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# Enhancing Continuous Student Assessment with InsightEd: A Data-Driven Approach to Academic Progress Monitoring

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## Abstract

The project "InsightEd" is a groundbreaking invention in educational technology that aims to transform the process of monitoring and improving student performance through ongoing evaluation. The lecturers of Kolej Profesional MARA Bandar Penawar has created an initiative that presents a digital analytics dashboard. This dashboard is specifically designed to offer real-time feedback and data-driven insights into student progress. InsightEd's foundation is built upon the principle of utilizing Data Driven Decision Making (DDDM) to enable a more adaptable and responsive educational setting. Through the integration of many data elements, such as assignment scores, exam results, and attendance, students are given the ability to actively control and plan their academic progress using a comprehensive dashboard. In addition, educators can more efficiently recognize and tackle the specific and shared learning requirements of students. Initial findings suggest a substantial enhancement in student achievements, as demonstrated by notable improvements in average project scores for certain courses following the deployment. InsightEd further improves the customization of instruction and guarantees uniform teaching methods across various classrooms. This study examines the creation, execution, and influence of InsightEd, emphasizing its capacity to revolutionize educational methods by providing a clearer understanding of student achievement and enabling more knowledgeable teaching approaches.

**Keywords :** Educational Technology; Continuous Assessment; Data-Driven Decision Making (DDDM); Digital Dashboard; Real-Time Data Analysis

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## I. INTRODUCTION

The introduction of digital technologies in education has revolutionized conventional teaching and evaluation techniques, allowing for the emergence of novel solutions such as learning analytics dashboards. These tools play a crucial role in giving instructors and students instant access to performance data, enabling informed decision-making and individualized learning strategies. The combination of continuous assessment and learning analytics has been acknowledged for its capacity to greatly improve student engagement and learning results [6]. The InsightEd initiative demonstrates progress by utilizing a digital dashboard that employs Data Driven Decision Making (DDDM) to continuously evaluate and enhance student performance in real time. InsightEd utilizes data from many academic activities to create a

comprehensive depiction of student achievement. This promotes an environment where educational practices are guided by data. This strategy is in line with current educational research, which promotes the incorporation of ongoing assessment and analytical tools to enhance student learning [5]. This article examines the growth and influence of InsightEd, showcasing its efficacy in improving academic results and showcasing the tangible advantages of analyzing real-time data in educational environments.

## II. LITERATURE REVIEW

The incorporation of learning analytics in education has attracted significant interest due to its capacity to improve student learning and involvement by means of ongoing evaluation and immediate feedback. Learning analytics dashboards offer a graphical display of students' performance data,

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allowing educators to make well-informed judgments and customize educational tactics to address individual requirements [7]. These dashboards are based on the concepts of Data Driven Decision Making (DDDM), which prioritizes the use of empirical data to inform educational policies [4].

Studies have shown that continuous assessment is useful in enhancing student results. Hernández (2012) discovered that continuous evaluation facilitates student learning by offering consistent feedback, enabling students to recognize their strengths and limitations and adapt their learning strategies accordingly. Aftab and Tariq (2018) emphasized that continuous evaluation acts as a motivating instrument, stimulating students to actively participate in their coursework.

Customized education, supported by educational data analysis, has also demonstrated potential in meeting the varied requirements of pupils. According to Roberts, Howell, and Seaman (2017),

customisable dashboards have the potential to improve student engagement by offering personalized feedback and learning materials. Park and Jo (2015) assert that learning analytics dashboards have the potential to enhance student performance by providing valuable information about their learning practices and enabling instructors to promptly identify students who are at risk.

InsightEd enhances these discoveries by combining ongoing evaluation with learning analytics to develop a flexible and adaptable educational tool. InsightEd's objective is to boost student engagement, improve learning outcomes, and help educators in their instructional approaches by offering real-time data and individualized feedback.

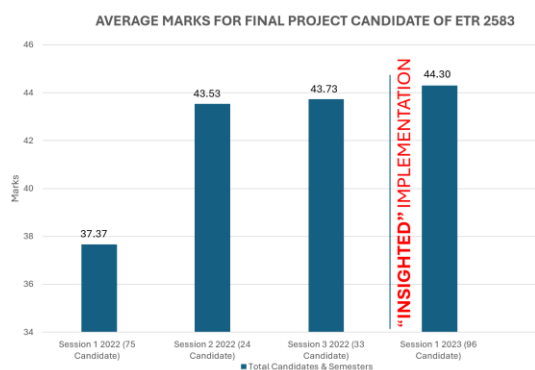
### III. RESEARCH METHODOLOGY

The research methodology for the InsightEd project using the comparative analysis, detailed as follows:

**Table 2 :** Summary of Research Methodology (Source : Author)

<b>Step</b>	<b>Description</b>
<b>Data Collection</b>	Collect student performance data from various sources such as assignments, exams, and attendance records.
<b>Data Input</b>	Input the collected data into Google Forms and Google Sheets.
<b>Data Processing</b>	Process the data using Google Sheets to ensure accuracy and readiness for dashboard visualization.
<b>Dashboard Utilization</b>	Utilize the InsightEd dashboard to visualize and analyze student performance data in real-time.
<b>Feedback and Adjustment</b>	Collect feedback from students and educators to make necessary adjustments and improvements to the dashboard. Compare & contrast the result before and after.

#### IV. FINDINGS



**Figure 1** : Comparison marks before and after implementation of insighted (Source : Author)

The graph presents convincing proof of the beneficial influence of InsightEd on student performance. The most significant discovery is the enhancement in average scores after the implementation, despite the rise in the number of applicants. InsightEd's utilization of data-driven methods for continuous evaluation and immediate feedback demonstrates its effectiveness in supporting student learning and performance. The system's capacity to offer real-time analysis of student progress enables prompt interventions and tailored comments, which are essential for improving academic results.

The rise in mean scores from 43.73% in Session 3 2022 to 44.30% in Session 1 2023, while handling a considerably bigger group of students, highlights the capacity of InsightEd to be easily expanded and its effectiveness. This enhancement underscores the system's capacity to manage heightened academic requirements while preserving or even improving student performance. Also, the consistent increase in average scores over time demonstrates the general favorable progress of student performance, which is supported by ongoing evaluation and the deliberate use of learning analytics.

#### V. DISCUSSION

The statistics from the adoption of InsightEd clearly demonstrates the significant influence of learning analytics and continuous assessment on student performance. Figure 1 offers a concise and visually impactful demonstration of the efficacy of this innovation.

The adoption of InsightEd resulted in a notable increase in average marks, rising from 43.73% to 44.30%. This demonstrates the tool's efficacy in delivering immediate feedback and data-based

insights. This is consistent with previous research that highlights the advantages of ongoing evaluation in improving student learning results [3]. Having quick access to performance data enables students to discern their strengths and shortcomings, hence supporting the implementation of more focused and efficient study programs.

Furthermore, the scalability of InsightEd is demonstrated by the growth in the number of applicants from 75 in Session 1 2022 to 96 in Session 1 2023, while maintaining the high quality of learning outcomes. These findings align with the research conducted by Roberts, Howell, and Seaman (2017), which suggests that learning analytics dashboards have the potential to improve student engagement through the provision of individualized feedback and learning materials. InsightEd's capacity to effectively handle larger student groups while simultaneously enhancing performance showcases its potential as a scalable solution for educational institutions.

The efficacy of InsightEd is further substantiated by the affirmative student feedback obtained via surveys. The students conveyed a strong sense of contentment with the platform's user-friendliness, efficacy in delivering feedback, and capacity to track academic advancement. The favorable reaction is vital since student involvement and satisfaction are important indicators of academic achievement [8]. The favorable comments received by InsightEd can be attributed to its advanced customization and personalization features. These features enable a more tailored learning experience, which is especially valuable in classrooms with different student populations [5].

Nevertheless, the slight rise in average scores also implies that while InsightEd is successful, there is still potential for additional improvement. Iterative improvement and adjustment of the platform in response to customer feedback can assist in resolving this issue. By incorporating more sophisticated analytics and predictive capabilities, it is possible to gain a more comprehensive understanding of patterns in student performance and identify potential areas for intervention [7].

InsightEd's deployment aligns with the prevailing educational movement towards data-driven decision-making [4]. Through the utilization of data analytics, educators can enhance their decision-making process about instructional strategies and interventions, ultimately resulting in enhanced educational outcomes. This approach is in line with the growing focus on evidence-based strategies in education, as emphasized by recent study [7].

## VI. CONCLUSION

The utilization of InsightEd at Kolej Profesional MARA Bandar Penawar has exhibited a noteworthy beneficial influence on student achievement and involvement by employing continuous evaluation and learning analytics in an original manner. The results of this experiment unequivocally demonstrate that the real-time feedback and data-driven insights offered by InsightEd empower students to actively monitor and enhance their academic performance.

The comparative study of mean scores prior to and after to the introduction of InsightEd underscores its efficacy. The student feedback has been predominantly favorable, with high levels of satisfaction with the user-friendliness, the efficacy of the feedback, and the ability to track progress. These observations are essential for ongoing refinement and advancement of the platform, guaranteeing that it satisfies the changing requirements of students and instructors.

The incorporation of InsightEd is in line with wider educational patterns that prioritize the significance of evidence-based methods and decision-making guided by data. InsightEd enhances educational outcomes by furnishing educators with practical insights that enable them to customize instructional tactics to suit the unique requirements of each student.

InsightEd is a highly beneficial tool in contemporary educational environments, as it improves student performance, engagement, and satisfaction. InsightEd's approach to continuous assessment and learning analytics establishes a standard for future advancements in educational technology as educational institutions increasingly incorporate digital advances. The success of this study strongly supports the broad use of such tools to enhance successful teaching and learning in the digital era.

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