

Abstract

Title: Data-driven learning: Understanding how medical students utilize a data dashboard

Background and Objectives:

Data dashboards are a promising technology that are becoming more accessible to create and use in medical education. However, studies describing the implementation, use, and impact of these dashboards is limited. The purpose of this study was to explore how medical students utilize a dashboard of their exam performance (“the dashboard”) and determine the factors that most support students in utilizing this dashboard to improve their approach to learning.

Methods:

An exploratory sequential mixed-methods design was utilized to gather first qualitative data and subsequent quantitative data. Using a phenomenological design, interviews were conducted with medical students who had utilized the dashboard. Interviews were semi-structured, recorded, and transcribed. Data were analyzed using the constant comparative method. Several Likert style items were developed and administered to the next class of students who used the dashboard. Descriptive statistics were calculated and used to compare students who reported that the dashboard led to changes in their studying as compared to those who did not.

Results:

Preliminary analysis of interviews identified 19 codes in 3 themes: Looking at the Data, Making Meaning from the Data, and Acting on the Data. Of the 179 students who completed the survey, 39 students (24.1%) reported that the dashboard led to changes in their studying and 60 (46.2%) students reported gaining new insights from the dashboard at least once. Compared to students who reported no changes in their studying, those who did were more likely find reviewing longitudinal data over the year and seeing data on performance for specific disciplines useful ($p = <0.0001$) and to report that the dashboard provided insights into their performance ($p = <0.0001$).

Conclusion:

Understanding how students use data dashboards to guide learning can help maximize their utility. The results highlight distinctions between students looking at, making meaning from, and acting on performance data. The survey results suggest that only a small percentage of students actually act on the data and identified factors that influence the ultimate impact on behavior. Focused training in data literacy and faculty guidance in supporting students to understand the data in a dashboard is needed to maximize the utility of dashboards and empower students to use data to guide growth throughout their career.