

The Ultimate Guide to Learning Data and Analytics

Unlock the power of your data to become a world-class learning organization

Welcome to the World of Learning

Data and Analytics

Across all industries, organizations are under constant pressure to adapt to shifting customer preferences. Learning is no different. Fortunately, technological advancements present opportunities for organizations to improve their learning offerings by using data to strategically respond to evolving learner needs and expectations. Data can be overwhelming, but it can't be ignored. From visualizing learners' levels of engagement within a course or program to pinpointing those who are struggling and need assistance, data can inform instruction, measure growth, and gauge intervention which can have a substantial impact on an organization's overall outcomes and performance.

This trend is being pushed upward through K-12 and higher education. In a 2019 survey, **60%** of CIOs and Senior IT Officers identified "data analysis or learning and managerial analytics" as a top institutional priority, yet only **22%** of them report that their investments in analytics are "very effective."¹ And this discrepancy is widening. In 2016, **61%** of survey respondents listed learning analytics as a top priority, with **24%** reporting their investments as effective.² Across the board, there's clearly a demand for better learning analytics to help boost productivity, but what organizations can do with their data and how they can make sense of it remains a challenge.

At the same time, many organizations are dealing with significant changes in how they do business. Technological innovation and automation are moving faster than ever and are increasing learners' and instructors' expectations over time. A growing number of information and data sources are overwhelming leaders and decision makers. And declining budgets

and stretched resources are forcing organizations to do more with less. Organizations need to face off against these challenges by using their learning data to work more efficiently, think more innovatively, and ultimately better advance learner success.

When it comes to learning analytics, each organization is on its own unique path of discovery—meaning a generic data management solution is unlikely to resolve its challenges. Additionally, while each organization has its own ideas for how data should be consumed and stored, it also has an obligation to ethically use the data it collects. Learning data can provide great insight, but it must be used properly, with appropriate considerations for learners' privacy and anonymity. Therefore, organizations must build a capable solution and establish a clear strategy for managing and using their data.

Developed by D2L's learning experts, the **Ultimate Guide to Learning Data and Analytics** is designed to help you reimagine your data strategy to understand your organization's performance, define the learning experience, and exceed your potential. Aligned with a complete set of learning analytics tools and services, this step-by-step guide will help you answer important questions about learning data and analytics to improve your insights and enhance outcomes.

What Is Learning Analytics?

Learning analytics is the measurement, collection, analysis, and reporting of data about learners and their contexts, for purposes of understanding and optimizing learning and the environments in which it occurs.³ In other words, learning analytics is an extremely important part of improving your organization's learning experience!

¹ Kenneth C. Green, "2019 Campus Computing: The 30th National Survey of Computing and Information Technology in American Higher Education," The Campus Computing Project, 2019.

² Kenneth C. Green, "2016 Campus Computing: The 27th National Survey of Computing and Information Technology in American Higher Education," The Campus Computing Project, 2016.

³ Society for Learning Analytics Research, "What is Learning Analytics?," Society for Learning Analytics Research, 2021.

1. Define Your Goals

Review your strategy to better understand your objectives

The first step in your data journey isn't about jumping straight into learning analytics. It's about gaining insight and understanding to help you solve the most pressing challenges impacting you, your instructors, your advisors, and your learners. While learning analytics can provide you with a vital pulse check on what's happening across your organization, clarifying your vision and building a strategic roadmap are crucial to long-term success. So before you embark on your learning analytics journey, make it a priority to define your business goals and objectives. Are you looking to understand achievement levels of learning outcomes? Measure learner engagement? Benchmark organizational effectiveness year-over-year? It's all possible when you have the right strategy in place.

Remember, when mapping out your goals and objectives, each organization is working from a different starting point. Many organizations are still at a point where they're understanding how effectively their current technology is being used. And please be assured, that's a fine place to be. If you're capturing data, reviewing your overall business strategy, and identifying the right questions to ask, you're on the right path, and you'll be far more productive in the long run than if you dive blindly into learning analytics. Regardless of your data maturity level, the key is to get started.



Here are some of the shared goals you can address with the right learning data and analytics plan and technology:

K-12 and Higher Education

- Identify at-risk students and increase retention
- Predict the likelihood of college readiness
- Prepare students for further study or their chosen profession
- Shorten the time to graduation
- Improve student engagement and satisfaction
- Monitor instructor effectiveness
- Boost the reliability of assessments used to evaluate student success
- Automate reward or award schedules and introduce game mechanics at scale
- Gauge program performance and determine areas for improvement
- Understand how learning technology is being used
- Analyze data for benchmarking and research
- Measure the effectiveness of new learning strategies

Professional Learning

- Identify struggling learners and improve completion rates
- Upskill employees for evolving job requirements
- Prepare employees for career progression
- Shorten the time to course and program completion
- Increase employee satisfaction and engagement
- Monitor instructor effectiveness
- Boost the reliability of assessments used to evaluate learner success
- Automate reward or award schedules and introduce game mechanics at scale
- Gauge program performance and determine areas for improvement
- Understand how learning technology is being used
- Analyze data for benchmarking and research
- Measure the effectiveness of new learning strategies

“When I started out as an instructor, I had an old-school approach, very much based around lectures, handwritten assignments, and textbooks. But as I looked at my students’ results and started listening to their stories and concerns, I realized that approach didn’t work for everyone. If you want to give your students the best chance of success, you need to keep trying new things.”

— Lawrence Potyondi, Automotive Instructor, School of Transportation, BCIT

2. Determine Where Your Data Is

Unite your data sources for a complete view of learning interactions

Rich data sources can be found everywhere across your organization, from the information gathered in your learning platform to enrollment data to learner interactions and engagement with learning content. Unlocking the true power of learning analytics is possible when these pockets of data are brought together to form a unified picture of understanding.

In the past, it was common for organizations to collect and display data in several different formats—creating silos of information across learning initiatives. But over time, new standards have emerged to help organizations consistently capture and share measurements of learning activity. Today, it's possible for your organization to create a complete view of what's happening in your learning environment. And with this understanding, it's easier for you to make meaningful improvements to your organization's learning experience.

With a complete view of your data, you can:

- Share benchmarks for learning activities and outcomes with key stakeholders
- Identify which courses and programs consistently produce desired learning outcomes
- Compare the effectiveness of different content and interaction types
- Arm early-warning systems and establish predictive performance measures
- Personalize programs in real time based on learning patterns



Here are some of the main data sources you can pull from to support your learning analytics:

1. Learning platform
 - Activities
 - Social and informal learning
 - Discussions
 - Videos
 - Assessments
2. Enterprise-level systems
 - Student Information System (SIS)
 - Enterprise Resource Planning (ERP)
 - Human Resource Information System (HRIS)
3. Mobile applications
4. Learning tools (e.g., LTI tools)
5. Publisher and external content
6. Financial aid tracking systems
7. Transcription systems
8. Facilities and other organizational resource systems
9. Wearables, sensors, and other third-party data

“For the first time, we have accurate, quantitative data that proves that our initiatives are making a difference. It’s not just about the analytics and it’s not just about the work we’re doing—you need both to drive continuous improvement.”

— Kevin Kowal, Manager, Education Technology Services, SAIT

3. Decide What You Need

Align your data insights to your biggest learning challenges

Now that you've defined your organization's goals and located your valuable data sources, it's time to put that data to work for you. At this stage, it's especially critical that you continue to focus on exactly what you're trying to achieve so that your organization doesn't find itself lost in analysis paralysis.

First, take inventory of the critical questions you need to answer and the insights you want to gather from your data. Then, make sure they're aligned with the overall business goals of your organization. This approach will allow you to strategically construct your data to advance the initiatives that matter most to your stakeholders.



Here are some of the common learning initiatives we see our customers focusing on:



Learner Progression, Retention, and Completion

Keeping learners on track and progressing toward program completion isn't always straightforward. When learners lack confidence at the onset of a new learning experience, it's generally a sign of a larger issue: a lack of preparation. In today's higher education landscape in the United States, nearly **40%** of new college students have taken a remedial course due to inadequate preparation from their K-12 education.⁴ And despite all the benefits of graduating from a higher education institution, only **62%** of students entering university complete a four-year degree program within six years, while only **33%** of students who start a two-year degree program finish within three years.⁵ Learning analytics can assist in improving overall retention rates by helping instructors predict learners' levels of preparedness. The knowledge organizations gain from learning analytics can also help shape more personalized learning experiences, which can ultimately translate into more successful outcomes for learners.



Adaptive and Self-Directed Learning

Struggling learners present one of the most significant challenges to the success of modern learning programs. In these situations, personalized learning using adaptive technology can help instructors design customized paths for learners that need extra support. And with a growing number of working professionals relying on training and upskilling programs to achieve their career goals, today's organizations must adapt existing learning delivery models to cater to the needs of this audience. Some organizations are embracing concepts such as competency-based learning, where past learning is recognized, and learners can accelerate through courses and programs as they demonstrate mastery. Others are embracing adaptive learning—using data to predict how a learner will perform, track how they're doing, and optimize learning offerings to maximize outcomes.



Learner Engagement

When a learner is engaged, naturally they're more willing and eager to learn. In recent decades, organizations have started to focus heavily on engagement as a necessary condition for a learner's success, and on course and program completion. In fact, many organizations at the K-12 and higher education levels now cite learner engagement as both a policy goal and an institutional priority. Learning analytics can reveal how engaged learners are in the materials provided, track their pace of learning, and measure the overall effectiveness of course content.

⁴Taylor Campbell and Jamie Wescott, "Profile of Undergraduate Students: Attendance, Distance and Remedial Education, Degree Program and Field of Study, Demographics, Financial Aid, Financial Literacy, Employment, and Military Status: 2015–16," RTI International, 2019.

⁵National Center for Education Statistics, "Undergraduate Retention and Graduation Rates," National Center for Education Statistics, 2020.



Learner Outcomes and Efficiency

At the end of the day, optimizing the learning experience is about efficiently and effectively achieving the best outcomes for everyone at your organization—you, your instructors, and your learners. Learning analytics can provide organizations with direct insight into the root causes of learners' successes and failures, such as learners' level of engagement with content and their instructors. Predictive analytics can also help instructors reach learners who are struggling by easily identifying those who need extra help and proactively providing them with additional support.



Data Access and Reporting

Many organizations operate with tight budgets and resource constraints. Yet all are required to report on metrics, such as their business performance, their contribution to the communities they serve, and the outcomes achieved by their learning programs. In the past, the data gathering process was often an administrative nightmare. Data sets were commonly locked away in silos and key metrics were inconsistently tracked. And there wasn't a complete view that allowed organizations to see the whole picture or to benchmark their performance against the performance of others in the industry. Today's learning analytics offer modern leaders a way to easily extract and unify data scattered across their organization so they can effectively measure performance, understand usage, and observe trends.

“With data drawn from the Brightspace platform, we can intervene with an at-risk student even before they're aware they're at risk.”

— Matthew Thornton, Associate Vice President, Student Technology Experience, SNHU

4. Prepare for Success

Develop a plan that addresses your unique needs

As the old saying goes, it's best to walk before you run. And that's certainly the case when developing a solid approach to your learning analytics strategy. At this stage, it's as much about establishing a clear process to share and act upon your data as it is identifying a capable learning analytics solution. As we noted earlier, each organization's approach will be unique.

Some organizations are further along the maturity curve. They have a good handle on their data sources. They have strong, in-house analytics expertise. And they have a clear and established data management policy. They simply need access to the right tools so they can dive right into implementing their learning analytics strategy.

Other organizations are in the investigation phase. They're keen to learn from the experience (and mistakes) of others, and they're actively seeking to understand learning analytics best practices to inform their strategy and implementation plan.

Others still will turn to a trusted partner to accelerate their learning analytics strategy. They need a team of knowledgeable data and analytics experts to "get it done."



Here are some key concepts to consider when developing your learning analytics plan:

1. Gain Knowledge

- What's your learning analytics maturity? Are you learning, building your plan, or ready to go?
- Do you have experts who understand your learning data and know how it's collected?
- Does your team have the skills to use predictive and adaptive learning technologies?
- Do you have support resources for instructors who are looking to improve their courses?
- Do you have the right business intelligence tools in place?
- How will your learning data be used? Who will be able to view it? How will it be distributed?

2. Drive Action

- Are you confident in your ability to execute your learning analytics plan?
- Do you have organizational leaders in place to support your plan?
- Do you have experts who know how to interpret learning analytics to make better decisions?
- Are your leaders and instructors ready to embrace the changes that learning analytics requires to make meaningful impact?

3. Measure Results

- How will you know that you're successful?
- How will you work toward continuous improvement?
- How will you use the knowledge you gain to ask new questions, refine processes, and test ideas?
- How will you engage partners to help refine and implement your ongoing action plan?

“When we saw the Brightspace platform, we knew it was the direction we needed to go. Brightspace offered us all the tools and the support that we needed to get started, and today the platform is really our equivalent of the school building that students walk into every day.”

— Kristina McLaughlin, School Improvement Coordinator,
TRECA

5. Build Your Solution

Work with a learning analytics expert to maximize your success

Learning analytics can help boost your organization's accountability, productivity, and performance. But there are best practices to learn, skills to develop, and standards to follow. Not every organization is in a position where it's ready to do everything on its own.

Here are some important questions to ask about your current approach to learning analytics:

1. Does your team have a deep understanding of your learning data and how to use it?
2. Are your learning analytics tools open, standards-based, and built for scale?
3. Are you offering enough support for those who are collecting, reporting, and acting on learning data?
4. Can you demonstrate the impact of your learning analytics on learner performance and outcomes?
5. Are you positioned to continuously improve and innovate to keep up with industry trends?



How D2L Can Help

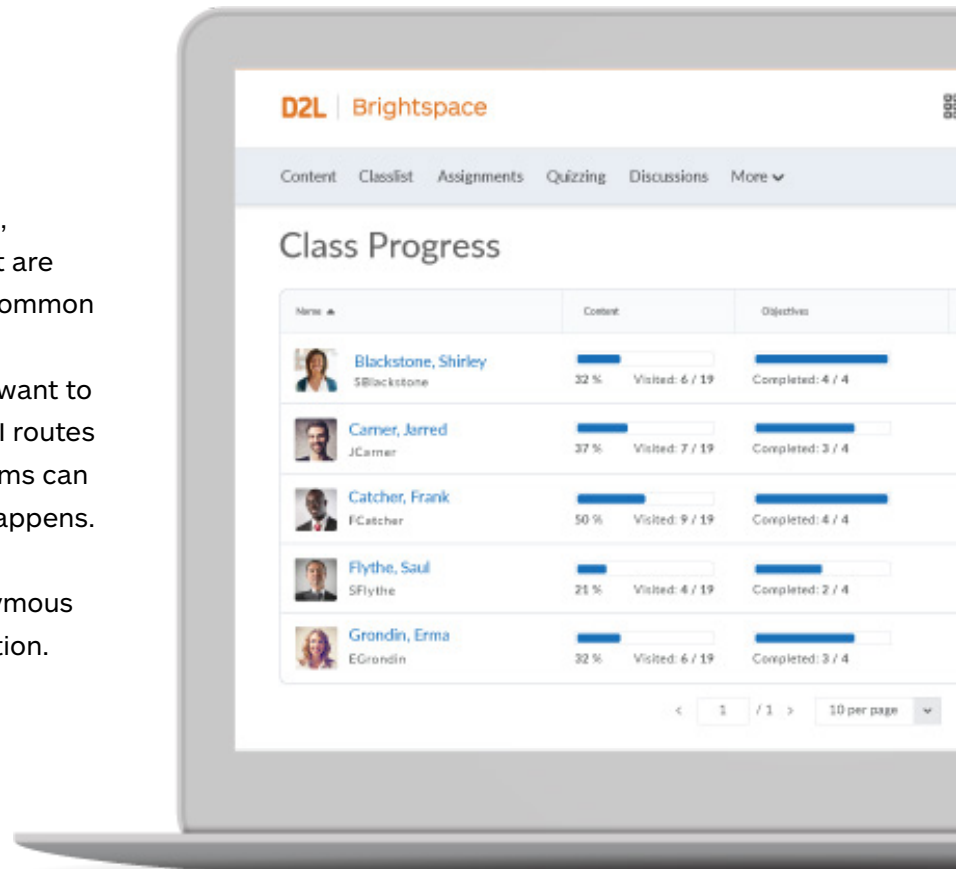
At D2L, we have extensive experience in learning data and analytics best practices, supported by a powerful set of learning analytics solutions. Our combined knowledge, the tools in our Brightspace platform, and our ability to help deliver critical insights all play important roles in contributing to the success of our customers around the world.

When it comes to learning analytics, we understand that you can answer the same question in multiple ways. The method you use will depend on your organization's unique goals, strategic plans, and the tools and data you have access to. To address this challenge, our Brightspace Data Access and Analytics solutions include three distinct offerings: Brightspace Core, Performance+, and Data Solutions Consulting.



Brightspace Core

Included in all implementations of Brightspace, Brightspace Core features built-in reports that are ready to help you answer some of your most common questions about learner data, such as course effectiveness and learner performance. If you want to take a do-it-yourself approach to analytics, API routes are available in our Data Hub, while Data Streams can help you focus on learning activity data as it happens. Brightspace Core also integrates with Google Analytics™ to provide you with real-time anonymous page access information across your organization.





Performance+

If you're looking to take your learning analytics further, Performance+ extends the foundational capabilities in Brightspace Core with a set of tools that build on each other and provide unique value. Available for K-12 schools, higher education, and businesses, Performance+ begins with **Advanced Analytics** to help you dig deeper into your data to measure adoption, engagement, and assessment quality—within courses and across your organization. If you're already knowledgeable on your data points, our **Insights Report Builder** offering allows you to expand on visualizations without the complexity of working directly with a data warehouse, joint data sets, or third-party tools. We also offer a **Predictive Analytics** solution to help you identify learners who are struggling and empower instructors with actionable insights. And finally, our **Adaptive Learning Engine** can help you take learning to the next level by meeting learners where they are today and guiding them down the ideal path for their learning style.



Data Solutions Consulting

No matter where you are on your data journey, our Data Solutions Consultants are ready to help you achieve your goals. Whether it's gaining a better understanding of your learning data, improving your visualizations, or responding to a question that your data can't currently answer, we provide a white glove service so you can exceed your potential. If you're using Brightspace Core, our Data Solutions Consultants are available for engagements ranging from 1-12 months. For Performance+ implementations, we recommend working with our dedicated Insights Report Builder Data Analysts—available for either single-month engagements or as an annual subscription for maximum value.

“I've been really impressed at how easy it is to build learning experiences in the Brightspace platform. The strong support we received from D2L, from the initial deployment onward, has been extremely helpful, and we're now able to create in-depth, curriculum-driven online classes for the first time.”

— Laura Hendrey, Learning and Development Coordinator, Vision Australia

Learning Data and Analytics in Practice

Throughout this guide, we examined the key steps that will support you as you navigate your learning data and analytics journey. But, as you know, theory is a much different story than practice. Practice involves clearly demonstrating that your data and analytics are helping you accurately predict learner success and respond quickly and confidently to improve outcomes. At D2L, we look forward to helping you meet those challenges—both today and in the future.

Here's how some of our customers are transforming their learners' lives for the better with the learning data and analytics capabilities available in our Brightspace platform:

Southern Alberta Institute of Technology – Harnessing Analytics to Boost LMS Adoption



SAIT worked with D2L to analyze student and faculty engagement with Brightspace and set a benchmark for measuring ongoing efforts to boost adoption. By creating a successful faculty community of practice and improving integration between Brightspace and other systems, SAIT has seen measurable improvements in use of the platform—contributing to improved student outcomes.

[Explore SAIT's story](#)

Vision Australia – A Clear Vision of Learning for All



Vision Australia was having difficulty tracking learner competencies and progress in its online training programs—relying on spreadsheets and text documents, which were time-consuming and cumbersome for managers. Today, Vision Australia is using the Manager Dashboard in Brightspace to gather real-time snapshots of everyone's progress and enable managers to easily download the data into reports.

[Explore Vision Australia's story](#)



Southern New Hampshire University – Turning Student Data into Student Success

One of SNHU's top missions is to provide students with a personalized and professional learning experience. Using Brightspace, SNHU enables advisors and instructors to act quickly and make data-driven decisions based on the trends and red flags they discover on a day-to-day basis—empowering them to proactively reach students before they're at risk.

[Explore SNHU's story](#)

Tri-Rivers Educational Computer Association – Supporting At-Risk Students with Personalized Learning



As a specialist in dropout prevention and recovery, TRECA aims to motivate students who have been disillusioned by traditional education. TRECA adopted Brightspace to help it provide an engaging online learning experience that would scale—enabling personal, one-to-one relationships between teachers and the thousands of students who need their support.

[Explore TRECA's story](#)

British Columbia Institute of Technology – Rewriting the Textbook for Student Success with Adaptive Learning



When students are preparing for a final test, it's easy for them to get overwhelmed by the amount of information they need to master—yet the gaps in their knowledge are often much smaller than they think. BCIT is using the adaptive learning engine in Brightspace to help students recognize their strengths and weaknesses—directing them to the content that holds the information they need.

[Explore BCIT's story](#)