
APPLICANT TRACKING AND HIRING DECISION SUPPORT SYSTEM FOR DEPARTMENT OF EDUCATION SCHOOLS DIVISION OF SORSOGON

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Abstract

This study, titled Applicant Tracking and Hiring Decision Support System (ATHDSS) for the Department of Education – Schools Division of Sorsogon, focused on the design, development, and evaluation of an automated recruitment and selection system. The scope of the project covered applicant registration, document handling, evaluation, ranking, and report generation aligned with DepEd Order No. 7, s. 2023. The Rational Unified Process (RUP) served as the

development methodology, guiding the system through the phases of Inception, Elaboration, Construction, and Transition to ensure structured and iterative refinement. The completed system was evaluated by IT experts, Human Resource Management Officers, and selection committee members using the ISO/IEC 25010 software quality model to assess its performance across eight quality characteristics.

The findings of the study revealed that the system successfully implemented secured applicant registration, efficient document management, and automated evaluation processes. Role-based access ensured that applicants, HR personnel, evaluators, and assessors performed their tasks securely and efficiently. Scoring algorithms and server-side logic generated

accurate Comparative Assessment Results and Registry of Qualified Applicants, minimizing manual errors and enhancing transparency. Evaluation using ISO/IEC 25010 showed very high ratings across all areas, with the system achieving an overall mean score of 4.76, indicating excellent functional suitability, usability, security, performance, and maintainability.

Based on the results, the study concluded that the Applicant Tracking and Hiring Decision Support System effectively addressed the challenges of the manual

recruitment process. It provided a reliable, secure, and data-driven platform that automated key procedures, supported merit-based evaluation, and improved the overall

efficiency of recruitment operations in the SDO Sorsogon. The system met all specified requirements and demonstrated readiness for

In light of these conclusions, the study recommends the full implementation of the system across the Schools Division of Sorsogon to enhance transparency and consistency in recruitment. Continuous system updates and maintenance are suggested to ensure long-term performance, compatibility, and security. Additional

Keywords: Applicant Tracking System, Decision Support System, Hiring Decision Support System, Human Resource Information System, Public Sector Human

Introduction

Globally, educational institutions continue to shift from manual hiring workflows to digital recruitment and selection systems as part of broader efforts to enhance efficiency, transparency, and equity in public service hiring practices. Internationally, countries such as the United States, Australia, and the United Kingdom have widely adopted applicant tracking systems (ATS) and automated evaluation tools to streamline job postings, document screening, and decision-making processes in the education sector. According to Johnson

Every year, the Department of Education (DepEd) invites thousands of individuals to be part of its growing workforce. This 2025 according to Philippine Information Agency (PIA), the department opened almost 20,000 new teaching positions and 10,000 non-teaching positions duly approved by the Department of Budget and Management. To ensure a transparent, fair

institutional adoption, as evidenced by high evaluation scores from technical and administrative experts.

modules - such as analytics dashboards and automated notifications - may be integrated in future enhancements to further streamline HR operations. Finally, regular training for HR personnel, evaluators, and applicants is advised to maximize the system's usability and organizational impact.

Resource Management, Recruitment and Selection, Recruitment Automation, Schools Division of Sorsogon

(2022), digital recruitment platforms significantly reduce administrative burden, minimize human error, and promote fairer assessment by standardizing evaluation criteria across applicants. As global trends emphasize data-driven and technology-enabled hiring systems, educational agencies worldwide are increasingly prioritizing automation to ensure that recruitment processes remain competitive, transparent, and aligned with modern public service standards.

and merit-based recruitment, selection and appointment process, DepEd issued DepEd Order No. 7 s. 2023 which discusses the general guidelines in the recruitment, selection and appointment of various positions. The said DepEd order serves as a guide for its human resource committee to uphold the values of fairness, transparency and accountability in the hiring process.

As an Information Technology Officer (ITO) in the Department of Education, one of my mandates includes planning, designing and developing digital infrastructure systems that would support and improve the department's general operations and services including learning delivery, ICT infrastructure and data automation. Having

Motivated by these challenges, the proponent with guidance and support from the Human Resource personnel section aims to plan, design and develop a data automation platform with emphasis on the improvement of SDO Sorsogon's recruitment, selection

The proposed information system was developed to address the basic and common problems in recruitment and selection process from job posting to generation of results. Through its implementation, it aims to streamline the recruitment and selection process through the

These documents uploaded online are subject for Initial Evaluation Result (IER) by the personnel section. If the applicant meets the initial qualifications, the applicants will

As stated in DepEd Order No. 7 s. 2023, the applicant will be assessed via a Comparative Assessment Results (CAR) framework which considers education, experience, training, performance, behavior and interview. Moreover, to ensure the integrity and objective evaluation of the applicant's qualification, the DepEd Order also provides instructions to organize Human Resource Merit Promotion and Selection

Once the points are assigned, the proposed system will automatically sum up all the points acquired by each applicant and generate comparative assessment results which will be submitted for selection and placement purposes. The results will then be

been part of the Schools Division Office (SDO) Sorsogon Province for several years, the proponent has experienced the challenges brought about by the traditional recruitment and selection process. Without a technology-based intervention, the entire process becomes tedious, repetitive, time-consuming and can be susceptible to human error.

and appointment workflows and practices. The proposed system is intended to respond to the challenges brought about by the recruitment and selection process through a comprehensive application tracking and hiring decision support system.

creation of centralized inventory of job vacancies within SDO Sorsogon. Through its online feature, it offers wider dissemination of hiring opportunities and enable applicants to submit their documents aligned with the job vacancy qualification standards (QS) of each posted position.

be immediately notified by the system to initiate the next phase of the recruitment process which is the comparative assessment.

Board (HRMPSB) to assess, evaluate and determine the applicants' qualifications, accomplishments and capabilities in relation to the job being applied for. Points will be given by the members of the HRMPSB based on the applicant's meritorious accomplishments and performance which are aligned on the criteria prescribed by DepEd Order No. 7 s. 2023 on specified job vacancies.

forwarded to appropriate authorities to assist them in determining the most qualified candidate for the position. Moreover, applicants will be notified of the status of their application throughout the recruitment process, ensuring transparency and

accountability of all involved in the recruitment process.

Acquiring the right talent is the most important key to growth (Benioff, 2021). Hence, in the context of the Department of Education, recruitment and selection play crucial roles because the quality of the delivery of basic education services is

With the increasing demands for improvements, excellence and innovation in the field of education, DepEd must ensure that it attracts and retains the right people with the right skills and possesses the right values which are aligned with the overall goals of the Department of Education. Therefore, an efficient technology-based

The purpose of this study is to design, develop, and evaluate an Applicant Tracking and Hiring Decision Support System for Department of Education Schools Division of Sorsogon using ASP.NET Core, specifically

By aligning the system with DepEd Order No. 7, s. 2023, the research aims to ensure that the recruitment process adheres to standardized guidelines and promotes merit-based hiring. The system will feature modules for applicant registration, secure document submission, and automated ranking based on DepEd's prescribed point

In addition to system development, the study will evaluate the software using the ISO 25010 quality model, which assesses key attributes such as functionality, performance efficiency, compatibility, usability, reliability,

As the Information Technology Officer (ITO) of the Schools Division of Sorsogon Province, one of the mandates of an ITO is to develop and maintain digital systems and platforms for DepEd operations,

dependent on its workforce. Therefore, recruitment and selection should not only be treated as administrative tasks but should be viewed as strategic process that will affect the future of education.

platform for recruitment, selection and appointment system that adheres to the guidelines constituted by DepEd should be instituted to ensure that all DepEd's offices adheres to the standards of merit-based and transparent recruitment, selection and appointment.

tailored to automate and enhance the hiring process for teaching and non-teaching personnel within the Department of Education (DepEd) Schools Division of Sorsogon Province.

system. Role-based access control will be implemented to allow applicants, school heads, and selection committee members to perform their respective functions securely and efficiently. Through these features, the system seeks to reduce manual errors, improve data accuracy, and foster fairness in the selection process.

security, maintainability, and portability. This evaluation ensures that the system meets international standards for software quality and is suitable for deployment in real-world educational settings.

which support data management, automation, and ICT infrastructure across all government levels while ensuring security, accessibility, and efficiency.

Human resources is not an exception to this call for digitalization. With upcoming new items and vacancies in both teaching and non-teaching positions, the DepEd Schools Division of Sorsogon needs an automated and efficient information system that can handle the recruitment and selection of new DepEd personnel that embodies the principles of fairness, merit-based, and

transparency. As Benioff said, acquiring the right talent is the most important key to growth – ensuring the recruitment of qualified teachers and teacher support personnel through non-teaching staff is a great way to improve the quality of our educational system. Hence, the abovementioned reasons deeply encourage the researcher to conduct this research.

Specific Objectives

Specifically, the study aimed to achieve the following objectives:

1. Develop core features for applicant registration and document handling.
 - a. Design database through Entity framework to efficiently manage applicant accounts and submitted documents.
 - b. Implement secured applicant and user registration and login features.
 - c. Include input validation and file upload functions to ensure data accuracy.
2. Implement role-based access to the intended system users to perform their respective tasks securely and efficiently.
 - a. Configure a role-based authorization using ASP.NET Core for applicants, school heads and other committee members.
 - b. Develop automated dashboards designed for each role to manage applications and submitted assessment evaluation results.
 - c. Implement an automated and secured evaluation and scoring interface based on prescribed guidelines that adheres to DepEd Order No. 7 s. 2023.
3. Generate accurate and automated selection results (Registry of Qualified Applicants) and other system reports.
 - a. Implement scoring algorithms to automatically computer applicants scores aligned with DepEd Order No. 7, s. 2023 during comparative assessment.
 - b. Generate dynamic ranking and placement recommendations using LINQ and server-side logic.
 - c. Design and develop reporting modules for exporting Comparative Assessment Result to be used by the Human Resource Merit Promotion and Selection Board. (HRMPSB)
4. Evaluate and validate the developed system using the ISO 25010 software quality model in terms of:
 - a. Functionality suitability
 - b. Performance efficiency
 - c. Compatibility
 - d. Usability
 - e. Reliability
 - f. Security
 - g. Maintainability

h. Portability

Scope and Delimitations

The scope of this study covered the design, development, and evaluation of an Applicant Tracking and Hiring Decision Support System for the Department of Education Schools Division of Sorsogon, which was developed using ASP.NET Core. The system focused on automating key recruitment, selection, and appointment workflows, including applicant registration, document submission, evaluation, scoring, and generation of the Registry of Qualified Applicants (RQA) in accordance with DepEd Order No. 7, s. 2023. Its core features included a secure applicant registration module with input validation and document upload capabilities, an Entity Framework-based database for managing applicant information, and a role-based access control mechanism that allowed applicants, school heads, HR personnel, and committee members to perform tasks

This study was delimited to the automation of recruitment, selection, and ranking processes for teaching and non-teaching applicants within the Schools Division Office (SDO) of Sorsogon Province and did not include recruitment for promotional or managerial positions. The system did not integrate with external government platforms or other DepEd information systems, as integration was beyond the development scope. All features and workflows strictly adhered to the guidelines of DepEd Order No. 7, s. 2023, particularly the prescribed point allocation and ranking procedures, without exploring alternative evaluation

aligned with their designated roles. The system integrated automated dashboards, scoring interfaces, comparative assessment modules, and reporting tools designed to compute applicant scores using built-in algorithms aligned with DepEd's ranking criteria, generate dynamic rankings using LINQ, and export Comparative Assessment Results for HRMPSB deliberation. The developed system was evaluated using the ISO 25010 software quality model, focusing on functionality suitability, performance efficiency, compatibility, usability, reliability, security, maintainability, and portability. As recommended by the adviser and panel members, system evaluation was conducted by ten (10) IT experts, five (5) HR personnel, five (5) school heads, and five (5) job applicants who assessed the system according to their expertise and user experience.

frameworks. The study was confined to the use of ASP.NET Core and MySQL Server as the sole development technologies, with no assessment of other programming languages, platforms, or database systems. While the system was accessible through desktop and laptop devices, mobile responsiveness and mobile application development were not prioritized in this phase. The generalizability of the findings was limited to the identified evaluators and the specific context of SDO Sorsogon and may not have fully represented the experiences of other DepEd offices nationwide.

Gap Bridged by the Study

The present study shared several similarities with the reviewed systems, particularly in integrating core recruitment modules such as job posting, applicant registration, document submission, and candidate evaluation. Like the UP Online Recruitment System, PUP's Online Hiring and Recruitment System, and the Philippine Civil Service Commission's e-recruitment portal, the present system employed role-based access to ensure secure management of

However, the present study also bridged specific gaps and introduced unique features that distinguished it from the reviewed systems. Unlike other platforms, the ATHDSS incorporated a secured evaluation interface, comparative assessment, and the generation of a Registry of Qualified Applicants (RQA) tailored to the Philippine Department of Education. It aligned specifically with DepEd Order No. 7, s. 2023, ensuring strict adherence to merit-based principles,

Conceptual Framework

The conceptual framework of the present study began with the input phase, which focused on the development of core features necessary for an effective Applicant Tracking and Hiring Decision Support System (ATHDSS). During this phase, the researchers designed a database through Entity Framework to efficiently manage applicant accounts and submitted documents, ensuring that data could be stored, retrieved, and

The process phase involved the configuration of role-based access for different system users, including applicants, school heads, and committee members, to ensure that each user could perform their respective tasks securely and effectively. Automated dashboards were developed for

sensitive applicant information. Additionally, both the ATHDSS and these systems utilized automated scoring, report generation, and structured evaluation forms to facilitate transparent, merit-based selection and to reduce manual workload for HR personnel. These commonalities underscored the importance of technology-driven recruitment solutions in streamlining hiring processes and enhancing efficiency in managing large volumes of applicants.

transparency, and accountability in recruitment and selection. Furthermore, the system addressed gaps in previous solutions by providing real-time tracking, reducing human bias, and integrating scoring algorithms to support data-driven decision-making. By combining these context-specific features, the ATHDSS filled the gap for a comprehensive, secure, and policy-compliant applicant tracking and hiring decision support system in the education sector.

processed accurately. They implemented secured applicant and user registration and login features, incorporated input validation, and developed file upload functions to maintain data accuracy and integrity. These inputs established a strong foundation for the system, ensuring that both applicants and HR personnel could interact with the platform securely and efficiently.

each role, allowing users to manage applications and track submitted assessment evaluation results. An automated and secured evaluation and scoring interface was implemented, aligned with DepEd Order No. 7, s. 2023, to streamline the comparative assessment of applicants. The system's

processes were designed and developed using the Rational Unified Process (RUP), which included the Inception, Elaboration,

The output phase of the framework focused on generating accurate and automated selection results, including the Registry of Qualified Applicants (RQA) and other system reports. Scoring algorithms were implemented to automatically compute applicant scores during the comparative assessment process, while dynamic ranking and placement recommendations were generated using LINQ

Finally, the feedback phase involved evaluating and validating the developed system using the ISO 25010 software quality model. The system was assessed in terms of functionality suitability, performance efficiency, compatibility, usability, reliability, security, maintainability, and portability. Feedback from this phase was used to identify system strengths and weaknesses, allowing for

Inception Phase

The first planning stage of the Applicant Tracking and Hiring Decision Support System (ATHDSS) was strictly guided by the Rational Unified Process (RUP) method. This stage focused on setting clear project limits, defining what would make it succeed, and doing a full study to see

Through a series of formal and informal talks with HR staff, school heads, and selection committee members, the researcher gathered key information about the built-in challenges of the manual hiring processes. These included long delays in handling documents because they were physical, a constant lack of openness in how applicants were judged, and no way to

A key part of the planning stage also required adding DepEd Order No. 7, s. 2023,

Construction, and Transition phases to ensure structured and systematic development.

and server-side logic. Reporting modules were designed to export Comparative Assessment Results, which could be utilized by the Human Resource Merit Promotion and Selection Board (HRMPSB) for final decision-making. The output ensured that all recruitment and selection processes were streamlined, transparent, and aligned with established guidelines.

further refinement to enhance performance, ensure compliance with DepEd policies, and maintain the security and accuracy of applicant data. This continuous feedback loop reinforced the system's effectiveness and ensured that the ATHDSS met the specific needs of the Schools Division Office of Sorsogon Province.

if it was possible. Specifically, it centered on understanding the current hiring, selection, and placement workflows at the Department of Education (DepEd) Schools Division of Sorsogon. It also involved finding key problems in the process and clearly defining the system's goals and what it would do.

correctly follow an application's status through the different steps. It was clear that the old system relied heavily on huge amounts of paper submissions and scoring by hand, which were very open to human mistakes, had no single, searchable place for data, and often led to long hiring times that hurt school staffing.

to make sure the planned system would fully follow the new rules for merit-based hiring.

The researcher suggested the main things the system needed to do, which helped map out the key system parts: applicant sign-up, secure document uploading, user-specific dashboards, an automatic scoring tool, and strong reporting and official document

ASP.NET Core was carefully chosen as the main framework because it can easily grow, has high security, and works naturally with Entity Framework Core for managing

Process workflows were carefully observed, as well as document submissions and other related functions with recruitment, selection and appointment were greatly considered in this study. The outcome of this

The successful result of this stage was a complete project plan that clearly explained the system's design, user roles, what it

Findings

Based on the system's development, rigorous testing, and formal evaluation as detailed in Chapter IV, the following findings have been established:

1. The system successfully developed core features for applicant registration and document handling. Using Entity Framework, the database efficiently managed applicant accounts and stored submitted documents in an organized relational structure, allowing quick retrieval and proper linkage between modules. Secured registration and login functionalities were fully implemented, enforcing
2. The system effectively implemented role-based access for all intended users, ensuring secure and efficient task execution. Using ASP.NET Core, role-based authorization was

creation. The researcher checked if it was technically possible by looking at DepEd's current setup and modern web development tools.

the database. MySQL was chosen as the database because it is very reliable for big jobs, is open-source, and strongly supports the kinds of data links needed for connecting applicants, scores, and evaluation rules.

phase is a clear statement of objectives, a defined project scope, and an initial understanding of the system's overall architecture.

needed to do, and the early standards for judging it based on the international standard ISO/IEC 25010.

role-based access controls that restricted users to features relevant to their roles while safeguarding credentials through authentication protocols. Input validation and file upload functions operated effectively, ensuring correct and complete data submission, verifying document formats and sizes, and flagging errors automatically. Overall, these features enabled reliable capture, storage, and security of applicant information, maintaining data integrity and supporting an efficient workflow for all system users.

configured to differentiate permissions for applicants, school heads, HR personnel, and selection committee members. Automated dashboards were developed for each

role, providing users with tailored views to manage applications, monitor evaluation progress, and access submitted assessment results. Additionally, an automated and secured evaluation and scoring interface was implemented in accordance with DepEd Order No. 7,

3. The system successfully generated accurate and automated selection results, including the Registry of Qualified Applicants (RQA) and other essential reports. Scoring algorithms were implemented to automatically compute applicant scores in alignment with DepEd Order No. 7, s. 2023 during the comparative assessment process. Dynamic ranking and placement recommendations were produced using LINQ and server-side logic,
4. The developed system was evaluated and validated using the ISO/IEC 25010 software quality model, covering key characteristics such as functional suitability, performance efficiency, compatibility, usability, reliability, security, maintainability, and portability. Each aspect was assessed to determine how well the Applicant Tracking and Hiring Decision Support System (ATHDSS) met the specified requirements, supported user needs, and maintained data integrity and security. The evaluation results demonstrated very

s. 2023, allowing evaluators to assign scores accurately and generate comparative assessments while maintaining confidentiality and data integrity. This feature streamlined the recruitment process and reinforced accountability among all user roles.

ensuring that the evaluation outcomes reflected applicants' qualifications objectively. Reporting modules were also designed and developed to allow the export of Comparative Assessment Results for use by the Human Resource Merit Promotion and Selection Board (HRMPSB). These features improved efficiency, minimized human error, and facilitated evidence-based decision-making in the recruitment and placement process.

high quality across all characteristics, with an overall mean rating of 4.8, indicating that the system was highly effective, reliable, and user-friendly. These findings confirmed that ATHDSS could operate efficiently across multiple platforms, protect sensitive information, and provide maintainable and portable solutions. The high scores also validated the system's ability to facilitate transparent, merit-based recruitment and support decision-making for the Human Resource Merit Promotion and Selection Board (HRMPSB).

Conclusions

Based on the findings of the study, the following conclusions were reached:

1. The system successfully developed core features for applicant

registration and document handling, ensuring secure, accurate, and organized management of applicant information while supporting efficient workflows.

2. The system effectively implemented role-based access for all users, providing secure task execution, automated dashboards, and an evaluation interface that reinforced accountability and streamlined the recruitment process.
3. The system successfully generated accurate and automated selection

results, including dynamic ranking, placement recommendations, and exportable reports, thereby improving efficiency and supporting evidence-based decision-making.

4. The developed system was evaluated and validated using ISO/IEC 25010, demonstrating very high quality across all software characteristics and confirming its effectiveness, reliability, security, and user-friendliness.

Recommendations

Considering the study's conclusions, the following recommendations were proposed:

1. Future enhancements focus on expanding the document handling module by integrating automated document verification and OCR (Optical Character Recognition) to further reduce manual validation and improve data accuracy.
2. The system incorporates additional role customization features and advanced monitoring tools to allow administrators to fine-tune permissions and track user activity for improved security and accountability.
3. The automated ranking and reporting modules be enhanced with analytics dashboards and visual summaries so HRMPSB members may interpret assessment data more efficiently and support more transparent decision-making.

4. The system undergoes continuous quality auditing and periodic security updates to maintain its high ISO/IEC 25010 compliance level and ensure long-term reliability, portability, and institutional sustainability.
5. Continued refinement, user training, and system maintenance are advised to maximize the effectiveness of ATHDSS and support its long-term use in ensuring fair, accurate, and efficient merit-based recruitment.
6. This Applicant Tracking and Hiring Decision Support System (ATHDSS) incorporates and integration of a comprehensive Classroom Observation Indicators (COI) Computation Module to further automate and standardize the recruitment, selection, and appointment (RSA) process for teachers.

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