vis a vis the changing administrations and charters. The present-day Department of Education was eventually mandated through Republic Act 9155, otherwise known as the Governance of Basic Education act of 2001 which establishes the mandate of this agency. The Department of Education (DepEd) formulates, implements, and coordinates policies, plans, programs and projects in the areas of formal and non-formal basic education. It supervises all elementary and secondary education institutions, including alternative learning systems, both public and private; and provides for the establishment and maintenance of a complete, adequate, and integrated system of basic education relevant to the goals of national development. The DepEd Mission sees to it that every learner must have access to quality, equitable, culture-based, complete basic education and quality education and the DepEd Vision to produce students who are skilled with right values and competencies that they can use on the day-to-day lives and teaching must be learner-centered. Learning must be done by the students and teachers must only facilitate the learning. With the Mission and Vision, the organization developed a system called Result-Based Performance Management System to ensure that teachers give focus on their work towards achieving the organization’s Mission, Vision and Values.

Teachers play a crucial role in improving the quality of the teaching and learning process. Good teachers are vital to raising student achievement. Hence, enhancing teacher quality ranks foremost in the many educational reform efforts toward quality education. The PPST articulates what constitutes teacher quality through well-defined domains, strands and indicators that provide measures of professional learning, competent practice and effective engagement across teachers’ career stages. This document serves as a public statement of professional accountability that can help teachers reflect on and assess their own practices as they aspire for personal growth and professional development.

The Result-Based Performance Management System is an integrated tool that serves as a single performance management, monitoring, and measurement system for the teachers. The system primarily seeks to rationalize, harmonize, streamline, simplify, integrate, and unify the performance management systems and activities of oversight government agencies. At the start of the school year, the division office is sending the RPMS tools and forms to the principal and the principal is printing the documents. The school head distributes and discuss the forms to Teachers I-III and Master Teacher I-IV in preparation for their portfolio. The Teachers I-III and Master Teacher I-IV answer the E-SAT and the ICT Personnel generates the summary results and the department head analyze the result to create the development plan. Next, the school heads conduct classroom observation to validate the knowledge of content of teachers and this is being done every grading period. After the first classroom observation, the teacher creates and compiles the documents needed for the IPCRF’s KRAs and Objectives using the Means of Verification (MOV) list and the school head rates each Teacher I-III and Master I-IV based on the submitted IPCRF, the consolidation of documents are very time consuming as there are huge amount of paper works involved. Due to this paper system, there are several noted data redundancies and delays in submission. There is also a mid-year IPCRF review being done by the School Head. Once the IPCRF has been approved the teachers will burn the images of portfolio in a CD. The Principal consolidate the IPCRF and send it to the Division Office. The Division Office shall be the responsible in monitoring the submitted IPCRF of the Teachers. The final ratings will be assessed by the Division Office. After assessment the Division office will conduct Development Intervention plan based on the results of the assessment and will conduct or recommend trainings/seminars to focus on the low areas of performance to maintain the standard of teaching. There were challenges that has been noted in data consolidation both for the Principal and Division Office due to the large amount of paper works. Once the rating has been validated, the Division Office release the final ranking.

Due to this challenges and problem, the developers developed an online system that helped the teachers in easily creating their portfolio. The system helped the organization by automating the reports, eliminating the use of papers, data redundancy, easier validation of reports, reduced time and effort in creating portfolios and reports. The system includes Descriptive Analytics as the system can generate reports to describe the details of the teacher’s rating which is used for plan and development.

**Statement of the Problem**

The developers aim to achieve good quality and identify what are applicable to the project while focusing to the client’s quality standards/policy expectation set by the organization. Sustainability, reliability, availability, accuracy and secrecy are the common quality issue that must be concentrated by the stakeholders.

With this, the developed system helped the chosen organization to become

more effective and have strong management control answering the following problems.

The problems encountered using manual are as follows:

1. Huge amount of paper produces in creating portfolio for the result-based performance management system of the teachers resulting to burden the teacher in terms of time and effort.
2. Manual report generation in excel file, resulting to unfriendly, inaccurate, redundant and un-real time monitoring of performance of the teachers and master teacher for the RPMS. Retrieval of reports is also difficult because of un-organize files of portfolio in the file cabinet due labels and with that, it consumes time and effort and importantly in encoding the ratings of the teachers.
3. The issue of acceptance of the teachers for RPMS (current process), as there are comments particularly on documenting how teaching is conducted because it will add as burden to the teacher when it comes to gathering evidences.
4. The teacher cannot have a copy of the E-SAT results for personal references. The teacher can only have a view of results after answering the E-SAT and once finished the teacher cannot retrieve the results.
5. Manual computation of IPCRF and COT summary resulting to inaccurate results and tedious process. This process takes longer time to be completed.
6. Manual consolidation, validation of computation and encoding of Individual Performance Commitment Review Form on Division Office where they needed to collect all IPCRF files (hard copy) from each school.
7. Inconsistent and unorganized way of constructing the report of key results area challenge and limited amount of reports that can be produced on the manual system which limits the organization to plan for development, perform correct action, monitor performance, and analyze results.

**Objectives of the Study**

**General Objective**

The general objective of the study is to develop an Online Result-Based Performance Management System for Division Office to explore acceptance level of the system for a more efficient process, enhanced productivity, provide a User’s friendly system for Administrator’s easy access, and eliminate manual system to provide quality of work, detailed information and be more effective towards the achievement of the organizational goals.

**Specific Objectives**

The specific objectives of the study are also part of the main objectives:

1. Assess the feasibility of developing a new system.
2. Analyze the existing process.
3. Develop a system that will:
   1. Provide a system that will have document tagging for automated document filing and will automatically compile the uploaded data and stored in the database that can be retrieve any time to enhance process for teachers in creating portfolios that will increase teacher’s efficiency and productivity and eliminate the use of manual system.
   2. Provide detailed information of teacher’s performance through the systematic Individual Performance Commitment Review Form that will be inputted on the system, lessen the time consumed and avoid data redundancy in creating portfolios and IPCRF by eliminating the use of pen and paper system.
   3. Provide a system that will automatically compute the IPCRF rating and COT Summary to enhance the validation process and improve teacher, school heads and Division Office efficiency.
   4. Provide centralized database for an easy way of retrieving and storing of information which will be used on data validation
   5. Provide a system that can produce reports of final ranking and areas of challenges that can support the organization’s plans and decisions, identify the root cause of poor performance and improve operational efficiency through data analytics
   6. Provide a structured database that will generate reports of historical data including:
      * Development Plan based on E-SAT
      * IPCRF with Computed Final Rating
      * Rewards and Recognition
      * Final Ranking
      * KRA Challenges
      * Individual/Summary Performance Report of Teacher
      * Recommendation of Teachers for Promotion
4. Test the functionality of the developed system.

**Significance of the Study**

**To the Division Office**

This study helped the Division Office in consolidating the rates of the teachers easily using data analytics which is used for development plans. The developed system also helped the Division Office in monitoring the progress of the performance of the teachers and monitor the teachers ranking.

**To the Principal**

This study helped the Principal in monitoring the teacher’s portfolio online. Principal can easily determine the skills need to be develop or improve by the teacher because of data analytics which is applied to the developed system and easily print reports.

**To the Head Teachers**

This study helped the School Heads in rating the teacher’s performance without using pen and paper. The developed system can collect all the scores then calculate and produce the performance report instantly.

**To the Teachers**

This study helped the Teachers in creating portfolio. With the help of the developed system the loads of papers gradually lessen, and the portfolio details is kept securely in database. Teachers can also monitor the previous performance to improve the skills that needs to be develop.

**To the Developers**

The study helped the developers to further enhance the programming skills and to gain a new set of skills that are needed in the industry. The developers aimed to develop a paperless process that will help conserve the environment.

**To the Researchers and Future Developers**

The study helped the researchers and future developers to enhance system together with the advancement of the technology. This study guided the researchers and the future developers for future studies and development that helped the organization to evolve the system.

**Scope and Limitation**

**Scope**

The Online Result-Based Performance Management System with Data Analytics for DepEd Division Office of Manila lessened the burden of Teachers I-III (proficient teachers) and Master teachers I-IV (high proficient teachers) in creating their portfolio and automate the classroom observation tool by eliminating the use of paper. The system has a security feature where it requires username and password for specific access and restrictions. The system has the Employee Self-Assessment Tool (E-SAT) for both Teachers I-III and Master Teacher I-IV and enable the teachers to upload and create their portfolio. The system runs using internet but enable teachers to create portfolio offline. The system has the Classroom Observation Tool (COT) which enable principals/school heads to rate the teacher. The system has the Individual Performance Commitment and Review Form (IPCRF) where the Principal and Teacher finalize, review and agree with the performance rating. With the system, the Principal can straightforwardly endorse all final rating of the teachers to the Division Office. The system enhances the validation process of Division Office as it is easy to retrieve the data from the database. The system can produce different reports such as Development Plan based on E-SAT, IPCRF-Development Plans and Portfolio, IPCRF with Computed Final Rating, Rewards and Recognition, Final Ranking, KRA Challenges of Teachers, Individual Performance Report of Teacher and Performance Summary Result. The system includes Data Analytics which focuses with Descriptive Analytics where the system can provide reports that can identify the root cause of poor performance and challenges of teachers based on the gathered results. These reports helped the organization in analyzation. The system also includes Prescriptive Analytics where using the gathered data from the challenges, the organization can have a better understanding on the seminar and trainings that are needed to be deployed towards improving the performance and to minimize drop in performance. These reports helped the organization in making better decisions. The system includes all needed forms and with the system, data management is applied through centralization for data consolidation and availability.

**Limitations**

The developed system is for Online Result-Based Performance Management System only. The system does not include creation of lesson plan, instructional materials, test materials, power point presentations, and module, computations of salary, grade of students, attendance of school administrators, staffs, teachers and principals. The developed system focuses on enhancing the process of E-SAT (Electronic Self-Assessment Tool), COT (Classroom Observation Tool), creating teacher’s portfolio (KRAs and Objectives), IPCRF (Individual Performance Commitment Review Form), validation and generation of reports. The system does not include the process of seminars and training and RPMS process for A.L.S teachers. The system can produce reports for recommendation for promotion but does not include the process. The system focuses on the RPMS Cycle (Performance Planning and Commitment, Performance Monitoring and Coaching, Performance Review and Evaluation, Performance Rewarding and Development Planning) for Division Office Manila.

**Data Flow Diagram of the Developed System**

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**Exploded Data Flow Diagram of Process 3.0**



**Exploded Data Flow Diagram of Process 4.0**





**Chapter V**

**Summary of Findings, Conclusion and Recommendations**

*This chapter presents the summary of findings during and after the study. Conclusions and recommendations are also discussed.*

**Summary of Findings**

The proponents gathered information which shows that Division Office Manila is currently using a manual process in Result-Based Performance Management System which includes several processes such as Employee Self-Assessment Tool, Classroom Observation, Individual Performance Commitment and Review and Development Planning.

Based on the gathered information, there are problems in the existing system in terms of creating the teacher’s portfolio, conducting the classroom observation and individual performance commitment and review that needs to be solved, which led the proponents to develop a new system entitled Online Result-Based Performance Management System with Data Analytics that help Division Office to enhance the existing system and solve the problems encountered. The gathered information shows the problem including the data redundancy in creating the teacher portfolio where the teacher needs to attach a file into several Key Result Areas and Objectives. The system includes manual report generation in an excel file resulting to unfriendly, inaccurate, redundant and un-real time monitoring of performance of the teachers and master teacher for the RPMS. Retrieval of reports is also difficult because of un-organize files of portfolio in the file cabinet due labels and with that, it consumes time and effort and importantly in encoding the ratings of the teachers. Manual computation of COT and IPCRF also results to inaccurate results and tedious process. The Division Office Manila manually consolidate, validate and encode the IPCRF rating which takes longer time to be completed. There is a limited amount of reports that can be produced on the existing system which limits the organization to plan for development, perform correct action, monitor performance, and analyze results. With these findings, the proponents developed a system to eliminate these challenges and help the organization. The proponents conducted feasibility analysis such as technical, operational, and economic to ensure that the system is feasible before developing the system.

**Conclusion**

The system was developed to automate the process of Result-Based Performance Management which will help the organization manage records efficiently and effectively thus improving the employee’s productivity. The organization will no longer use paper in organizing portfolio as the system includes document tagging which will enable the teachers to attach MOV and select respective KRA and Objective. The system has a centralized database which is easier for data storing, validation and retrieval. The system will automatically compute for the average COT and IPCRF Rating thus eliminating inaccurate results. The Online Result-Based Performance Management System is integrated with Data Analytics where upon user’s request the system will automatically send report to the management. Data Analytics will provide root cause to the poor performance and determine the seminar that needs to be conducted to improve performance.

Therefore, the developers conducted that the Online Result-Based Performance Management System with Data Analytics has a lot of advantage than the existing system used by the Division Office Manila. The system can add, retrieve and process ESAT, COT, IPCRF and Development Plan. Overall, the system will help the organization in producing excellent teaching quality.

**Recommendations**

To the future researchers or system developers who will choose this project as a reference, these are the recommendations that will help enhance the features and functionality of the project. The developed system is incapable of creation of means of verification such as lesson plan, instructional materials, test materials, power point presentations, and module. The system does not include the processes of seminars and trainings. The system is incapable of RPMS process for A.L.S teachers. The system does not include the process in promotion. Without electricity, the whole process is useless and without internet connection, reports cannot be submitted which can cause delays in submission. The organization are required to have a basic knowledge on how the computer works.