AAPC

E-BRIEF SERIES

Mapping A Better Education Experience with Learning Analytics

Katherine Abel
CPC, CPB, CPMA, CPPM, CDEI, CPC-I, CMRS

Senior Director, Content Dev.

Introduction

Over the past decade there has been a rapid shift to digital learning — from learning management system (LMS) platforms to eBooks and beyond. Whether your institution is using printed books, you've gone completely digital, or you've implemented a blended model — are you using all the tools at your disposal? Is your organization taking advantage of all the possibilities analytics offer?

The Society for Learning Analytics Research defines learning analytics as, "the measurement, collection, analysis and reporting of data about learners and their contexts, for purposes of understanding and optimising learning and the environments in which it occurs." The rapid shift to digital learning has provided an opportunity to use learning analytics to identify trends in education and make changes that will have the greatest impact.

Some areas where learning analytics have the most significant impact include:

- Improve learner outcomes by evaluating student trends
- Increase learner success rates by evaluating assessment performance
- Identify gaps in curriculum based on competencies

Learning management systems have evolved to include learning analytics, providing ways to create a learning-centered environment for education. In evaluating the learner, data ranges from how much time a learner spends in the course to how often they access the course to the grades ultimately obtained. These learning analytics provide actionable data to increase the efficiency and efficacy of instructors.

How AAPC Can Help

AAPC's instructor-led training courses monitor orientation, attendance, student engagement, and student grades. They feature live instruction for students to attend, formative assessments to evaluate their understanding, practical applications to apply what they have learned, and summative assessments to determine success at the end of the module. Analyzing the key indicators for these assignments, along with student behavior, identifies when a student is at risk of not completing or succeeding in a course. This allows AAPC to make informed decisions about the design of a course and potential contact points for student/teacher interactions.

For example, based on the analytics (shown in Table A), when a student does not attend orientation, they are more likely to perform poorly in the course.

Table A: Student Performance

Did the student attend orientation?	Yes	No
Attends 90% or more of the live lectures	63%	13%
Formative assessment average	89%	74%
Practical application average	80%	66%
Summative assessment average	84%	74%

Using this information, AAPC could increase student success rates by implementing orientation classes in other courses or by placing more emphasis on the importance of attending orientation. The data could also reduce the risk that the orientation classes would be eliminated.

In addition, learning analytics can be used to evaluate the performance of curriculum and assessments. The assessments are designed to evaluate the learner's knowledge. Data on assessments should include how each question performs. What percentage of students are missing the question? What do the student responses tell you about the question?

In the item analysis below (Table B), the responses to a question are aggregated.

Table B: Item Analysis

Answers	Total	Top 25%	2nd 25%	3rd 25%	Bottom 25%
*A	46.12%	54	35	0	0
B	47.67%	27	59	3	3
C	5.70%	2	8	1	0
D	0.52%	0	1	0	0

In this analysis, more students are selecting B as the answer, instead of A, which is marked as the correct answer. However, the data also separates the responses into categories based on how well the students performed on the test overall. More of the students who scored in the top 25 percent of this assessment selected A as the correct answer. Based on the data, this is a good question because it performs well in the top 25 percent of the students.

An educational institution can easily identify gaps in curriculum using learning analytics with a strong foundational infrastructure. Once competency mapping is tied to specific curriculum and assessment questions, the data can identify competencies on which students are performing well. The data can also identify where curriculum or other instructional materials should be evaluated to improve student outcomes on specific competencies that are performing below expectations.

Increasing performance of educational programs requires evaluation and action. This means having the right data to make the right decisions. Using data to identify student trends, performance of assessments, and gaps in curriculum allows educational institutions to make swift actional decisions that can ensure student success.

Katherine Abel

CPC, CPB, CPMA, CPPM, CDEI, CPC-I, CMRS

Katherine Abel, CPC, CPB, CPMA, CPPM, CDEI, CPC-I, CMRS, is senior director of content development and manages planning for curriculum improvement and development. She is a prior health care consultant with more than 20 years of experience in health care, including extensive work in billing offices and adjudicating claims for commercial payers. She has experience with system conversions and high-growth billing operations. Prior to joining AAPC, Ms. Abel was a billing administrator for Stat Solutions, LLC and served as vice president of Operations for PriCare, Inc.