

Postgrad Nexus: A Centralized Hub for Postgraduate Supervision and Examination Management

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ABSTRACT

Effective management of postgraduate supervision and examination data is crucial for the smooth administration within educational institutions. Despite the availability of several information management systems, challenges persist in retrieving and organizing information related to supervisory loads and examiners for DRP and Viva voce. These inefficiencies often lead to delays and increased processing times. In response, Postgrad Nexus was developed as a centralized hub designed to manage postgraduate supervision and examination processes. By consolidating data for supervisors and examiners into a single, intelligent platform, Postgrad Nexus plays a significant role in enhancing administrative efficiency providing reassurance in the face of data retrieval and updating challenges. This system, built on an Excel platform with integrated Visual Basic applications, optimizes data entry and search functionality. Additionally, its integration with Dropbox ensures smooth data sharing and collaboration within a cloud-based environment, addressing key challenges in postgraduate supervision and examination management.

Keywords: information hub; postgraduate students; record management; supervision load; thesis examiners.

INTRODUCTION

The postgraduate programs by research at the Akademi Pengajian Bahasa (APB), Universiti Teknologi MARA (UiTM), started in 2009, while the postgraduate programs by coursework started in 2018. These postgraduate programs lie under a central operating body, Pusat Pengajian Siswazah (IPSi) of UiTM, which is responsible for implementing and managing overall postgraduate administration. IPSi coordinates and formulates admission and academic regulations policies, providing support to enhance research and learning for postgraduate students across various colleges, faculties, and academies within UiTM.

As Malaysia's largest comprehensive university, with 13 autonomous state campuses, four colleges of studies, 14 faculties, and nine academic centres throughout the country, IPSi uses several online systems to manage its postgraduate programs offered to students at these places. Some of the systems are *e-PERSUIT*, *SIMS*, *AIMS*, *UPTRACKS* and *UiTM Experts*.

e-PERSUIT is a postgraduate application system that allows prospective candidates to submit their applications online. *SIMS* is a student information management system that contains, among other things, students' personal information, enrolment and registration status, academic records, and financial information. *AIMS* is a curriculum management system that holds information related to all the courses offered in UiTM. *UPTRACKS* is a supervisor nomination system in which students can nominate their preferred supervisors, who are then notified and can respond to the nominations accordingly. *UiTM EXPERTS* lists a directory of potential supervisors and their areas of expertise available for student nomination.

As a central operating body, IPSi uses these systems to manage its postgraduate programs, which are offered to students throughout its colleges, faculties, academies, and state campuses in Malaysia. These systems serve as the entry points to the postgraduate journey. A prospective candidate will apply to a postgraduate program using

e-PERSUIT. Information about the candidate will later be stored in the *SIMS*. If the candidate registers for a postgraduate coursework program, information about the courses in the program can be obtained from the system. If the candidate opts for the postgraduate research program, which is the focus of this project, a supervisor is required. A list of potential supervisors and their respective areas of expertise can be browsed from the *UiTM Expert* system, and the *UPTRACTS* system will be used later to nominate the supervisor.

The postgraduate management committee at APB also relies closely on these systems to run its operations, as its postgraduate programs by research are also offered at the branch campuses. Although the branch campuses have the autonomy to offer the programs, APB is still in charge of the postgraduate matters of students from all these campuses. The committee conducts a monthly postgraduate management meeting to address various matters concerning these postgraduate students. These include student intake and enrolment, curriculum-related issues, academic development and research, academic management of postgraduate students, assessment and examination results, and other matters. Discussions about curriculum and academic development cover the appointment of main and co-supervisors, supervisor changes, the nomination of thesis examiners to defend research proposals and viva voce, and end-of-semester progress reports. On the other hand, the academic management of postgraduate students involves handling students' applications for deferment of study, special leave, withdrawal from study, changing the program, campus, or mode of study, reinstatement of student status, appeals to continue study and extension of study.

Information about the postgraduate students, supervisors, and examiners must be easily accessible during this postgraduate management meeting, especially if it involves students from the branch campuses. This information is crucial as it can affect the duration of the meeting, and the decisions made during the meeting. Poor information retrieval can unnecessarily lead to prolonged meetings, and unavailable or not updated information can lead to delayed or poor decision-making. This will lead to inefficient and ineffective postgraduate management. Mabera (2020) confirmed that delays in decision-making in graduating students and the loss of opportunities by the students were identified as part of the implications of poor management of the student's academic records. In another study, Barde, Shaibu, and Daudu (2019) found that poor record organization caused the retrieval of students' academic records to be slow and time-consuming. Having efficient academic record management enables proper storing and retrieval of information, thus making the record release services faster and more accurate (Ukaogba & Nwankwo, 2020).

Based on a short interview with the meeting administrators, these problems are the recurring issues they faced during the meeting. Firstly, there is a delay in updating student personal records in *SIMS*. The committee discusses the student's applications, such as applications for study leaves, continuation of study, and change of mode of study, and then recommends that the central committee approve them. The student's application submission and the faculty and central level meeting time determine the time to approve the application. Updates can only be made after the administrator officer receives approval from the central committee. This issue can be addressed by reminding the students about the monthly due date for submitting any application related to their studies. These applications will be presented, discussed and approved at the faculty postgraduate management meeting before being brought to the central meeting for endorsement. Any applications submitted before the due date will be brought to the nearest date of the meeting. Else, the applications will be brought to the next meeting. Failing to submit before the monthly due date is the main reason for the delay in updating the records.

The second issue is the lack of shared information on the distribution of supervisory load and examiners for *DRP* and *Viva voce*. Supervisor nominations from all campuses, done via the *UPTRACT* system, will be brought to the postgraduate management meeting at APB to be checked and approved and later summited at the central meeting for endorsement. Information in *UPTRACK* is accessed by individual student numbers. Since APB is responsible for all postgraduate matters, it is important that information related to the supervisory load of supervisors, distribution of supervisors and co-supervisors across campuses, and the list of examiners for *DRP* and *Viva voce* is available easily when needed during the meeting. This information is compiled by the postgraduate administrator, and when needed, the file will be downloaded, and a link to the file will be created and shared. Problems occur when more information is needed during the meeting, and it is not readily accessible. Finding out more information during the meeting can cause unnecessary delays and the possibility of inaccurate decision-making. Based on the abovementioned issues, the lack of shared information on the distribution of supervisory load and examiners for *DRP* and *Viva voce* should be addressed accordingly.

Problem Statement

Despite the existence of the UPTRACKS system, where students nominate their preferred supervisors, and UiTM EXPERTS, which provides a directory of potential supervisors with their areas of expertise, the processes for entering information on supervisory loads, distributing supervisors and co-supervisors across campuses, and listing examiners for DRP and Viva Voce are still manual. This information is compiled by the postgraduate administrator, who downloads the file and shares a link when needed. Problems arise when information is required during meetings and is not readily accessible. This can lead to unnecessary delays and the potential for inaccurate decision-making.

Objectives of the Project

This project aims to develop a centralized platform for postgraduate main and co-supervisors and examiners for DRP and viva voce. By consolidating supervisors' and examiners' data in one intelligent hub, the system aims to streamline administrative processes, enabling the efficient retrieval and updating of information. This project is an add-on to the systems currently being used, which can be considered an ongoing effort to enhance the postgraduate management process at the faculty. This enhancement effort is considered a continuous improvement, as according to Kassim and Madhloom (2020), continuous improvement is an ongoing incremental enhancement in processes, products, or services.

LITERATURE REVIEW

The MES Hybrid Document Statement (MESHDS, 2024) outlines seven key features an Electronic Document Management System (EDMS) should have to improve efficiency. The first feature is good file management and organization. It enables quick search through indexed and organized documents, saving time and boosting productivity. The second feature is related to document processing. This feature suggests that paper documents be converted to digital formats to reduce storage needs and make information easily accessible. The third feature is related to data security and rights management. A good document management must protect sensitive information with encryption, access controls, and audit trails, ensuring compliance with data protection laws and enabling secure access. Next is the need for automated reporting and dashboards, which help provide insights for quicker decisions and better planning. Workflow automation is also an important feature. It helps streamline operations by automating tasks, improving collaboration, and optimizing business processes. On top of that, the customization feature will help tailor the system to fit the specific needs of the organization and integrate it with existing workflows. Finally, the features of collaboration and communication which enable the team to do real-time editing and easy document sharing. In short, the electronic document management system can enhance document management, security, reporting, workflows, customization, and collaboration, making business operations smoother and more effective.

Besides the features highlighted by MESHDS (2024), a well-designed interface is also important. Elvis et. al. (2014) said that a well-designed database user interface could enhance accessibility, usability, and efficiency, enabling end users to interact effectively with the system.

By having these features, inclusivity for users with varying technical skills and needs is ensured. Besides that, having these features can also promote user satisfaction and allow continuous improvement.

METHODOLOGY

This continuous improvement project begins by identifying various issues, determining the causes by analysing the issues, suggesting possible solutions, and developing a prototype. Interviews were conducted via WhatsApp with two postgraduate management administrators. The questions focused on the problems encountered during meetings, their causes, and potential solutions. Clarifications were sought when responses were unclear. Subsequently, the issues and their causes were analysed to assess the potential for improvement. After evaluating the possibilities, one issue was selected, and several solutions were proposed. Among the suggested solutions, the one that best fits the available resources, time constraints, and cost-effectiveness was chosen. Table 1 displays the issues, possible causes, and solutions to be developed.

Table 1: Issues, Causes, Possible Solutions and Prototype Development

Identifying Issues	Determining the Causes	Suggesting Possible Solutions	Developing a Prototype
Delay in updating student personal records in SIMS.	Staff update results in the system after the central committee endorses the results. Students do not follow the due date for submission of applications.	Remind the students about the due dates for the submission of applications to prevent delays in getting the results of their applications.	Not selected for the project.
Lack of shared information on the distribution of supervisory load and examiners for DRP and Viva voce.	UPTRACT is used to nominate supervisors, and the search for supervisors is based on students' numbers. Supervisory load in the main and across branch campuses is recorded manually by the administrator. Information is shared only upon request. The administrator records information on DRP/Viva Voce examiners manually. Information is shared only upon request.	Develop a centralized platform that consolidates supervisors' and examiners' data into a single intelligent hub, enabling efficient retrieval and updating of information.	The lack of shared information on the distribution of supervisory load and examiners for DRP and Viva voce should be addressed accordingly.

FINDINGS AND DISCUSSIONS

Based on the information gathered from the interview with the administrators of the postgraduate management, the following features are included in the Postgraduate Nexus. It is a centralized data management system designed to streamline the administration of postgraduate supervision and examination processes. It aims to address the challenges associated with retrieving and organizing information about postgraduate students, their supervisors, and examiners, thereby enhancing overall efficiency and effectiveness within the educational institution. The key components of the system are as follows:

The Main Page

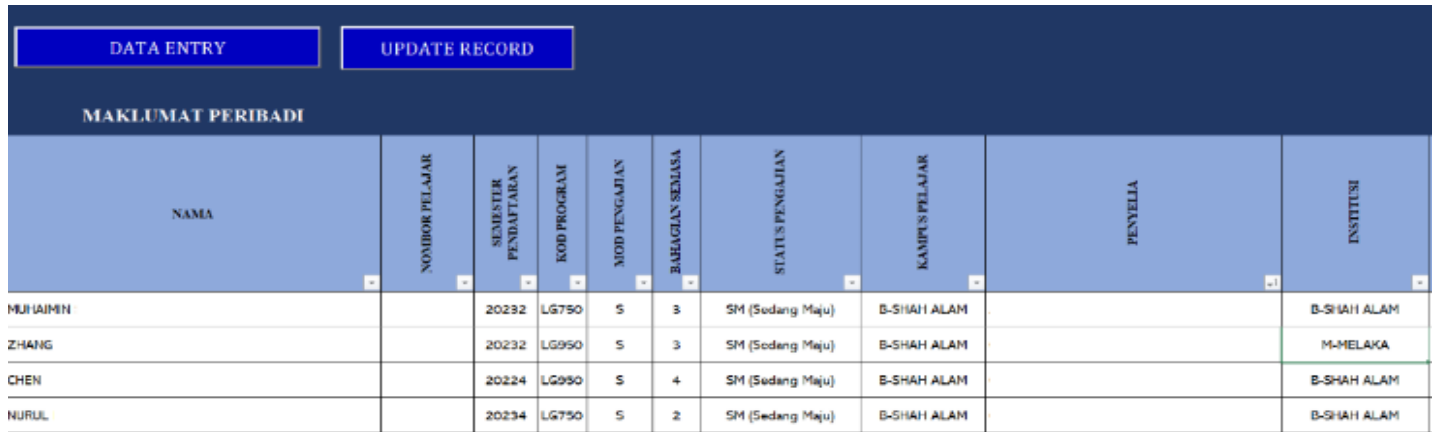
The main page displays the system's name and three buttons representing its functions: Main Database, Supervisory Load, and Examiners. The main database serves as the main interface of the system. A well-designed interface can enhance accessibility, usability, and efficiency, that can enable end users to interact effectively with the system (Elvis et. al., 2014). Figure 1 shows the interface of the system.



Figure 1: The Interface of the System

Main Database

The Main Database displays the students' information, including information about their supervisors and examiners, the results of their proposal defence and Viva Voce and other information on their academic activities. The administrator can click on the Data Entry button to add a new student's information and click on Update Record if the administrator needs to add more information or make changes to the information of a registered postgraduate student. The database can be exported into various formats (e.g., CSV, Excel, PDF). Figure 2 displays a part of the main database interface.

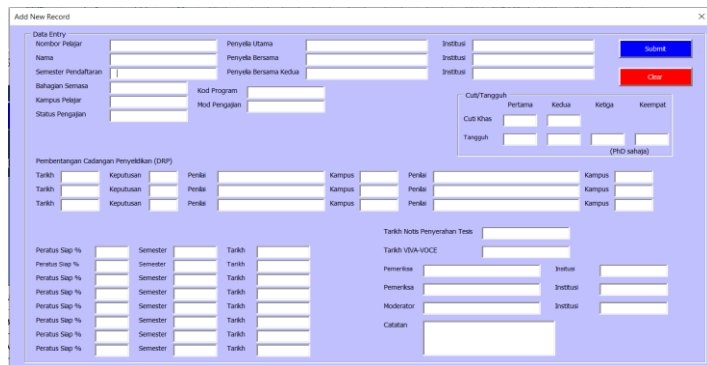


MAKLUMAT PERIBADI									
NAMA	NO. PELAJAR	SEMESTER PENDAFTARAN	KOD PROGRAM	MOD PENGAJIAN	BABAGIAN SELASA	STATUS PENGAJIAN	KAMPUS PELAJAR	PENYELIA	INSTITUSI
MURAIMIN		20232	LG750	5	3	SM (Sedang Maju)	B-SHAH ALAM		B-SHAH ALAM
ZHANG		20232	LG950	5	3	SM (Sedang Maju)	B-SHAH ALAM		M-MELAKA
CHEN		20224	LG950	5	4	SM (Sedang Maju)	B-SHAH ALAM		B-SHAH ALAM
NURUL		20234	LG750	5	2	SM (Sedang Maju)	B-SHAH ALAM		B-SHAH ALAM

Figure 2: Main Database

Data Entry

The Data Entry function is used to add new data records to the main database, and the Update Record function is used to update existing records. It ensures that all necessary information is captured accurately and efficiently. Having a user-friendly interface simplifies and expedites the data entry process for the administrators, thus reducing mistakes and delays. It also offers better data management as all data goes through a single-entry point. The consistent data format facilitates data aggregation, analysis, and a simple training session for new administrators. Figure 3 shows the interface of the Data Entry page.



The screenshot shows a complex form titled 'Add New Record'. It includes fields for:

- Data Entry:** Nama, Nombor Pelajar, Semester Pendaftaran, Bahagian Semasa, Kampus Pelajar, Status Pengajian.
- Penyelia Utama:** Nama, Semester Pendaftaran, Bahagian Semasa, Kampus Pelajar, Status Pengajian.
- Penyelia Bina:** Nama, Semester Pendaftaran, Bahagian Semasa, Kampus Pelajar, Status Pengajian.
- Penyelia Bina Kedua:** Nama, Semester Pendaftaran, Bahagian Semasa, Kampus Pelajar, Status Pengajian.
- Mod Pengajian:** Kod Program, Mod Pengajian.
- Cuti Tanggah:** Cuti Kelas, Pertama, Kedua, Ketiga, Keempat, Tanggah, (PHD sahaja).
- Pembentangan Cadangan Penyelidikan (DCP):** Multiple rows for Tarikh, Kumpulan, Penela, Kampus, Penela, Kampus.
- Tarikh Nota Penyerahan Tesis:** Tarikh.
- Tarikh UVA-VOCE:** Tarikh.
- Pemeriksa:** Nama, Institut.
- Pemeriksa:** Nama, Institut.
- Moderator:** Nama, Institut.
- Catatan:** Large text area.

Figure 3: Data Entry Page

Update Record

The Update Record function requires the administrator to enter the student's number to retrieve the information from the database. The administrator can add, delete, or update the student's information or progress on this page. Having an update record function in a database is important as it can help the administrator maintain current information, which is crucial for making informed decisions. This ensures the accuracy and reliability of the database. Besides that, it enables quick adjustments to data without the need to create new records, which can be cumbersome and lead to data duplication. As the database is integrated with a cloud-based service like Dropbox, it facilitates easy data sharing and collaboration among authorized users to access and update the same records, ensuring everyone works with the latest data. Figure 4 displays the interface of the update record page.

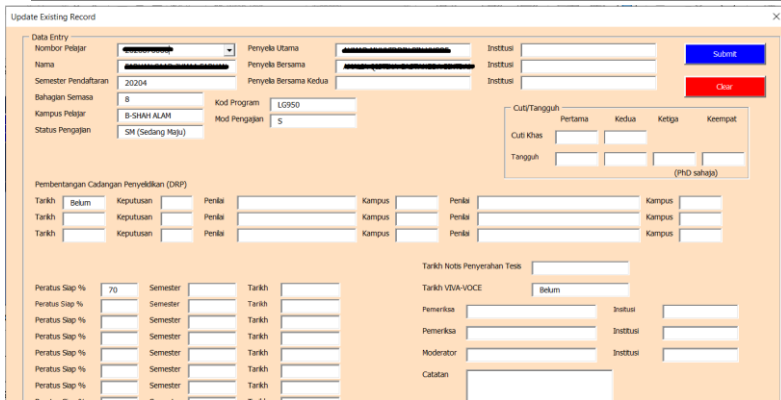


Figure 4: Update Record Page

Supervisory Load

A detailed list of supervisors and their supervisees on the Supervisory Load page enhances visibility, efficiency, and communication. It supports balanced workload distribution and ensures compliance while aiding in performance monitoring and resource planning. By simply selecting a supervisor’s name, administrators can automatically view information about the supervisees, including their location and status. This page allows administrators to track supervisory responsibilities and assignments, showing which supervisors are responsible for which supervisees. Fast access to this information simplifies managing and redistributing supervisory loads, helping to ensure a balanced workload among supervisors. Additionally, the information on the page can be used to monitor supervisors’ effectiveness by examining the performance of their supervisees. Figure 5 displays the interface of the supervisory load page.

MAKLUMAT PENYELIAAN								
Nama Penyelia	<input type="text"/>	Penyelia Utama	Penyelia Bersama 1	Penyelia Bersama 3	Jumlah			
Kampus	B-SHAH ALAM	5	1	0	6			
Penyelia Utama								
BIL.	NAMA	NOMBOR PELAJAR	SEMESTER	KOD PROGRAM	KAMPUS PELAJAR	STATUS DRP	STATUS VIVA	PERATUS SIAP
	HANIS		20212	LG950	B-SHAH ALAM	0	Belum	60
	AHMAD		20214	LG750	B-SHAH ALAM	0	Belum	0
	MUHAMMAD		20232	LG750	B-SHAH ALAM	0	Belum	0
	NUR FARAH		20234	LG750	B-SHAH ALAM	0	Belum	0
	NASIRAH		20212	LG950	B-SHAH ALAM	0	Belum	50

Figure 6: Supervisory Load

DRP / Thesis Examiners

The DRP/Thesis Examiners page provides detailed information about both internal and external examiners. By selecting an examiner’s name, administrators can automatically view data on the number of theses evaluated, the list of students evaluated, the evaluation dates, and the results. This information ensures accountability within the postgraduate department by maintaining a transparent record of which examiner assessed each defense, proposal, or viva. It also helps evenly distribute assessment tasks among examiners and assists in planning and allocating resources for future assessments. Figure 6 displays the interface of the examiner’s load page.

MAKLUMAT PEMERIKSA								
Nama Pemeriksa	<input type="text"/>	Pemeriksa DRP 1	Pemeriksa DRP 2	Pemeriksa Luar VIVA Voce	Pemeriksa Dalam	Moderator	Jumlah	
Kampus	M-MELAKA	3	0	4	0	0	7	
Pemeriksa DRP 1								
BIL.	NAMA	NOMBOR PELAJAR	SEMESTER	KOD PROGRAM	KAMPUS PELAJAR	STATUS DRP	STATUS VIVA	PERATUS SIAP
	ZHOU		20212	LG950	B-SHAH ALAM	2	06-09-2023	100
	CUI		20212	LG950	B-SHAH ALAM	2	22-11-2023	100
	NORIMARTINI		20174	LG950	B-SHAH ALAM	2	11-09-2023	100

Figure 7: Examiner’s Load

Implications of the Study

The implementation of the Postgrad Nexus system not only addresses the immediate challenges faced by the faculty postgraduate management but also has the potential to influence postgraduate education management across various institutions. By serving as a model for best practices, other universities can adopt similar strategies to enhance their supervisory and examination processes, fostering a culture of collaboration and continuous improvement.

The potential for the Postgrad Nexus to elevate educational standards is significant. By streamlining processes and enhancing data management, institutions can improve their decision-making capabilities, ultimately leading to better student outcomes and more rigorous academic standards. As more institutions embrace data-driven practices, the collective impact on postgraduate education can be profound, promoting excellence and accountability within the academic community.

CONCLUSION

The Postgrad Nexus introduces several novel features such as centralization, efficiency, intelligent design, accessibility, time-saving, and user-friendly interface.

- **Centralization:** It combines data for supervisors and examiners into a single, cohesive platform.
- **Efficiency:** Streamlines administrative processes by providing a unified system for information retrieval and updates.
- **Intelligent Design:** Excel spreadsheet application augmented with Visual Basic applications to optimize data entry and search capabilities.
- It is further bolstered by integrating with Dropbox, facilitating seamless sharing and collaboration within a cloud-based environment. This provides a convenient solution to managing postgraduate students' information challenges.
- **Accessibility:** It is further bolstered by integrating with Dropbox, facilitating seamless sharing and collaboration within a cloud-based environment. This provides a convenient solution to managing postgraduate students' information challenges.
- **Timesaving:** Reduces the time needed for administrative tasks, allowing users to focus on more critical academic activities.
- **User-friendly Interface:** Offers an intuitive and user-friendly interface, making it accessible to users with varying levels of technical expertise.

The Postgrad Nexus offers several useful benefits for postgraduate programs, including:

- It centralizes supervisor and examiner data management, reducing administrative burden.
- It enhances communication by providing seamless information sharing and ensures accurate and up-to-date data related to supervisors, examiners, and students is current and accurate.
- It saves time for administrators by automating routine tasks.
- It facilitates timely feedback and decision-making.
- It minimizes the learning curve for new users, making it accessible to individuals with varying technical skills.
- It provides tools for generating detailed reports and analytics.
- It promotes transparency in the distribution of supervisory loads and the selection of examiners.

In summary, the Postgrad Nexus introduces several innovative features that significantly enhance the management of postgraduate supervision and examination processes. By centralizing data and streamlining administrative tasks, this system improves efficiency and fosters better communication and collaboration among supervisors and examiners. Importantly, these advancements are poised to have a profound long-term impact on student success, leading to higher graduation rates and improved student satisfaction. Moreover, as the institution becomes recognized for its commitment to quality postgraduate education, its reputation will be bolstered, attracting more talented students and faculty. Ultimately, the Postgrad Nexus sets a benchmark for effective

postgraduate management systems, demonstrating a sustainable model that other institutions can emulate to enhance educational outcomes across the sector.

Author Contributions

The authors collaboratively contributed to this project in the following ways: Anealka initiated and designed the concept of the Postgrad Nexus, providing the foundational framework and strategic direction for the project. In addition, Anealka designed the concept and developed the dashboard for supervisors' load in supervision, enhancing the functionality and usability of the hub. Janudin assisted with the initial idea and concept of a postgraduate one-stop centre. Anealka and Avester were responsible for developing the data entry and data editing functions, ensuring the system's operational robustness and user-friendliness for efficient data management. Zainab and Muhammad Nazrul managed the survey process, diligently gathering and analysing the issues faced by the staff handling postgraduate information, which provided critical insights for the project's development. Furthermore, Nazrul oversaw the entering of the postgraduate data into the hub, ensuring the accuracy and completeness of the information. While Anealka wrote most of the article, Zafir Husaini and Nurhuslinda contributed by identifying relevant articles and assisting in writing the literature review, ensuring the project was well-supported by existing research and aligned with current academic standards and trends. Each author's specific contributions were integral to the project's overall success.

Conflict of Interest

All authors declare no conflict of interest.

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