Report

The significance of Data Collection & Analysis

A case study of FLYER AI Writing

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According to the Power BI file "AI Writing Report" that my supervisor provided, there are some related questions that I would like to find out to learn more about the importance of Data Collection & Analysis:

1) *What are the important metrics and their meaning in the Model View section?*
2) *What can this file "AI Writing Report" help the company, learners and teachers?*
3) *What is DAX? Some important codes of DAX that are used in this report*

1) What are the important metrics and their meaning in the Model View section?

In the **Model View** of Power BI, several important **metrics** are used to analyse **teacher behaviour**, **AI feature usage**, and **overall platform engagement**. They are key to **track performance, usage patterns and retention.**

The importance of these metrics:

- **User Tracking**: Metrics like *#Users and #Total Users Weekly* show how many people are using the platform, and how these changes over time.
- **Feature Usage**: Metrics like *#Days Used, #ai_writing_record_per_day, and #Value* indicates how deeply and frequently users engage with AI-based tools.
- **Cohort Analysis**: Metrics like *# Cohort, # Cohort Weekly, and # Cohort Monthly* allow for *retention analysis*
- **Filtering & Comparison**: Metrics like *# SelectedDateFilter* help users build dynamic dashboards and reports by selecting specific time frames.

Some important metrics and their meanings:

Category	Why it Matters
Engagement	Measures feature usage volume and frequency
Retention	Shows whether users keep coming back
Growth	Tracks success in acquiring new users

Category	Why it Matters
Cohort	Reveals patterns over user life cycles
Adoption	Measures how many users actually use key features
Behaviour Timing	Helps optimize communication and app improvements

Why are metrics complicated?

a) They change based on filter context.
b) Metrics are often derived, not raw.
c) They combine multiple tables.
d) It requires advanced DAX functions like CALCULATE, FILTER, DATEADD, EDATE, ALL, VAR
e) Metrics often include business logic.

2) What can this file "AI Writing Report" help the company, learners and teachers?

a. <u>For the company (FLYER):</u>

Product Usage Tracking

⇨ Identify how frequently the AI Writing feature is being used across different schools, teachers, or user cohorts.
⇨ Detect trends over time (daily/weekly/monthly usage) to evaluate feature adoption.

Feature Performance Evaluation

⇨ Understand which parts of the AI writing tool are being used effectively and which need improvement.

Data-Driven Development

⇨ Use real engagement data to prioritize future updates or new features based on how users interact with the tool.

Sales and Marketing Support

⇨ Demonstrate the tool's usage in real schools or learning centres to convince new partners (B2B).
⇨ Generate case studies showing how AI writing improves learning outcomes.

Retention & Churn Monitoring

⇨ Measure whether regular usage of AI writing correlates with longer user retention or improved student outcomes.

b. For Learners

Personal Progress Monitoring

⇨ Track how often they use the AI writing tool and how consistent their practice is over time.

Self-Evaluation and Improvement

⇨ Review usage reports to identify weak points in writing, track improvements, and adjust learning strategies.

Increased Motivation

⇨ Seeing consistent usage can build habits and reinforce their sense of achievement.

c. For Teachers

Student Engagement Tracking

⇨ See which students are using the tool actively and who needs follow-up or encouragement.

Performance-Based Feedback

⇨ Combine AI writing records with teacher observations to give more accurate and personalized feedback.

Time saving in Assessment

⇨ Use AI-generated scores and reports to reduce manual grading workload.

Curriculum Alignment

⇨ Understand how the tool fits with classroom goals and decide how to better integrate it into lessons.

3) What is DAX? Some important codes of DAX used in this report

DAX (Data Analysis Expressions) is a formula language used in Power BI to **create calculations, aggregations, and metrics in the data models.**

In Power BI, DAX helps me to:

a) Create measures (like total users, average usage, retention rate)
b) Define calculated columns
c) Filter, aggregate and manipulate data dynamically.

Some important codes of DAX that are used in this report:

- ***Count the total number of teachers using AI Writing for the first time on the chosen date.***

```
# Users =
CALCULATE(
    DISTINCTCOUNT('Teacher AI Writing Usage'[Teacher ID]),
    'Teacher AI Writing Usage'[First Used] = SELECTEDVALUE('Daily Metrics'[Date])
)
```

- ***Calculating a weekly cohort retention rate – showing how many users are still in later weeks compared to the first week they started using the platform.***

```
# Cohort Weekly =
VAR _FirstWeek =
    CALCULATE(
        [# Users Weekly],
        FILTER(
            ALL('Teacher AI Writing Usage'[Week Used]),
            'Teacher AI Writing Usage'[Week Used] = 0
        )
    )
VAR _Cohort = DIVIDE([# Users Weekly], _FirstWeek)
RETURN _Cohort
```