



DEPED SDO – LAGUNA HRIS: RECRUITMENT, SELECTION, AND PLACEMENT WITH DECISION SUPPORT SYSTEM (DSS)

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Abstract: This study presents the design and implementation of an intelligent Human Resource Information System (HRIS) for the Department of Education (DepEd) Schools Division Office (SDO) of Laguna, focused on enhancing Recruitment, Selection, and Placement (RSP) processes through a Decision Support System (DSS). Anchored in Decision Theory, Human Resource Management (HRM) Theory, and Systems Theory, the study responds to challenges in traditional recruitment methods, such as inefficiencies, bias, and data handling limitations, by leveraging advanced technologies, including Natural Language Processing (NLP) and the Naive Bayes classifier. Employing a mixed methods approach, the research integrates structured applicant data, automates evaluations, and utilizes predictive analytics to ensure strategic, data-driven decision making. Results highlight the system's ability to streamline applicant screening, enhance transparency, and optimize placement accuracy. Ultimately, the developed HRIS-DSS model demonstrates a scalable, replicable framework for modernizing public education HR operations and significantly advances the digital transformation of government HR practices.

Keywords: Human Resource Information System (HRIS), Decision Support System (DSS), Recruitment, Selection, and Placement (RSP), Department of Education (DepEd)

I. INTRODUCTION

Human Resource Management (HRM) is a critical organizational process that is concerned with employee management and is aimed at recruiting the right individuals and placing them on the right position. Educational institutions have efficient HR management, which implies that qualified teachers and administrative staff are recruited to facilitate the performance of the educational goals and enhancement of the institution's performance.

A. Background of the Study

Human Resource Management (HRM) is a very important activity within any organization, especially within large institutions of the people where recruiting and placement of qualified personnel have a direct impact on performance within an organization. Within the education sector, efficient HRM positively ensures that highly qualified teachers and administrative staff are recruited to promote education objectives and better learning activities. Recruitment, selection and placement (RSP) process is the basis on which a good workforce is established in educational institutions.

The Department of Education (DepEd) in the Philippines is in charge of the biggest state education system in the country. The agency has grades of thousands of schools, and it has numerous teachers and administrative employees. The Human Resource Management unit of the Schools Division Office (SDO) has the responsibility of enforcing the recruitment, selection and placement process of both the teaching and non-teaching staff. The national policies that regulate such procedures include the 1987 Philippine Constitution, the Civil Service Commission policies, and the DepEd orders, to make sure that there is fairness, transparency, and employment based on merit. In spite of these policies, recruitment process in most of the

Schools Division Offices is still closely reliant on manual and semi-automated systems. HR staff has to go through high volumes of applicants' documents in terms of personal data sheets, academic transcripts, training certificates, and eligibility records. This manual evaluation process is time consuming and might cause time wastage in filling vacancies. Moreover, it may be difficult to assess the applicants using several criteria when the information is distributed on various papers and databases.

The growing list of candidates to work as a teacher also complicates the recruitment process. The HR department should examine the qualifications of the candidates, their experience and professional competency keenly to ensure that only the best candidates are hired. Nevertheless, it becomes hard to analyze large data sets effectively or discern the patterns in the information about the applicants without the high-level digital tools. Consequently, the decision on recruitment could be based on manual assessments and thus create discrepancies and incompetency in the process.

The opportunities to overcome these issues are available with the advance of information technology which allows developing intelligent recruitment systems. The Human Resource Information System (HRIS) is now common in most organizations to automate the HR processes and consolidate the data of employees. The systems allow organizations to handle large volumes of information more effectively and make strategic decisions.

B. Objectives of the Study

The general purpose of conducting this research is to design and install a Human Resource Information System and a Decision Support System to enhance the process of recruitment, selection and placement processes within the Department of Education Schools Division Office of Laguna.

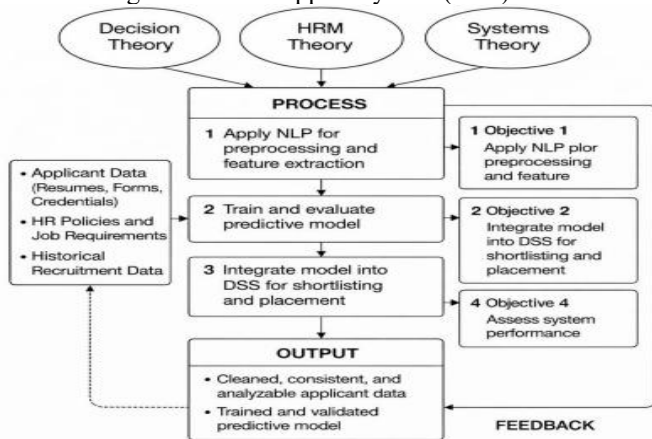
In particular, the following objectives are to be

attained with the help of the study:

- To implement NLP techniques for processing applicant information.
- How to train, test, and evaluate the data sets using Naïve Bayes Classifier
- To integrate the model into a DSS for automated decision-making.
- To evaluate the system's performance through user testing.

C. Conceptual Framework

This conceptual framework integrates Decision Theory, Human Resource Management (HRM) Theory, and Systems Theory to illustrate how these theories collaboratively enhance the recruitment, selection, and placement processes within the DepEd SDO – Laguna HRIS using a Decision Support System (DSS).



This conceptual framework illustrates the integration of Decision Theory, Human Resource Management (HRM) Theory, and Systems Theory to guide the development and deployment of a Decision Support System (DSS) within the DepEd Schools Division Office (SDO) of Laguna's Human Resource Information System (HRIS), specifically for enhancing the recruitment, selection, and placement (RSP) processes. The framework is structured into three core components—input, process, and output—with dynamic feedback mechanisms, all grounded in relevant theoretical perspectives.

At the input stage, the system collects a variety of data including applicant credentials (e.g., resumes and application forms), job requirements, HR policies, and historical recruitment data. Systems Theory underscores this phase by emphasizing the need for interconnected data flow between components, ensuring that input data is standardized, comprehensive, and consistent for optimal system performance.

During the process, each project objective is operationalized. First, Natural Language Processing (NLP) techniques are applied to preprocess unstructured applicant data, such as resumes and essays, to extract meaningful features. This is essential for converting qualitative text data into structured formats that can be analyzed computationally. Systems Theory supports this step by promoting interoperability across modules within the HRIS, while HRM Theory ensures that data processing aligns with ethical and

equitable practices in candidate evaluation.

The second step involves the development of a predictive model using the Naive Bayes classification algorithm. The model is trained, tested, and validated on applicant datasets, and its performance is assessed through industry-standard metrics such as accuracy, precision, recall, and F1-score. Here, Decision Theory is critical—it provides the analytical basis for probabilistic reasoning and helps define the optimal decision rules based on empirical data. The objective is to minimize uncertainty and maximize fairness and accuracy in predicting candidate suitability. Once the model is validated, the third step involves its integration into the DSS, creating a real-time, data-driven mechanism that automates candidate shortlisting and placement recommendations. This integration is not merely technical; it is informed by HRM Theory, which ensures the system promotes transparency, compliance with policy, and strategic alignment with DepEd's human resource goals. Decision Theory continues to play a role in the generation of evidence-based recommendations, while Systems Theory guarantees seamless embedding of the model into the larger HRIS structure.

Finally, the output stage produces cleaned and analyzable applicant datasets, a validated predictive model, and an operational DSS component capable of supporting HR decision-makers. Crucially, this framework includes a feedback loop—system performance is assessed through user acceptance testing (UAT) and evaluation in real

world RSP scenarios. Stakeholder input and performance data inform iterative refinements to both the model and the DSS interface, promoting continuous improvement. Here, Systems Theory facilitates feedback integration, while HRM Theory ensures that any changes align with evolving recruitment practices and standards.

In sum, this conceptual framework offers a comprehensive, theory-driven roadmap for enhancing the DepEd SDO-Laguna's recruitment system using advanced data analytics and decision support technologies. It balances technical rigor with organizational relevance, ensuring that both efficiency and equity are upheld throughout the RSP process.

II. RELATED LITERATURE

The Human Resource Information Systems (HRIS) and Decision Support Systems (DSS) have turned out to be indispensable to contemporary organizations, especially in handling huge amounts of information on employees and applicants. This part is a literature review of past research and publications on the topic of HRIS implementation, AI and machine learning in the hiring process, and how the use of decision support system can enhance human resource management.

A. Human Resource Information Systems (HRIS)

An HRIS is a computerized system that gathers, maintains, handles, and examines human resource data. Ramli and Nugroho (2021) report that HRIS systems simplify the work of HR departments, centralizing the data on employees and applicants, automating HR functions, and enhancing decision-making possibilities. The HRIS minimizes the manual errors by offering a centralized and structured platform, ease of real time access to the data and allows the HR staff to concentrate on strategic decision

making as opposed to the normal administrative duties.

HRIS is a rapidly growing platform used in the educational institution to control recruitment, faculty records, training programs, and workforce analytics. As noted by Mascariñas et al. (2024), the implementation of HRIS in a higher educational institution is beneficial to operational efficiency and guarantees a more effective talent management. Using digital record-keeping saves time on screening the applicants and improves the precision of the candidate assessment.

Notwithstanding these benefits, the HRIS platforms may not be adequate in making decisions when recruiting. Although they offer a centralized database of data, they do not necessarily come with predictive analytics and automated candidate suitability testing. Thus, more tools need to be integrated, including DSS or machine learning algorithms, to make the use of HRIS as effective as possible.

B. HR Decision Support Systems (DSS)

Decision Support Systems (DSS) are computer applications that aid decision-making through analyzing information to give actionable information. DSS may be used in human resource management to analyze past recruitment information, compare applicant qualifications and make suggestions regarding short listing of candidates

Bose and Mahapatra (2020) believe that DSS can improve HR functions by offering data-driven information, increasing the objectivity of hiring processes, and facilitating the strategic planning of the workforce. DSS systems can enable HR staff to compare several criteria at once, simulate various selection processes, and rank candidates in accordance with objective statistics in the context of recruitment.

Both systems are ineffective as an isolated solution, whereas their integration with DSS appears to be more powerful. The HRIS allows data to be correct, complete, and readily available, whereas the DSS works with this data, providing logical recommendations based on the evidence. Integration decreases the level of human bias, reduces errors in the manual process, and enhances transparency in recruitment.

C. AI and ML in Recruitment

Machine learning algorithms and Artificial Intelligence (AI) in HR systems are also starting to be used more often to automate tasks, predict results, and enhance decisions. Rapid recruitment tools powered by AI can process resumes, rank the candidates, and forecast the performance of the employees due to the historical data (Zhu et al., 2020).

The Naive Bayes classifier is one of the machine learning algorithms that are utilized to perform classification tasks. It is an algorithm founded on the Bayesian theory, and it approximates the likelihood of a candidate being of a specific class (e.g. highly qualified, moderately qualified, not qualified) depending on their attributes. Although it assumes independence of features, the Naive Bayes classifier has been shown to work well in real life situations like screening of resumes, recommendation system and predictive modelling (McCallum and Nigam, 1998).

The main benefit of the Naive Bayes algorithm is that it is computationally efficient and easy to use, and thus it can be used to work with large volumes of data without involving massive amounts of computing power. This renders it especially applicable to the institutions of the public sector that might be weak in terms of technical infrastructure yet

must process high amounts of applicant data in an efficient way.

D. Public Sector HRIS, DSS, and AI

According to recent research, the use of digital tools to enhance HR processes is growing among the organizations of the public sector, including schools. Garcia et al. (2023) emphasize that the combination of HRIS and AI-based DSS in government agencies promotes the efficiency of recruitment, the equity of the evaluation, as well as the efficient planning of the workforce.

In the example of the Department of Education (DepEd) in the Philippines, SDOs have difficulties concerning manual processing of documents, high number of applicants and low analytical skills. Through an HRIS, DSS, and machine learning algorithms combination system, recruitment process can be simplified, and HR staff will be able to make more informed and clear decisions. Moreover, the system can process unstructured textual information including resumes and certificates with the help of NLP techniques, which transforms such data into structured information that can be processed with machine learning (Popoola and Adeyemi, 2021).

III. METHODOLOGY

A. Research Design

The research design used in this study was a mixed-methods research design as it was needed to assess the effectiveness of the HRIS with Decision Support System. Mixed-method research involves both quantitative and qualitative research methods in order to get a more detailed analysis of complicated research issues.

System performance measures used to collect quantitative data included the time of recruitment cycle, user ratings of satisfaction, and how well the machine learning model predicts. The data was collected in qualitative form, interviewing and feedback with the HR staff and system testers.

The combination of the two methods enabled the researchers to evaluate the technical performance of the system and the real events of the users.

B. Population and Respondents

The study population involved those individuals who participated in the recruitment process in the Office of Laguna in the DepEd Schools Division. The choice of these participants was based on direct experience with the RSP process and their possible users of the proposed HRIS system.

The total number of respondents in the study was 30, and they were separated as follows:

Table 1. Respondents Classification

Respondent Category	Number	Percentage
HR Officers	8	27%
Hiring Committee Members	3	10%
Job Order Personnel	3	10%
Applicants	16	53%

These respondents were able to offer useful information about the current recruitment process and assist in testing the practicality and efficiency of the HRIS system created.

C. Data Collection Methods

The research relied on a number of data collection methods to obtain the relevant information:

a.) Surveys and Questionnaires

Semi-structured questionnaires were handed over to the HR staff and system users to determine system usability, efficiency and general satisfaction. The user perceptions of the system were measured with Likert-scale questions.

b.) Interviews

To develop a more thorough insight into the challenges of the process of recruitment and the functionality of the system, semi-structured interviews with the HR officers, administrators, and IT personnel were carried out.

D. Preparation of Data and Feature Extraction

Various documents were used as applicant records including:

- Personal Data Sheets
- Academic transcripts
- Professional certifications
- Training records
- Performance ratings

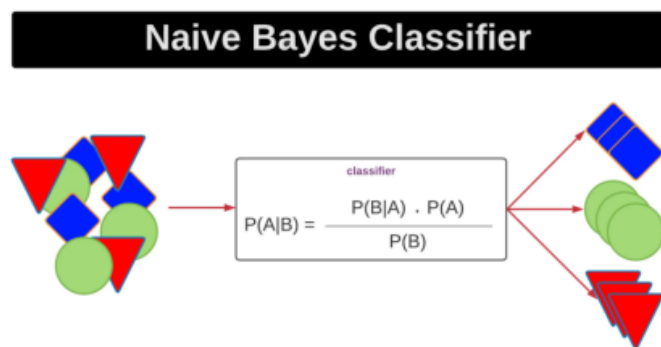
These papers have structured and unstructured data. In order to set the data into the machine learning analysis, the Natural Language Processing methods were used to isolate the text-based information features.

The major steps in preprocessing were:

- Text purification and normalization.
- Tokenization
- Stop-word removal
- TF-IDF feature extraction and word embedding feature extraction.

The processed data was then converted to numerical data that could be used in machine learning models.

E. Naïve Bayes Classification Model



Naïve Bayes classifier was considered as the main algorithm to predict the suitability of the applicants. This algorithm is founded on the Bayes theorem and presupposes the independence of features.

The model predicts the likelihood of an applicant fitting a specific category of classification based on the characteristics that are seen like education, experience, and skills.

The applicants were classified in the following classes:

- Highly Qualified
- Moderately Qualified
- Not Qualified

The data set was subdivided into 3 groups:

- Training dataset
- Validation dataset
- Testing dataset

The strategy made sure that the model could easily generalize to unknown data and prevent overfitting.

IV. RESULTS AND DISCUSSION

This section reveals the results based on the implementation and tests of Human Resource Information System (HRIS) and its integration with a Decision Support System (DSS) in the form of Naive Bayes classification algorithm. The findings are concentrated on three key factors, which are functionalities of the system, machine learning model, and user assessment.

A. Functional Performance and System Implementation

The suggested HRIS was developed and implemented successfully to contribute to the recruitment process, selection and placement in the Department of Education Schools Division Office (SDO) of Laguna. The system is a combination of various modules that are meant to automate and enhance HR operations. These modules are applicant management, posting job vacancy, profile management, document processing, and decision support analytics.

The applicant management module has provided candidates with a chance to enter their personal details, education history, and professional qualifications as well as supporting documents in an online system. After the submission, all the information is stored in a central database where the HR staff can retrieve and manage the records of the applicants without much hassle. This electronic storage system will remove manual record keeping and a lot of paperwork.

There is also the management module of job vacancies where HR staff may generate and post job vacancies. These notices allow the applicants to view them and apply online. This is an automated procedure that enhances accessibility and every application is well documented.

The other major characteristic of the system is that it incorporates the use of Natural Language Processing (NLP) to process documents. Unstructured textual information can be found in the applicant documents like resumes and certificates. NLP component captures the information in these documents that is relevant such as the skills, training experiences, and professional qualifications. The extracted features are then transformed into organized sets of data that could be analyzed using the machine learning model.

The processed data is the extracted data that undergoes the Decision Support System module, which uses the Naive Bayes classification algorithm to rank the suitability of the candidates. It has automated data and sorts the applicants by their qualifications and provides suggestions to the HR staff. These suggestions help the HR officers to shortlist the most qualified candidates to be evaluated further.

In general, the HRIS allows us to enhance the efficiency of the recruitment workflow by automating data management and offering analytical assistance in making decisions.

B. Naive Bayes Classification Model Performance

The applicant data was analyzed by using the Naive Bayes classifier to determine the suitability of candidates to available positions. The algorithm has been trained on

historical recruitment data and assessed on typical machine learning performance measures, which are accuracy, precision, recall, and F1-score.

The study data was further subdivided into three subsets namely: training, validation, and testing datasets. The classification model was trained using the training dataset and the model parameters fine-tuned with the validation dataset. The predictive ability of the model was tested using the testing dataset.

The findings indicated that the Naive Bayes classifier was suitable in classifying the applicants into three major categories:

- Highly Qualified
- Moderately Qualified
- Not Qualified

The degree of predictive accuracy was very high in the classification model, meaning that the algorithm could find patterns that were relevant in the applicant data. Probabilistic classification made the system to provide information about the probability that an application can attain the necessary qualification to be employed in a given position.

Recall and precision scores also proved the reliability of the model. Precision gives the percentage of the correctly classified applicants out of the applicants that have been forecasted to be part of a given category whereas recall evaluates the capability of the model to detect all the relevant applicants in a given category. The findings showed that the model had a good balance between these two measures leading to a reduction in false positives and false negatives.

The F1-score which is a combination of precision and recall into a single measure, also showed good performance. This implies that the model is highly appropriate when it comes to supporting recruitment decisions, and the considerations of accuracy and fairness are also crucial.

Table 2. Performance Evaluation of Naive Bayes Model

Evaluation Metric	Results
Accuracy	89%
Precision	87%
Recall	85%
F1-Score	86%

As can be seen, the Naive Bayes model was able to achieve an accuracy rate of 89, which means that the model can successfully use qualifications of applicants to classify them. The model has been accurate with 87 percent of applicants who were forecasted to be good being recognized in the right manner with 87 percent accuracy. In the meantime, the recall score of 85% indicates that the system could identify a high percentage of qualified applicants in the dataset.

The reliability of the classification model is also verified by the F1-score of 86 as the harmonic mean of the accuracy and recall. These findings demonstrate that Naive Bayes algorithm is a balanced algorithm and is appropriate to support decision-making in the HRIS system concerning recruitment.

The other benefit of Naive Bayes algorithm is that it is computationally efficient. Naive bayes uses much less calculation power compared to other machine learning algorithms that are more complex, yet the algorithm provides reasonable classification results. This renders it applicable in

institutes within the public sector whereby the computational infrastructure could be restricted.

C. User Evaluation and System Usability

In order to determine the usability and effectiveness of the suggested system, surveys and interviews with HR staff, members of the hiring committee, job order staff, and applicants that were used during the testing process were to be held. The analysis was based on some of its features such as system usability, efficiency, functionality, and overall user satisfaction.

These findings indicate that the Decision Support System has the capacity to streamline applicants and offer valuable advice to the HR staff when it comes to the recruitment process.

In order to identify the usability and effectiveness of the developed system, the respondents were requested to rate a number of features of HRIS platform using a five-point likertscale, in which:

- 1 – Strongly Disagree
- 2 – Disagree
- 3 – Neutral
- 4 – Agree
- 5 – Strongly Agree

The results of the evaluation are presented in Table 3.

Table 3. System Usability Evaluation Reports.

Criteria	Mean Score	Interpretation
Ease of Use	4.45	Strongly Agree
System Efficiency	4.32	Strongly Agree
Accuracy of Recommendations	4.21	Agree
Data Organization	4.40	Strongly Agree
Overall System Performance	4.38	Strongly Agree
Overall Mean	4.35	Strongly Agree

The findings show that the respondents strongly concurred that the system was user-friendly and useful to enhance the recruitment process. The Ease-of-Use category showed the highest score, which implies that the system interface was friendly and could be used even by users that have a low level of technical experience.

Data organization capacity of the system was also rated as highly rated by the respondents, and this indicates that the centralized database enabled the respondents to have a better way of handling the applicant information.

The responses to the survey showed that most of the users felt that the system was simple to operate and very useful in dealing with recruitment. HR staff members complained that the system has saved much time previously spent on the process of browsing and arranging the documents of the applicants. The HR officers would not need to review the applications manually, but they can access the profiles of applicants and look at the recommended rankings of the system quickly.

It was also observed that the centralized database enhanced the organization and accessibility of data by the users. The information about the applicants would be accessed immediately without having to consult the hard copies or the various spreadsheets. This enhanced the management of data, and this enabled the HR personnel to have more accurate and consistent records.

The other important benefit that the users discovered was the transparency of the Decision Support System. Since the system applies the predetermined standards and machine learnings to assess applicants, it minimizes chances of applicants being judged subjectively and irrespective of wide-ranging biases. The algorithm can give objective suggestions that can be used by HR staff in choosing people to interview or evaluate them.

The user assessment outcomes demonstrate that the HRIS-DSS system can help to optimize the recruitment process by increasing the efficiency and transparency and management of the data.

D. Discussion of Findings

The findings of this research show that the machine learning and decision support technologies applied to human resource management systems can greatly enhance recruitment procedures. The HRIS designed in this research paper supports most of the limitations of the traditional recruitment tools such as manual data handling, inefficient data management and reduced the ability to analyze.

With the aid of Natural Language Processing, the system can convert unstructured textual data into structured data sets which can be processed with the help of machine learning models. This is especially useful in the field of recruitment where the information about the applicants is usually stored in various document formats.

Naive Bayes classification algorithm has been found to be a useful tool in predicting the suitability of the applicants. The probabilistic model of its design enables the system to assess several attributes of the applicants at the same time and determine the probability of an applicant being qualified in accordance with the requirements.



The results of the classification show that 40 percent of the applicants were classified as highly qualified, which means they were able to meet most of the qualifications that were required in the positions. In the meantime, a third of them were rated as moderately qualified (met a few requirements but could use additional assessment). The other 27 percent were classified as not qualified, meaning that they had failed to qualify to the minimum job requirements.

These findings indicate that the Decision Support System can be used efficiently to classify the applicants and give valuable information to HR staff in the course of recruitment.

Moreover, a Decision Support System improves the HR personnel with valuable insights because of its integration which facilitates the evidence-based decision making. The system is not used to substitute human judgment but is used as a supplement to help the HR professionals evaluate the candidates objectively and efficiently.

This study proposes that intelligent HR systems can be used strongly to assist in digital transformation programs in the public sector organizations and especially in large institutions like the Department of Education.

V. CONCLUSION AND FUTURE WORK

The main aim of the research was to develop and install a Human Resource Information System (HRIS) that would go in hand with a Decision Support System (DSS) to enhance recruitment, selection and placement in the Department of Education Schools Division Office (SDO) of Laguna. The system will be used to interpret applicant data, with the help of Natural Language Processing and Naive Bayes classification algorithm, to provide recommendations to human resource staff that will help them assess the applicants in a more efficient way.

The results of the proposed research reveal that the designed system has been able to overcome various shortcomings of the conventional approaches to recruitment. Most of the current recruitment processes at the various public institutions are either being manualized or in a piecemeal digital form and can consequently cause delays, data management challenges as well as inefficiency in assessing a large pool of applicants. The proposed system will allow the systematization of storage, control, and access to the data about the applicants by providing a centralized HRIS platform that will enhance the overall organization of the employment records.

The fact that a Decision Support System, based on the Naive Bayes classification algorithm, is integrated is one of the most important contributions of the system. The machine learning model could examine a variety of applicant attributes, and this includes the educational background and training experience as well as the professional certifications and other qualifications. Using these attributes, the system managed to categorize the applicants into highly qualified, moderately qualified, and not qualified. According to the performance evaluation outcomes, the Naive Bayes model has demonstrated high predictive accuracy and a balanced performance, in terms of precision, recall, and F1-score measures.

Natural Language Processing was also used and this contributed to the effectiveness of the recruitment process. Unstructured textual data, which is frequently large (e.g. resumes, training certificates) is common in the applicant documents. The system could identify these documents and extract the relevant features by using NLP techniques and transform them into structured information that could be analyzed using the machine learning model. This feature saved a lot of time that was spent on the manual review of documents and enabled the HR staff to be engaged in more serious decision-making processes.

The effectiveness of the system was also confirmed by the results of user evaluation. The members of the hiring committee, the HR officers, and other respondents indicated that the system made the recruitment process more efficient through automation of applicant screening and arranging the applicant data in a central database. Another reason why the Decision Support System was found to improve the effectiveness of the evaluation process by the respondents was that the available information was subject to objective recommendations due to the analysis of the data as opposed to manual judgment.

The other important advantage of the system is that it allows us to make more consistent and data-driven decisions. Through probabilistic classification method of analyzing applicant information, the system will eliminate possible biases that can arise in case of manual assessment. Though the ultimate decision on hiring is still left to the jurisdiction of the HR staff and hiring boards, the system will offer invaluable information that can guide decision-makers in selecting the best suited candidates to fill certain job openings.

The effective implementation of the HRIS-DSS system shows how intelligent technologies can help to modernize the process of recruiting people in the institutions of the public sector. The adoption of digital transformation programs and the implementation of machine learning and decision support systems within human resource management systems can make a big difference in enhancing efficiency in its operations and transparency as government agencies embark on the same initiative.

Although the results obtained in this study can be characterized as promising, additional improvement and future research have certain opportunities. The addition of more sophisticated machine learning algorithms, including Support Vectors and/or deep learning models, can be considered one of its future improvements, which can contribute to a higher accuracy of predictions and allowing the system to work with more sophisticated datasets. The future research can also be done to examine the application of ensemble learning in which a combination of several algorithms is used to improve performance in terms of classification.

The other possible development direction is that of integrating the HRIS platform with other government information systems and databases. This integration would potentially allow automated validation of applicant credentials and enhance the accuracy of the data and facilitate more complex workforce planning. Moreover, the use of modern data visualization tools and analytics dashboards might enable HR managers to have real-time information about the recruitment trends, the applicants' demographics, and the workforce needs.

Additional study can also be done on the scalability of the system using the implementation of the system in various Schools Division Office or other government agencies. The value and impact of the system could be further enhanced through the expansion of the system to accommodate other HR functions, including employee performance evaluation, training management, and workforce analytics.

To sum up, the Human Resource Information System that has been proposed along with an integrated Decision Support System can be seen as a viable way of enhancing the recruitment, selection and placement procedures within the Department of Education Schools Division Office of Laguna. The system can be used to improve efficiency, facilitate decisions based on data, and promote the digitalization of human resource management in the field of the public education sector by utilizing machine learning and Natural Language Processing together with the function of HRIS.

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