Learning Analytics Strategy Toolkit

Table of Contents

LEARNING ANALYTICS STRATEGY TOOLKIT

The Current State of Learning Analytics: Survey Results

The Current State of Learning Analytics: Survey Results

Tyton's 2019 Learning Analytics Survey sought to better understand institutions' interest and actions in learning analytics as a tool for advancing more equitable academic outcomes. This survey provides an introduction to the current state of adoption and a glimpse into higher education readiness to use learning analytics as the foundation to address educational equity.

Introduction

Under pressure to reduce costs and improve services, many higher education institutions have invested more resources in data and analytics to streamline administrative practices, improve instruction and learner success. Administrators and faculty recognize not only the latent value in student data to promote student academic performance, but also the opportunity it provides to assist institutions with implementing changes to close achievement gaps and eliminate race and income as predictors of student success. However, do higher education administrators and faculty have the tools to interpret the data and make informed decisions that deliver the desired outcomes?

> **We've seen time and again that mathematical models can sift through data to locate people who are likely to face great challenges, whether from crime, poverty, or education. It's up to society whether to use that intelligence to reject and punish them — or to reach out to them with the resources they need.**
>
> – Cathy O'Neil *Weapons of Math Destruction: How Big Data Increases Inequality and Threatens Democracy*

As Cathy O'Neil points out, some data-informed decisions can unintentionally result in actions that reinforce biases, potentially exacerbating the very problem the data was designed to solve. The collection and analysis of data does present privacy and ethical challenges; however, by implementing a set of best practices rooted in continuous learning, data tools can provide institutions with invaluable insight that assist them in meeting their accountability and fiduciary responsibilities to all students.

During the fall of 2019, Tyton Partners, in collaboration with the Every Learner Everywhere Network, sent a Learning Analytics Survey to 1,200 faculty and administrators. The purpose of this survey was two-fold: **1) to measure the use of learning analytics on higher education campuses**, and **2) to measure awareness of and attitudes towards the use of learning analytics-designed tools at the course-level; specifically, to identify disparities and drive interventions to achieve academic equity.**

> **LEARNING ANALYTICS:**
> The intentional collection and analysis of student data within the
> learning context in order to understand and optimize learning

This Learning Analytics Strategy Toolkit provides campus champions of learning analytics with information and tools to assess, compare, and plan an adoption strategy that acknowledges the need to deliver more equitable academic outcomes. The 2019 survey results (this document) furnishes a snapshot of the current state of learning analytics adoption and use on college campuses in the United States. Guiding Principles and Strategies for Learning Analytics Implementation delivers evidence-based guiding principles to assist with planning, and Assessing Learning Analytics Readiness supplies a self-assessment tool to determine campus readiness.

The results of the Learning Analytics Survey demonstrated that over 80% of respondents personally used or were aware of the use of student data at their institution. Yet despite these high usage rates, only 40% responded that their institution had a plan to use student data to address performance gaps, and 75% noted their institution does not have clear goals for the use of student data.

While we must remember O'Neil's cautionary tale, we have also seen select institutions lead the way in using technology to reduce performance gaps, increase student retention, and improve graduation rates, especially amongst underrepresented groups. As more institutions onboard new and innovative technologies, we must provide a foundation to ensure the technology is used to support equity.

Learning Analytics and Equity

Broadly defined, **learning analytics is the intentional collection and analysis of student data within the learning context in order to understand and optimize learning** (Long & Siemens, 2011). The data, tools, and strategies have the potential to generate instructional techniques that will drive positive change in students' academic behaviors and performance. However, it is vital for campus advocates to receive input from all stakeholders to deliver prudent, effective tools and implementation designs that will not only compel students to reflect and take action on their learning, but also measure the strategies against ethical and privacy concerns that are often present in data-related projects (Joksimovic et al., 2019).

In terms of equity in education, stakeholders must broaden their definition to include more than access (Aguilar, 2018). **We define equity within the context of higher education as access, opportunity, and advancement for all students to eliminate race and income as predictors of student success.** Campus decision makers must include stakeholders from diverse backgrounds to ensure that nuances of culture and behavior are addressed during planning. They should be identified before institutions or instructors can move forward with learning analytics-driven instruction and interventions to personalize instruction and achieve more equitable outcomes.

Before moving forward, it is important to know what the state of learning analytics is now. The results of this survey provide a glimpse into higher education readiness to use learning analytics as the foundation to address educational equity.

Survey Results

Implementing learning analytics is a complex task that requires capacity building for the essential technologies and the subsequent knowledge building that must take place with campus stakeholders. Institutions must dedicate time and resources to train faculty and staff about a topic that may be new and unfamiliar to many of them. Additionally, in order to use the new data to influence students' academic performance, faculty must have not only a basic understanding of pedagogy, but also academic intervention strategies (Koenig, 2019).

Course-level data could potentially lead to highly effective strategies to drive change. As such, it also poses the highest risk for problematic decision-making. It is for these reasons that we have focused our research on course-level learning analytics (Gašević et al., 2015).

Use Cases of Learning Analytics

TYPE	DEFINITION	USER(S)	USE CASES
Student Level	The collection and interpretation of student data for the purpose of **improving student learning outcomes** across programs and courses	Students	1. To provide students with self-advising tools and guide interests 2. To help students self-regulate and improve on strengths
Course Level	The collection and interpretation of student data for the purpose of **improving course learning outcomes** for specific courses and specific students	Faculty and student support services	3. To provide students with personalized learning paths 4. To adjust and improve learning overall 5. To identify and intervene with students who need support 6. To address inequitable outcomes across different student groups
Program Level	The collection and interpretation of student and faculty data for the purpose of **improving program learning outcomes** for specific programs and specific courses	Program and institutional admins	7. To inform and improve teaching practice 8. To influence curricular decisions
Institution Level	The collection and interpretation of student and faculty data for the purpose of **improving institutional learning outcomes** across programs and courses	Institutional admins	9. To evaluate and inform outcomes across institution, overall and across different student groups
Cross-institutional Level	The collection and interpretation of student and faculty data for the purpose of **improving industry learning outcomes** across programs and courses	Institutional admins, industry researchers, vendors, and states and consortiums	10. To research learning analytics outcomes to inform practice and policy 11. To improve vendor products

Note: Data sources for all levels consist of student and faculty data drawn from LMS, courseware, instructional tools, and advising tools.

Course-level data could lead to highly effective strategies to drive change.

Primary use cases for learning analytics at the course level across respondents are to identify and intervene with students who need support, inform and improve teaching practice, and adjust and improve learning for all students. Refer to Guiding Principles and Strategies for Learning Analytics Implementation for more detailed data on how learning analytics are used today.

# Current State of Adoption of Learning Analytics

The 2019 Learning Analytics Survey sought to better understand institutions' interest and actions to increase equity in academic outcomes and better understand their current adoption plans for implementing learning analytics to support these priorities.

Learning Analytics Survey Respondent Demographics
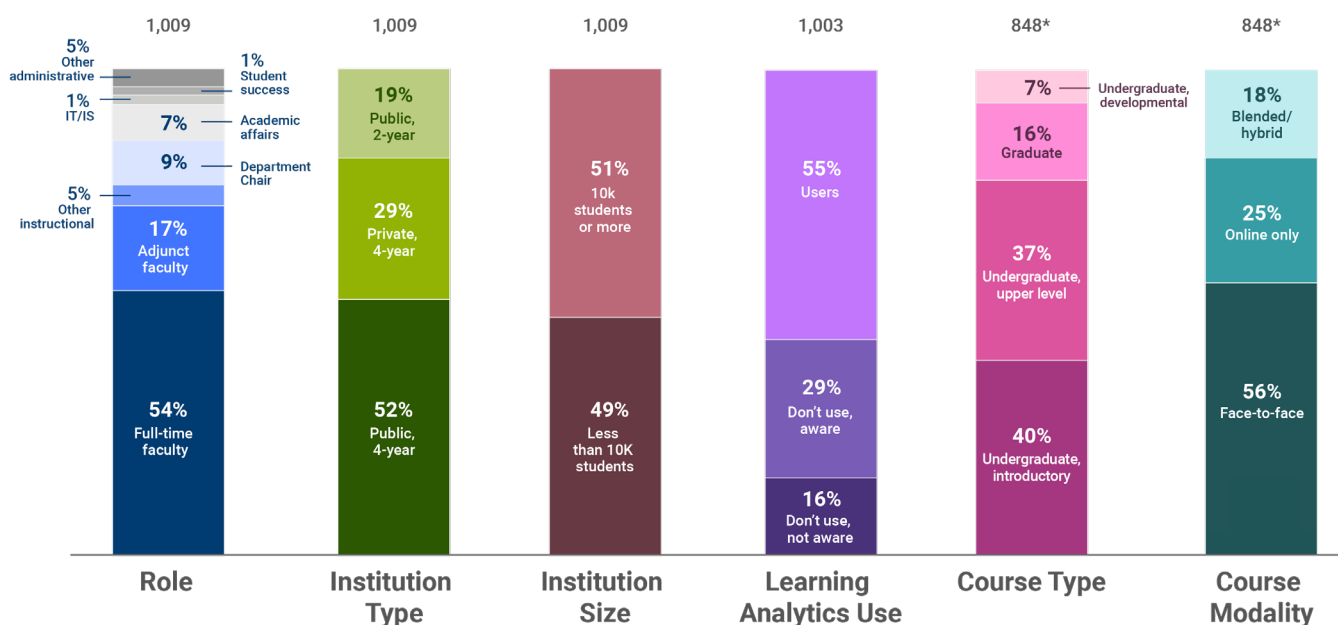
Neither institution role or type of institution had an impact on the respondent's knowledge or use of learning analytics. Of the 1,200 respondents, almost half of the respondents personally used learning analytics, and nearly one-third were aware of usage at their institution. Additionally, 31% of respondents are looking at outcome-related data across different student groups to address equity.

State of Adoption of Learning Analytics & Outcome Related Data

■ % of respondents using LA

■ % of respondents looking at outcome data across different student groups
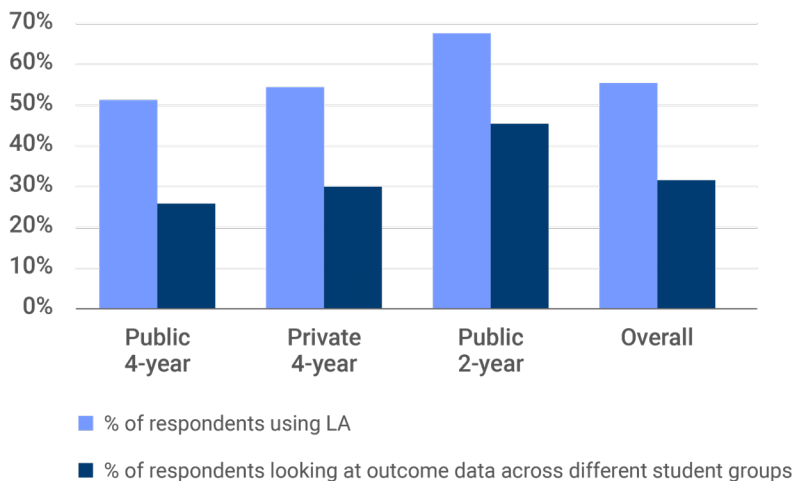
Overall, while the reported use of learning analytics was fairly high, fewer survey respondents noted making use of disaggregated student data (outcome data across different student groups). This is a necessary component for identifying and addressing equity. It is notable that respondents from 2-year institutions, who often serve large numbers of students of color, reported the highest use of learning analytics for examining outcomes and for evaluation.

Additionally, despite relatively high usage of learning analytics and pockets of higher usage of disaggregated outcomes data, there are significant gaps that exist between strategy and execution as it relates to both equity and the adoption of learning analytics overall. Over 60% of all surveyed respondents agreed that their institution had a common definition of equity, yet less than 40% agree that there is a plan in place to address equity gaps. While these results may imply that equity is a conversation taking place at many colleges and universities, it does not suggest that equity goals have evolved to move beyond opportunity concerns typically addressed through admission policies.

Strategy-to-Execution Gap for Addressing Equity Gaps

■ Disagree   ■ Neutral   ■ Agree
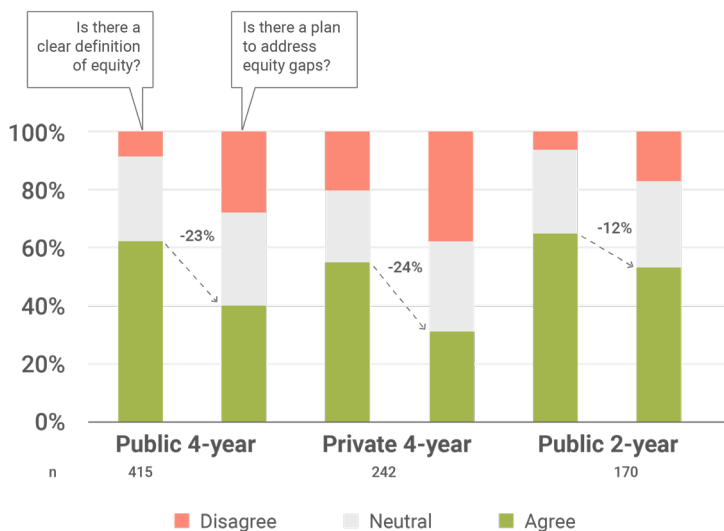
While less than 25% of the respondents thought that their institution had clear goals for the use of learning analytics, over 70% agreed that learning analytics has the potential to improve instruction and reduce performance gaps. This clearly implies a gap between knowledge and action. Additionally, it may signify the absence of available tools to assist campus leaders in planning and executing academic strategies as well as the difficulty in securing the technological infrastructure to support that mission.

Strategy-to-Execution Gap for Adoption of Learning Analytics
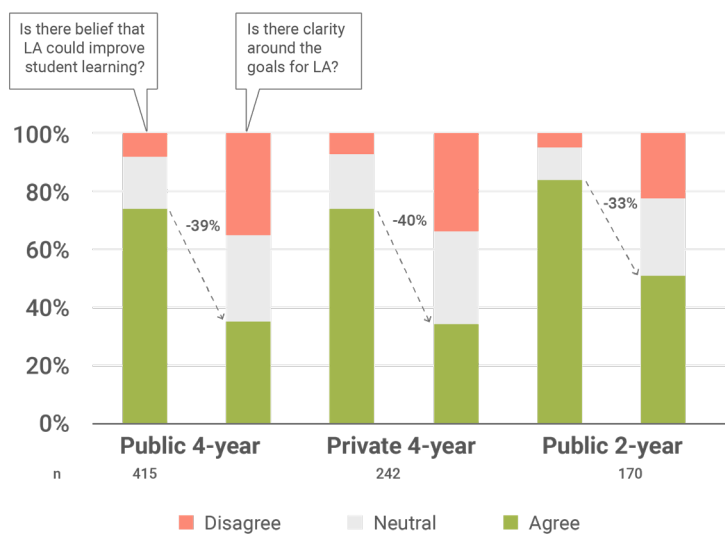
Next Steps

It is encouraging that faculty and campus administrators responded that they are aware of learning analytics and recognize its value to inform and drive students' academic behavior. However, the results highlight the disconnect between the potential and the operational reality of institutions in achieving their goals related to equity and learning analytics (Bensimon et. al., 2016). It is vital to exploit the latent value in learning data to promote student academic performance. The other resources in this toolkit, Guiding Principles and Strategies for Learning Analytics Implementation and Assessing Learning Analytics Readiness, will provide campus leaders with tools to assist them in planning, assessing their readiness, and implementing strategies to deploy learning analytics at scale to produce a more equitable learning environment for all students, one in which income and race are not predictors of student success.

Find more resources at everylearnereverywhere.org

For questions, contact resources@everylearner.org

References

Aguilar, S. J. (2018). Learning analytics: At the nexus of big data, digital innovation, and social justice in education. *TechTrends*, 62, 37-45. Retrieved from https://doi.org/10.1007/s11528-017-0226-9

Bensimon, E. M., Dowd, A. C., Witham, K. (2016) Five Principles for Enacting Equity by Design. *Diversity & Democracy*, 19(1). Retrieved from: https://www.aacu.org/diversitydemocracy/2016/winter/bensimon

Gašević, D., Dawson, S., & Siemens, G. (2015). Let's not forget: Learning analytics are about learning. *TechTrends*, 59(1), 64–71. https://doi.org/10.1007/s11528-014-0822-x

Joksimović, S., Kovanović, V., & Dawson, S. (2019). The journey of learning analytics. *HERDSA Review of Higher Education, 6*, 37-63. Retrieved from www.herdsa.org.au/herdsa-review-higher-education-vol-6/37-63

Koenig, R. (2019, October 17). At Educause, a push to monitor student data is met with concerns about privacy and equity. *EdSurge*. Retrieved from https://www.edsurge.com/news/2019-10-17-at-educause-a-push-to-monitor-student-data-is-met-with-concerns-about-privacy-and-equity

Long, P., & Siemens, G. (2011, September 12). Penetrating the fog. Analytics in learning and education. *Educause Review*, 46(5), 31-40. Retrieved from https://er.educause.edu/articles/2011/9/penetrating-the-fog-analytics-in-learning-and-education

Guiding Principles and Strategies for Learning Analytics Implementation

Guiding Principles and Strategies for Learning Analytics Implementation

This document shares four guiding principles and their accompanying strategies for institutions to move forward with the implementation of learning analytics. These guiding principles provide an evidence-based framework that was developed in consultation with leading experts in learning analytics and equity research for scalable and equity-focused adoption.

Introduction

For all students to have an equal opportunity to succeed, instructors must personalize learning rather than teach to a fictional average student. Learning analytics has the potential to assist instructors in the development of personalized learning at scale and to contribute to more equitable and socially just academic outcomes.

The first resource in this Learning Analytics Toolkit reported results of the Learning Analytics Survey. This resources, Guiding Principles and Strategies for Learning Analytics Implementation, describes four key guiding principles identified through consultation with leading experts in learning analytics and equity research. These guiding principles provide an evidence-based framework for scalable, equity-focused learning analytics adoption. The next resource in this toolkit, Assessing Learning Analytics Readiness, offers a self-assessment as well as tools and strategies that institutions can use to launch their planning projects.

The guiding principles serve to fill the void highlighted by the results of the Learning Analytics Survey. Although many institutions have adopted learning analytics in some capacity, adoption is often silo-ed in use by individual faculty, courses, or departments. Few have the required technology infrastructure and knowledge-building framework to act on student data at scale. In addition, there are few examples of wide-scale learning analytics adoption that are expressly focused on equity and eliminating race and income as predictors of student success.

This document acknowledges variation in each institution's maturity of adoption and current use of learning analytics to ensure any campus can use them to guide implementation strategies that target actions that are critical to an equity-focused approach. The guiding principles address several key foundational actions necessary during adoption.
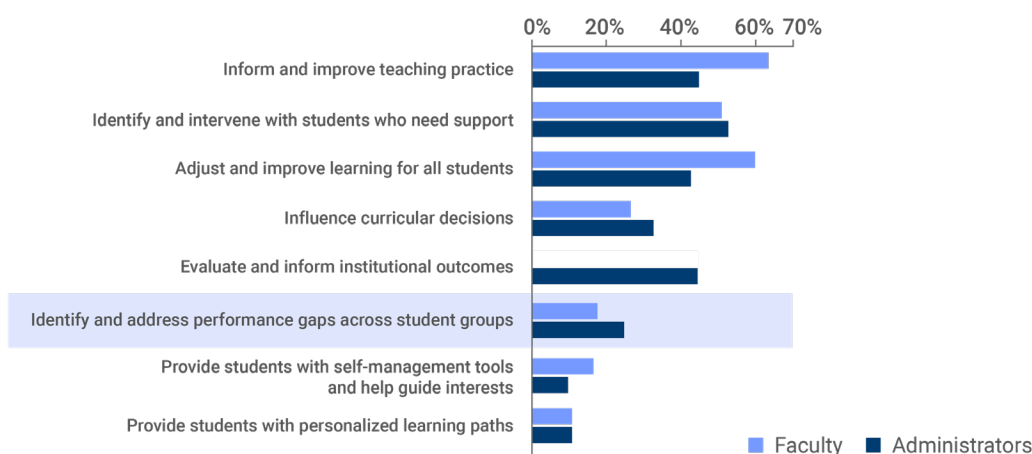
1. Equity & Learning Outcomes

Explicitly set and communicate institution-level goals to achieve equity in academic outcomes across student groups, including students of color and low income, through the use of learning analytics.

The vast majority (92%) of faculty and administrators who responded to the Learning Analytics Survey reported a lack of clarity around the intended use of learning analytics. Most view learning analytics as a tool to inform instruction and intervene when students require extra support; only 30% reported using student data to achieve more equitable outcomes in academic performance across student subgroups.

Primary Uses for Learning Analytics

Horizontal bar chart comparing Faculty and Administrators across these categories: Inform and improve teaching practice; Identify and intervene with students who need support; Adjust and improve learning for all students; Influence curricular decisions; Evaluate and inform institutional outcomes; Identify and address performance gaps across student groups; Provide students with self-management tools and help guide interests; Provide students with personalized learning paths. X-axis: 0% to 70%. Legend: Faculty, Administrators.

Call to action

Institutions must communicate a consistent message for the use of learning analytics to identify and address academic outcomes that strongly suggest disparity by student groups. This approach needs to include an institution-wide understanding of the nature and diversity of the student community. A diverse group of campus stakeholders (including faculty, students, and staff of color) should participate in goal-setting, planning, and design.

Strategies to execute

- Define consistent course-level learning outcomes across general education and foundational courses with multiple sections to enable analysis at scale.

- Working with key stakeholders, set and share quantifiable goals and anticipated outcomes at both the institution and course level.

- Faculty review their de-identified learning outcome data by student subgroup.

- Include key stakeholders in the interpretation and review.

- Create cross-discipline communities to interpret data and share best practices.

- Develop a continuous learning culture and make adjustments to close identified gaps.

- Especially in early stages, start your learning analytics efforts in ways that integrate with existing activities (e.g., use of systems) and processes (e.g., end of term review cycles).

2. Faculty, Administrator, and Student Inclusion and Support

Ensure professional development and ongoing support across stakeholders to implement, analyze, and act on data.

It is essential for campus leaders to include all stakeholders to allow for coordinating adoption, establishing protocols to ensure data privacy and ethical use, and to arrange evidence-based, pedagogically sound intervention strategies. A change in institutional and academic culture requires planning processes that create conditions that allow participants to both think and feel positively about change.

Only 5% of faculty and 7% of administrators reported that their institutions provide robust training opportunities to support the adoption of learning analytics. It is also one of the greatest barriers today for faculty that limits wide usage.

Perceived level of Training, Support, and Infrastructure for Faculty, Administrators
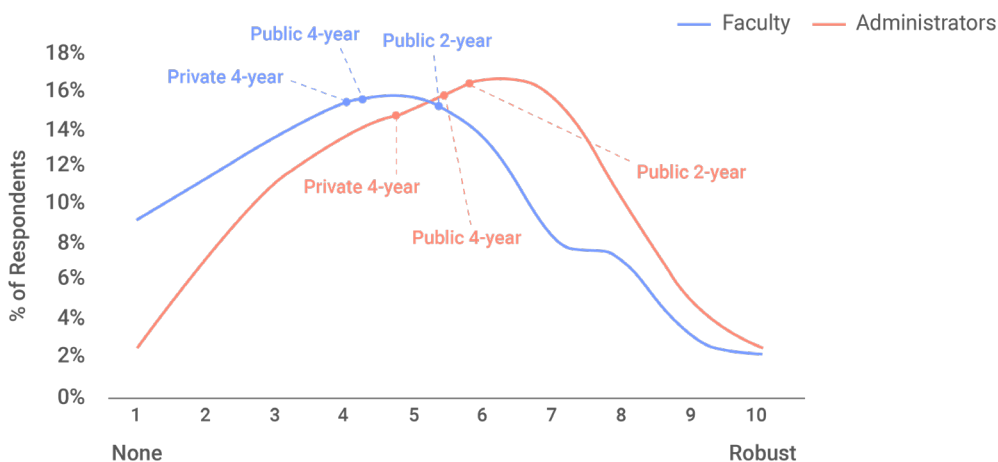
Call to action

A diverse group of campus stakeholders (including faculty, students, and staff of color) should participate in goal-setting, planning, and design.

Strategies to execute
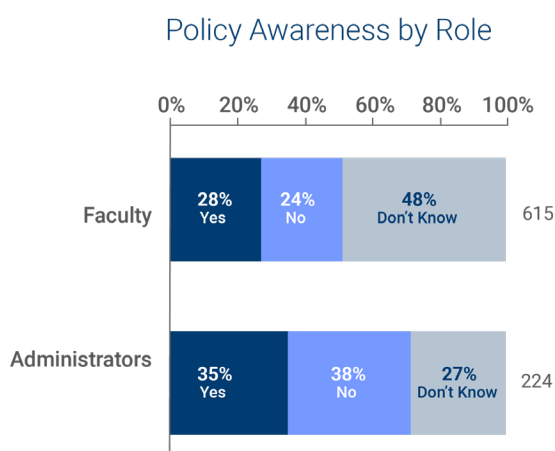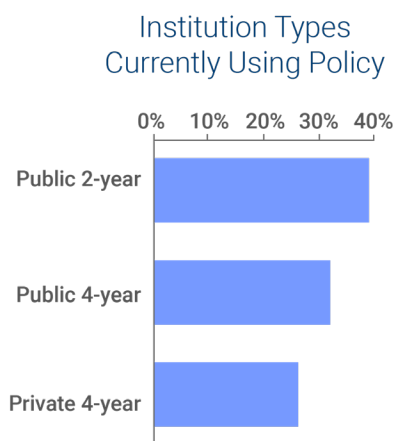
- Ensure that stakeholders have appropriate access to student data.
- Include key stakeholders in the interpretation and review of student data.
- Create cross-discipline communities to interpret data and share best practices.
- Develop a continuous learning culture that works to make adjustments to close identified gaps, and provides sustained support instead of one-off training sessions.

3. Data Ethics, Privacy, & Policies

Establish and communicate institutional data policies surrounding the use of student data (beyond FERPA). Policies should include fidelity and responsible use, consent and privacy, and data transparency.

30% of faculty and administrators surveyed look to institutional policies to dictate the use of student data in the classroom. However, 42% are unaware of any policies to support adoption at their institution. Lack of comfort and awareness around key ethical issues — such as security, data access, and student privacy — inhibit the adoption of learning analytics today.

Institution Types Currently Using Policy

Policy Awareness by Role

	Yes	No	Don't Know	
Faculty	28%	24%	48%	615
Administrators	35%	38%	27%	224

Call to action

Providing sufficient professional development to support both the initial implementation and ongoing use of student data is critical to ensure that faculty can both interpret and act on student data with institutional guidance.

Strategies to execute

- Provide sustained support for both faculty and students to leverage teaching and learning technology platforms to reduce equity gaps.

- Provide sustained, high-quality professional development to integrate technology platforms and interpret student data into existing workflows.

- Provide guidance on specific actions to take or avoid when interpreting student data to limit unintended biases.

- Continuously demonstrate and report progress toward goals in order to promote further adoption among faculty.

- Create cross-discipline learning communities of faculty to interpret data and identify actions to improve student learning and teaching.

- Ensure some professional development funding can be allocated based on learnings and interventions to instructional approaches.
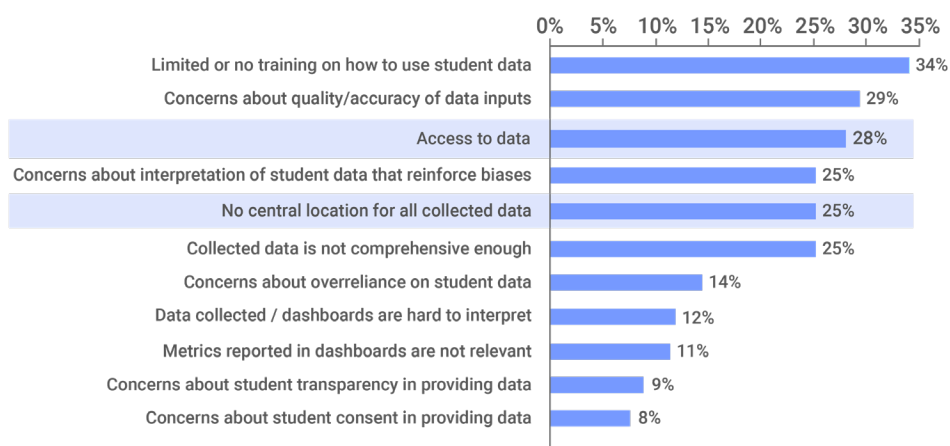
4. Technology & Infrastructure

Ensure that technology and infrastructure eases the ability for users to leverage student data. Outline and communicate procedures for acquiring new education technology to create a seamless integration with existing campus infrastructure.

Users today are leveraging data from a wide variety of systems, creating complexity in the ability to use technology tools to support learning in the classroom. Having the proper infrastructure — both in the technology adopted and the in-house expertise — to ease adoption is foundational in supporting the uptake of tools. 28% and 25% of respondents, respectively, cite access to data and lack of a centralized database as barriers in uptake today.

Top Barriers for Faculty & Administrators in Using Learning Analytics

Barrier	Percentage
Limited or no training on how to use student data	34%
Concerns about quality/accuracy of data inputs	29%
Access to data	28%
Concerns about interpretation of student data that reinforce biases	25%
No central location for all collected data	25%
Collected data is not comprehensive enough	25%
Concerns about overreliance on student data	14%
Data collected / dashboards are hard to interpret	12%
Metrics reported in dashboards are not relevant	11%
Concerns about student transparency in providing data	9%
Concerns about student consent in providing data	8%

Call to action

Administrators must review the process for using and interpreting student data to ensure that technology and other infrastructure supports ease of adoption as well as ongoing use.

Strategies to execute

- Create a centralized source of student data.
- Ensure stakeholders have appropriate access to both learning and demographic data.
- Form a committee of different stakeholders to determine current capacity and conduct a needs assessment in order to reach learning analytics goals.
- Develop a long-term vision to build capacity to meet learning analytics goals.
- Tailor dashboards and views to the goals set out by your institution and provide professional development to faculty and administrators.

Contributors

Thank you to the following individuals who have contributed to this work:

- **Cary Brown,** IMS Global
- **Colleen Carmean,** Ethical Analytics Group
- **D. Christopher Brooks,** EDUCAUSE
- **Jack Suess,** University of Maryland, Baltimore County
- **Jessica Williams,** Every Learner Everywhere
- **Jill Buban,** Fairfield University
- **John Fritz,** University of Maryland, Baltimore County
- **John Whitmer,** ACT
- **Julie Neisler,** Digital Promise
- **Justin Dellinger,** dLRN (University of Texas at Arlington)
- **Karen Vignare,** Association of Public & Land-grant Universities (APLU)
- **Kim Arnold,** University of Wisconsin-Madison
- **Laura de Abruna,** Association of Chief Academic Officers
- **Lisa Berry,** dLRN (University of Texas at Arlington)
- **Malcolm Brown,** EDUCAUSE
- **Mollie McGill,** WCET
- **Nani Jackins Park,** equityworksNW
- **Natasha Jankowski,** National Institute for Learning Outcomes Assessment
- **Patsy Moskal,** University of Central Florida
- **Peter Van Leusen,** Arizona State University

Find more resources at everylearnereverywhere.org

For questions, contact resources@everylearner.org

Assessing Learning Analytics Readiness: Self-Assessment and Tools

everylearner
everywhere

Assessing Learning Analytics Readiness: Self-Assessment and Tools

This resource assesses your campus readiness for learning analytics and provides tools and strategies to get you started.

Introduction

This resource has outlined the structures and processes necessary for an institution to initiate a data-driven approach to drive equity in educational outcomes for all students. The survey data presented in The Current State of Learning Analytics: Survey Results highlighted the need for an implementation framework, and Guiding Principles and Strategies for Learning Analytics Implementation introduced four key guiding principles to support an institution's work to create an equity-driven adoption plan. This resource, "Assessing Learning Analytics Readiness: Self-Assessment and Tools," includes a self-assessment tool as well as resources and strategies that a campus can use to identify readiness and initiate an institution-wide planning project for adoption and implementation.

Planning Resource Tools

This document comes in two parts:

Part A: Guiding Principles Self-Assessment and Corresponding Resources & Strategies

- A self-assessment to measure your institution's progress across the areas outlined by the four learning analytics guiding principles.

- A research-informed set of strategies to guide your institution through implementation based on its strengths and weaknesses determined in the self-assessment.

Part B: Student Data Ethics & Policy Tools
- A rubric to assess institutional sophistication in student data ethics and policy.

This document will help faculty and administrators promote the adoption of learning analytics by **1) evaluating the current state of adoption at their respective institutions** and **2) implementing a set of strategies to further advance adoption.**

> **NOTE:**
> The term *stakeholders* pertains to the myriad of people that constitute an institution of higher education, such as students, faculty, staff, and administrators.

everylearner
everywhere | Tyton PARTNERS

PART A

Self-Assessment Along Learning Analytics Guiding Principles

This self-assessment tool measures your institution's progress across the areas outlined by the four guiding principles. The outcomes will indicate your institution's comparative strengths across the four indicated areas. Based on the results, the tools and strategies later in this document will guide you through the steps needed to strengthen your institution in prioritized areas.

In the tables below, determine the extent you agree with each statement. At the end of each category, add the numbers from each row in that category to determine your category score. At the end of the assessment, see the table to determine which category you should direct your attention to first.

GUIDING PRINCIPLE 1
Learning Outcomes & Equity

STATEMENT	DON'T KNOW 1	STRONGLY DISAGREE 2	DISAGREE 3	NEUTRAL 4	AGREE 5	STRONGLY AGREE 6
My institution has goals for learning analytics that are defined and shared across different levels						
My institution defines how learning analytics are used at the institutional level						
My institution defines how learning analytics are used at the departmental/ program level						
My institution defines how learning analytics are used at the course level						
My institution sets accountable goals and objectives for the use of learning analytics to promote the closing of equity gaps in learner outcomes						
Stakeholders across my institution are aligned on how we use learning analytics to promote the closing of equity gaps						

CATEGORY TOTAL
Learning Outcomes & Equity: _____
(Add numbers from each row above)

GUIDING PRINCIPLE 2

Faculty, Administrator, and Student Inclusion and Support

STATEMENT	DON'T KNOW	STRONGLY DISAGREE	DISAGREE	NEUTRAL	AGREE	STRONGLY AGREE
	1	**2**	**3**	**4**	**5**	**6**
My institution has a role or function responsible for ensuring proper training and professional development for learning analytics						
Faculty and administrators have access to disaggregated data that enables the assessment of equity gaps						
Faculty have access to course-level data that allow them continuously improve teaching						
My institution has sufficient learning analytics training across role and function						
My institution provides sufficient incentives to support the growth of learning analytics on campus						

CATEGORY TOTAL

Faculty, Administrator, and Student Inclusion and Support: _____

(Add numbers from each row above)

GUIDING PRINCIPLE 3

Data Ethics, Privacy, & Policies

STATEMENT	DON'T KNOW 1	STRONGLY DISAGREE 2	DISAGREE 3	NEUTRAL 4	AGREE 5	STRONGLY AGREE 6
My institution has policies in place for the data used for learning analytics that sufficiently protect students from harm						
My institution has policies in place for the data used for learning analytics that sufficiently protect faculty from harm						
My institution has a role or function responsible for overseeing learning analytics policy						
My institution has a process in place to review, revise, and update learning analytics policy						
My institution has a clearly articulated definition of equity and guidelines for how equity should be operationalized						
Faculty have been notified and are aware of institutional policies and ethical considerations of the use of learning analytics						
Stakeholders across my institution are included in the policy/guideline creation process						

CATEGORY TOTAL

Data Ethics, Privacy, & Policies: _____

(Add numbers from each row above)

everylearner
everywhere

Technology & Infrastructure

STATEMENT	DON'T KNOW 1	STRONGLY DISAGREE 2	DISAGREE 3	NEUTRAL 4	AGREE 5	STRONGLY AGREE 6
My institution has sufficient technical infrastructure to support data sharing & integration across systems						
My institution has processes in place to evaluate learning analytics technology (whether developed in-house or through a vendor)						
My institution has a role or function responsible for ensuring proper infrastructure and use of learning analytics technologies						
My institution has processes in place to evaluate collected data to ensure data accuracy and applicability						

CATEGORY TOTAL
Technology & Infrastructure: _____
(Add numbers from each row above)

Add up each category total based on your answers in the self-assessment above and use the table below to better understand what categories might require more or less of your attention relative to other categories. Based on your scores, go to the associated resources for the category of highest attention needed.

CATEGORY	Higher attention needed	Moderate attention needed	Lower attention needed
GUIDING PRINCIPLE 1 **Learning Outcomes & Equity**	<18	18–30	>30
GUIDING PRINCIPLE 2 **Faculty, Administrator, and Student Inclusion and Support**	<15	15–25	>25
GUIDING PRINCIPLE 3 **Data Ethics, Privacy, & Policies**	<21	21–35	>35
GUIDING PRINCIPLE 4 **Technology & Infrastructure**	<12	12–20	>20

Resources and Strategies for Adoption

Outlined below are a set of strategies related to guiding principles that focus on planning and data policy use that institutions may adopt, depending on their current state of adoption as determined in the previous self-assessment. These strategies were developed from both quantitative and qualitative primary research conducted across a number of institutions.

GUIDING PRINCIPLE 1
Learning Outcomes & Equity

Goal Setting

KEY QUESTIONS

- What are the reasons various stakeholders use learning analytics today?
- Is our use of learning analytics directly in support of improving learning outcomes?
- Do the goals of learning analytics vary by student subgroups (e.g., race / ethnicity)?
- Do the goals of learning analytics vary by user? (i.e., faculty vs. administrator)
- Does my institution periodically evaluate our goals as technology changes?

STRATEGIES FOR SUCCESS

- Understand how goals for learning analytics might differ by course, program, departmental, college, and institutional levels
- Establish a working group to determine learning analytics goals and a routine evaluation of each goal
- Set forth goals for learning analytics over the next 5 years and routinely evaluate goals
- Rigorously communicate institutional goals for learning analytics across levels, including to students

Defining & Determining How Learning Analytics Can Be Used

KEY QUESTIONS

- How widespread is the use of learning analytics at my institution?
- How sophisticated is the use of learning analytics at my institution? Are there pockets that are more sophisticated than others?
- What are the areas where learning analytics might be most useful in supporting our goals?
- Where are the pockets of innovation surrounding learning analytics at my institution?
- Where does implementing more advanced practices make the most sense?

STRATEGIES FOR SUCCESS

- Seek to better understand where learning analytics take place and to what extent they are being used
- Leverage existing users of learning analytics to determine best practices & pain points
- Seek out support internally (or externally) to advance your use of learning analytics (moving towards predictive & prescriptive uses)
- Determine what functions/roles might be best positioned to advance their use of learning analytics

Stakeholder Alignment

KEY QUESTIONS

- Do stakeholders from across my institution have a say in the goals for learning analytics?

- Have stakeholders bought into learning analytics goals?

STRATEGIES FOR SUCCESS

- Gather a diverse group of stakeholders to create goals and process for learning analytics implementation

- Routinely evaluate buy-in for goals of learning analytics across stakeholder groups

- Seek to better understand how different departments/functions are using learning analytics

GUIDING PRINCIPLE 2

Faculty, Administrator, and Student Inclusion and Support

Training & Support

KEY QUESTIONS

- What is our model for training stakeholders for institution-wide professional development/training for new systems, such as learning management systems?

- Who has the expertise to support stakeholders with learning analytics tools and methods, as well as the use of student learning data?

- Is professional development sustained?

- Are incentives provided to support the growth of learning analytics?

STRATEGIES FOR SUCCESS

- Evaluate current training and development model to determine if sufficient for learning analytics implementation

- Employ a sustained support model to build expertise over time

- With time often cited as a key barrier for adoption for faculty, explore solutions to alleviate it

- Assemble a team that understands educational data and theory, as well as the university context, to support the change process

Access

KEY QUESTIONS

- Do stakeholders have access to disaggregated student data as required and appropriate?

- Is this data provided at the course and individual level?

STRATEGIES FOR SUCCESS

- Determine the most appropriate mechanisms to share data, typically through a dashboard

- Systems must have enough sophistication to share data that meets goals for equitable learning outcomes

Data Ethics, Privacy, & Policies

Learning Analytics Policy Adoption & Revision

KEY QUESTIONS

- What current policies do we have around data collection and usage that we can leverage for learning analytics?

- How aware are current learning analytics users of any institutional policies?

- How do we ensure that policy is widely adhered to by learning analytics users?

- How can we advance our policy to include issues around ethics and equity?

- How can students be involved in revising policy?

- What role does the institutional context play in the adoption of learning analytics?

STRATEGIES FOR SUCCESS

- Clarify any existing policy surrounding student data

- Seek to understand where the gaps in your existing policy are

- Determine who are the key stakeholders who need to be involved in setting policy

- Establish a stance on the ethical and equity-related guidelines for learning analytics use

- Work with external organizations to advance and standardize policy

- Establish review practices to update existing policy

- Carefully evaluate the institutional context, such as the type, size, student population, culture, technology, state regulations

Responsible Function for Learning Analytics Policy

KEY QUESTIONS

- Who is best positioned to oversee learning analytics policy at our institution?

- What are the key stakeholder groups that should be involved in learning analytics policy adoption?

- How are we working with external research organizations or peers to better standardize policy?

- Does the responsible function for learning analytics have expertise around ethics and equity?

- Does my institution have a clearly articulated definition of equity and guidelines for how equity should be operationalized?

STRATEGIES FOR SUCCESS

- Allocate resources towards a function or role responsible for learning analytics policy oversight

- Develop a feedback system to report back to responsible function

- Determine what additional stakeholders should be involved in setting/revising policy

- Determine a working definition for equity in the context of the institution and align learning analytics policy with it

everylearner
everywhere

GUIDING PRINCIPLE 4

Technology & Infrastructure

Determining Infrastructure

KEY QUESTIONS

- Does my institution have sufficient infrastructure (technology, financial, process, and personnel) to support appropriate data collection and sharing, and interoperability of different systems for using learning analytics?

- Does my institution have the ability to appropriately vet third-party learning analytics tools or create our own?

- Is there a role or function at my institution that can evaluate collected data for accuracy and applicability?

STRATEGIES FOR SUCCESS

- Form a committee of different stakeholders to determine current capacity and conduct a needs assessment in order to reach learning analytics goals

- Develop a long-term vision for building capacity to support the growth learning analytics tools and approaches, as aligned with established goals, such as data sources, staffing, and technology

PART B

Student Data Ethics & Policy Tools

Stakeholders view lack of clarity around student data policies as a key barrier inhibiting both the interpretation of student data and ability to act on takeaways. Three key policy areas — **Data Transparency, Fidelity & Responsible Use, and Consent & Privacy** — are identified below that are highly important for administrators to consider and address in the near-term.

Policy Area	Indicator	Are we achieving it? (Y/N)	Key considerations for policy development	Who is responsible for next steps at my institution?
Data Transparency	Stakeholders are aware of the data being collected and how it is being used		• How is data collection and usage currently being communicated to students? Faculty? Administrators? • Are stakeholders aware of who has access to student data? • What types of data are considered in scope and out of scope?	
Fidelity & Responsible Use	Student data is being used appropriately to limit unintended consequences and stakeholders are well-equipped to act on data to close equity gaps		• What guidance is being provided to each stakeholder on how to interpret and act on data? • Who is responsible for providing guidance at my institution? • Do all users have a shared understanding of the limitations of instructional technologies and student data? • Does my institution adequately understand how vendors are portraying student data back to users? • How are we working to mitigate bias?	
Consent & Privacy	Institution has developed and communicated a perspective on whether to allow students to opt-out or withhold personal information		• Is there agreement at my institution on our obligation to foster data privacy? • Does opt-out prevent students from program participation? • If allowing students to opt-out, how can they still benefit from learning technologies adopted? • If not allowing students to opt-out, are they informed? When and how should this be communicated?	

Learning Analytics Case Studies

Rio Salado College

University of Michigan

University of Texas at Arlington

Case Study:
Rio Salado College

Learn about how Rio Salado College developed Dynamic Assessment Data Display for better visibility into student performance gaps.

What is Rio Salado trying to accomplish with Learning Analytics?

Situation
Rio Salado College, a public 2-year institution based in Tempe, AZ, supports a student body that is not only highly diverse but also mostly distance learners. The institution has courses that span a wide variety of subjects and courses start almost every week. Rio Salado is challenged with assessing and documenting learning outcomes across a wide range of courses and students. Importantly, Rio Salado is focused not only on assessment due to regulatory requirements, but also has an explicit focus on addressing achievement gaps and informing curricular improvements to do so.
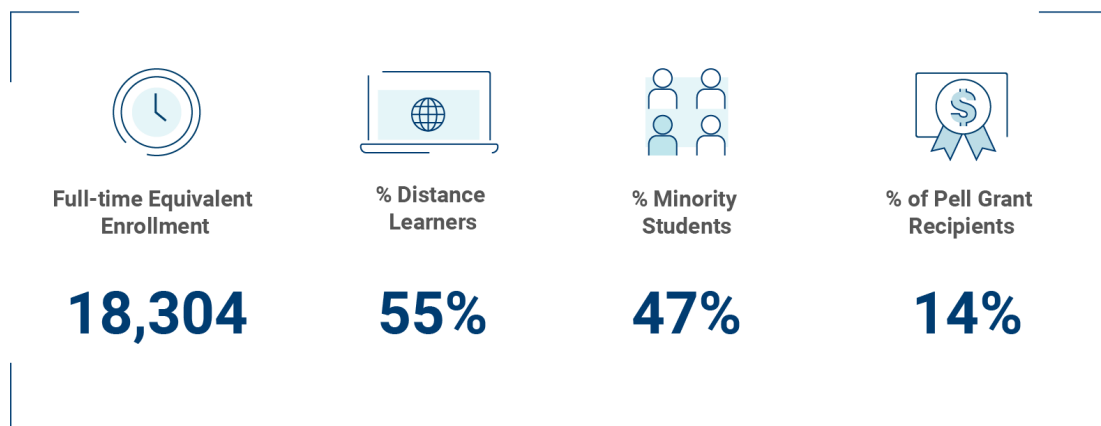
Action
The institution has internally developed the Dynamic Assessment Data Display (DADD) in hopes of tracking assessments at a deeper level that allows faculty to see not just the macro-view of student performance, but also performance by course, assignment, and student group (e.g., Pell eligibility, ethnicity, gender, enrollment in developmental education) on a routine basis.

Impact
While still relatively new in its use, the DADD has aided faculty with evaluating over 900,000 online assessment items that has helped enable faculty to intervene with specific students and improve instruction. The system has also helped faculty view student performance with the goal of identifying equity gaps by identifying performance gaps in individual students or student groups.

Who does Rio Salado serve?

Full-time Equivalent Enrollment	% Distance Learners	% Minority Students	% of Pell Grant Recipients
18,304	**55%**	**47%**	**14%**

What were some selected strategies Rio Salado adopted that other institutions may learn from?

Review de-identified learning outcome data by student subgroup

Rio Salado has been very intentional about incorporating features in its learning analytics dashboards that allow faculty to view de-identified performance data by student subgroup. The institution has been careful to ensure that the de-identified data could not cause potential harm to students through the introduction of biases when used to close achievement gaps between student populations.

Develop a process to continuously learn and implement adjustments to close identified gaps

To best support the users of their learning analytics program, Rio Salado has developed a process for reviewing student data to determine any trends and where major pain points are in order to best allocate resources — to instructors, advisors, peer mentors, or even the students — to intervene where appropriate. The cross-functional team of faculty chairs across departments and disciplines, advisors, institutional research, and academic affairs responsible for this meets at the end of each term to review findings and they maintain an open and transparent process, which has been key in getting collective buy-in from faculty and developing best practices.

Accelerate successful implementation by piggybacking on existing processes and infusing appropriate resources

At Rio Salado, formal course review cycles correspond with end of term reviews that were in place already for accreditation and program reviews. Engaging the key stakeholders described above, this review and reflection process is inclusive, research-based, and solutions-oriented. Participants reflect on key learnings, identifying interventions to test moving forward, and reflecting on what has worked — and not worked — in prior terms. Importantly, the institution has allocated a budget to fund new interventions, and these resources are noted as a critical component of the program's ongoing success.

For more strategies, read about the guiding principles for learning analytics adoption.

Find more resources at everylearnereverywhere.org

For questions, contact resources@everylearner.org

Case Study:
University of Michigan

Read about how University of Michigan designed two learning analytics tools to help students track their engagement and to communicate personalized feedback and advice to students in large introductory courses.

What is the University of Michigan trying to accomplish with Learning Analytics?

Situation
The University of Michigan, a public 4-year institution based in Ann Arbor, MI, sought to improve their student body's time and progression toward a degree by utilizing collected student success data. However, the data they had collected to support students at the time was limited and disparate.
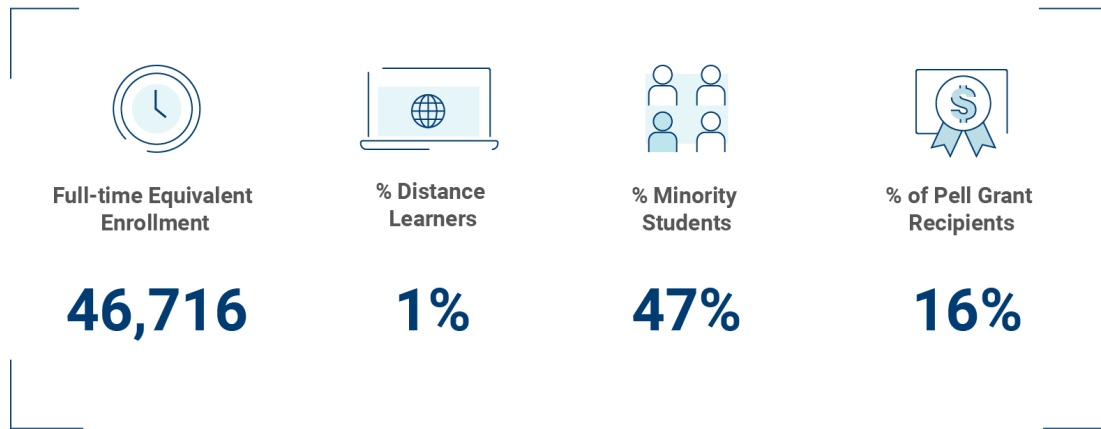
Action
The institution internally developed a cross-campus initiative and identified the need for students to have access to data and agency in their progression towards a degree, and for the faculty to be partners in this process. To support this effort, they designed two tools: My Learning Analytics (MyLA), designed to help students track their engagement within a course, and ECoach, a communication system for large introductory courses that provides personalized feedback to students on how to succeed in their course. Faculty have also been encouraged to play active roles in supporting students with these tools, but it is currently conducted on an opt-in basis.

Impact
While the improvement in student performance from these tools is still being evaluated, Michigan has seen great adoption with over 50% of undergraduates having used ECoach, and the MyLA system recently receiving an award from IMS Global for its impact on student success. Both systems are relatively new, and more research needs to be done on their outcomes, but Michigan has helped pioneer guiding principles to help support the use of learning analytics, not only for faculty or administrators, but also for students.

Who does the University of Michigan serve?

Full-time Equivalent Enrollment	% Distance Learners	% Minority Students	% of Pell Grant Recipients
46,716	1%	47%	16%

What were some selected strategies that the University of Michigan adopted that other institutions may learn from?

Implement learning analytics solutions that integrate into existing activities and processes and create a centralized source of student data

In order to increase adoption of their learning analytics tools, Michigan sought to integrate their technology with existing learning management systems and student information systems. This not only created a centralized source of information, but it made it easier for students and faculty to buy into the use of them. MyLA and ECoach aggregate and simplify the data that is collected to help faculty and administrators look for insights.

Develop policy to guide the proper use of student data to limit unintended consequences and equip stakeholders to act on data to close equity gaps

Early on in Michigan's learning analytics journey, they brought together departments across campus, ranging from the University Registrar to the Office of Academic Innovation, to develop and review policy that would guide their future use. Michigan evaluated an opt-out option for students. However, allowing students to opt out excludes them from receiving the benefits of high-quality instructional resources, creating a challenging tradeoff. Ultimately, Michigan chose to be transparent upon enrollment to ensure stakeholders are aware of what data is collected and how it is used, including the students. Michigan routinely brings together a cross-functional group to review existing policy and provide stakeholders with greater transparency and guidance for use.

For more strategies, read about the guiding principles for learning analytics adoption.

Case Study:
University of Texas at Arlington

Learn about how University of Texas at Arlington used learning analytics to address student performance in College Algebra gateway courses.

What is the University of Texas at Arlington trying to accomplish with Learning Analytics?

Situation

College Algebra is a gateway course in higher education institutions and although several standard exams are in place to measure a student's readiness to take it, student success in this course is often very low. Prior studies have demonstrated that the success rate is also very low at the University of Texas at Arlington (UTA), one of the most diverse higher education institutions in the U.S.
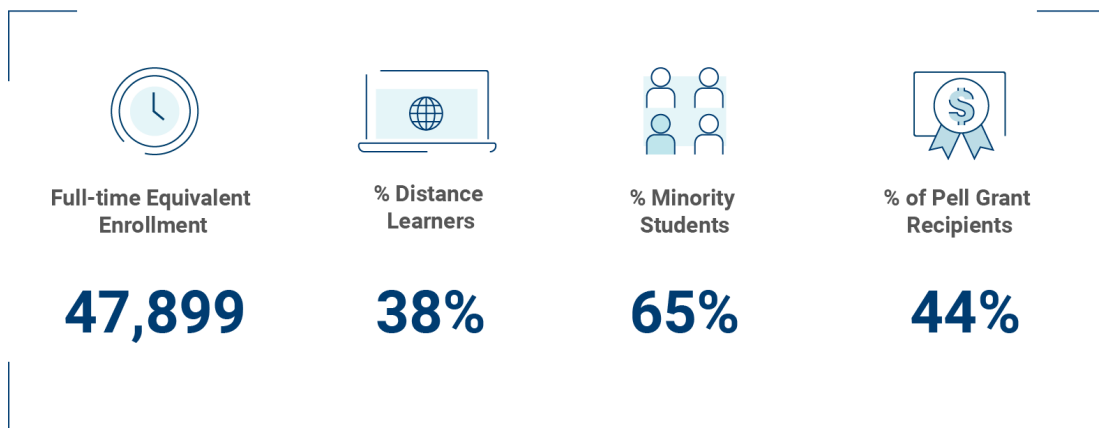
Action

The LINK Research Lab, Mathematics Department, and UTA's local Center for the Integration of Research Teaching and Learning program (CIRTL-UTA) formed a working group to perform a large-scale, historical analysis of the College Algebra course. Prior studies by the College of Science and the department had been limited in scope, but by 2018, the university had developed a more robust data infrastructure that eased the burden to access data outside of the college. The team of graduate students and researchers performed open-ended, exploratory analysis of the aggregated, anonymized data that included demographics, financial aid, grade point average, semester credit hours completed, department-level readiness test scores, time spent on coursework, course exam scores, and the students' final course grades. After the readiness pre-test, students received a series of homework assignments to improve their weakest areas. After two months, the student took the post-readiness exam that had a similar format. The team also deployed OnTask to provide automated, personalized feedback at scale tied to course objectives and student performance on the readiness test.

Impact

The research team analyzed the student success rate using demographic and socioeconomic status data as covariates. Despite receiving a satisfactory status for college preparedness, minority students, particularly Black students, continued to underperform in terms of student success. The data showed that regardless of grouping category in the logistic models (gender, ethnicity, Pell grant eligibility, admission type — transfer student or not, first generation or not), the success rate of Black male students was significantly lower than other gender and ethnic groups (Sarker et al., 2019). This result calls for more research, including different covariates (climate of the institution, sense of belonging, help-seeking behavior, self-regulation of studies, etc.), in a comprehensive dataset to ensure an increase in minority student success. Additionally, the team found that prior performance (GPA) and experience (credit hours taken) were the best predictors of success in College Algebra (O'Connell et al., 2018).

Who does the University of Texas at Arlington serve?

Full-time Equivalent Enrollment

47,899

% Distance Learners

38%

% Minority Students

65%

% of Pell Grant Recipients

44%

What were some selected strategies that the University of Texas at Arlington adopted that other institutions may learn from?

There is power in creating a comprehensive dataset that includes a larger number of factors

By increasing data infrastructure, a university can develop a more accurate picture of students' competencies and areas that learning analytics approaches and tools can use for targeted, actionable, and real-time support to improve student learning outcomes

Early readiness tests in gateway courses can identify key objectives where students are weaker and provide opportunities for in-course developmental learning

This holds the potential to increase retention and lower costs for students by determining where students are stronger and weaker, and where they might struggle later on in a course. For example, by using a readiness test and OnTask, a student could receive targeted feedback with specific, developmental resources over certain objectives early in a course so they have time to build skills and knowledge before they take a test later on. The key for the feedback is that it has to be specific and targeted (Pardo et al., 2018).
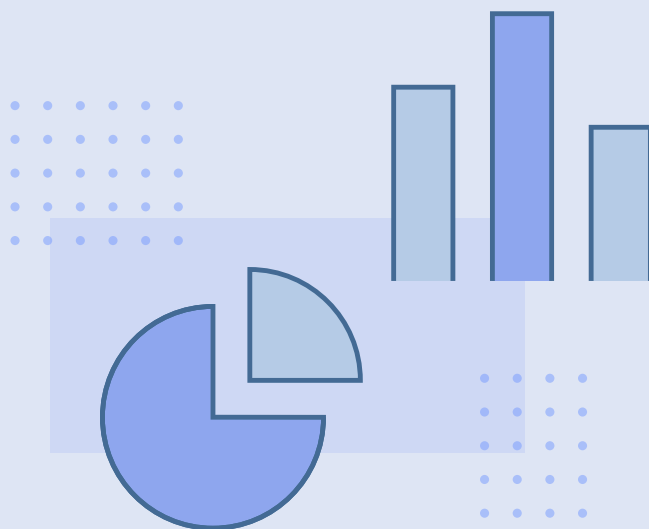
For more strategies, read about the guiding principles for learning analytics adoption.

Find more resources at everylearnereverywhere.org

For questions, contact resources@everylearner.org