Student Performance & Engagement Dashboard: User Manual

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Introduction

Welcome to the Student Performance & Engagement Dashboard. This tool is designed to provide JCU Learning Center with a comprehensive, interactive view of student academic performance and students requiring further assistance.

Its primary purpose is to help you:

Monitor overall student performance, academic standing, engagement and support
Identify at-risk students early based on academic metrics and their engagement
Analyse trends across different courses, countries, and other available information
Track the effectiveness of student support interventions and referrals

This manual will guide through using the Power Bi dashboard effectively, explain its capabilities, and outline its current limitations.

How to use the dashboard

The highlight of this dashboard lies in its interactivity. There are four types of Cards: The number of total students, the number of total courses, total countries, and the total number of failed subjects. By using the filters on the left-hand side, you could change all the charts and visuals to focus on specific groups of students.

Understanding the filter pane

The filter pane on the left controls all the data you see on the dashboard.

- **Student ID:** Use the search box to find and analyse a specific student's data. This is useful for case management. When “All” is selected, the view of the dashboard reflects the big picture numbers and percentage for all students. The enabled search function improves usability and allows for quick filtering.

- **Course:** Select one or more courses from the dropdown list to compare performance or focus on a particular academic program.
- **Country:** Filter the student cohort by their country of origin to identify trends specific to international student groups.
- **Course group:** Isolate students in the 'IT' or 'Non-IT' streams to see how performance and engagement differ between these groups.
- **Weeks:** This is a key filter for timely intervention. Essential time periods to track the performance is by week 3, week 5 and week 10. Select a specific period (Week 1-3, Week 4-5, or Week 6-10) to see which students were flagged as 'At-Risk' during the filtered time period. These three categories follow distinct rules picking up the different columns from the datasets.

How to Interact with Visuals

- **Cross-filtering:** Clicking on a segment in one chart will filter all other charts on the page. For example, clicking the "MBA" bar in the 'Course' chart will update all other visuals to show data for MBA students only. To undo this, simply click the same bar again.
- **Drill-Down:** Some charts may have a hierarchy. Use the arrow icons at the top of a visual to drill down into more detailed data where available.
- **Hover for Details:** Move your mouse over any bar, slice, or data point to see a tooltips with the exact numbers and details.

Capability: Enabling Proactive Student Support

This dashboard presents an opportunity to use the dashboard as a tool to compliment the existing system of tracking the student performance to proactive student support.

Flagging At-Risk Students

The core function of the 'Flagging' page is to identify students who meet specific risk criteria. The system is designed to flag students based on a combination of factors depending on the study week:

- Low attendance
- Academic status, the previous history
- Failing grades in assessments
- Late enrollment

Other columns will not contribute to the flagging function of “At Risk” students, however will be visualized delivering the informative insights demonstrating the details.

Flagging Rules

The definition of an 'At-Risk' student can evolve. The current system is built to flag students based on rules applied to specific timeframes. The student will be considered as “At Risk Student” category if falls under one of these conditions:

Week 1-3

- The academic status is “Conditional” or “Academic Caution”
- One of the attendance rate from any of the three subjects is below 50
- Identified issue is “Late enrollment”

Week 4-5

- The academic status is “Conditional” or “Academic Caution”
- One of the attendance rate from any of the three subjects is below 50
- Identified issue is “Late enrollment”
- One of the assessment is below 50

Week 6-10

- The academic status is “Conditional” or “Academic Caution”
- One of the attendance rate from any of the three subjects is below 50
- One of the assessment is below 50

The dashboard additionally included the new column categorizing the level of risk “High, Medium and Low”. The number of low risk students match with the “Not At Risk Student” located on top of the screen. This figure is designated to the first three weeks of tracking only.

As we gather more data, these rules can be redefined. For example, we might find that a specific combination of factors is a stronger predictor of failure. When these rules are updated, the corresponding DAX (Data Analysis Expressions) code in the Power BI model

must be changed by a developer to reflect the new logic. This allows the dashboard to remain a relevant and powerful tool for student success.

Limitations and important considerations

It is crucial to understand the current limitations of the dashboard to interpret the data correctly.

Data & Automation

- **Real Data Limitation:** The insights on this dashboard are only as accurate and timely as the underlying data source (Student_Data.xlsx). If data is entered inconsistently, is incomplete or is not updated regularly, the dashboard will reflect these inaccuracies. The different data order and format may create an issue not properly extracting.
- **Automation:** The dashboard's data is not currently updated in real-time. It relies on a manual or scheduled refresh of the source data file. Be aware of the "Data last refreshed" date to understand the data's currency.
- **Python**: The figure “Risk Level” with “High, Medium and Low” is generated in Python not integrated at the automation level due to access issues. Here is the link to the Python code how the data is preprocessed and created the “Risk Level” column:https://github.com/galwa506/student-success-analytics-jcu/tree/data-cleaning

Access & Technical Issues

- **Power BI Access:** To view this dashboard, users require a Power BI license and must be granted permission.
- **Visualisation Issues:** Due to certain data access configurations or user permission levels, the dashboard is not securely located in the JCUB official cloud system. The data location process must be completed properly for the real data.

Maintenance & Technical Skills

- **DAX Code Maintenance:** The logic used to flag 'At-Risk' students is built on DAX code within Power BI. This code is not dynamic. If the rules for what constitutes an 'At-Risk' student change, the DAX code must be manually updated by a trained Power BI developer. For this system to work effectively, it is **critical that the data columns used for flagging are always in the same format** in the source file. Any change in column names or data types will break the flagging logic.
- **Making changes:** Always possible to change the dashboard such as altering design, inserting details, adding different or more Filters and Cards, enriching the story by categorizing the risk into different levels and many more.