

# Student Success







## Description

Student success in higher education encompasses course performance, acquisition of relevant personal and career skills, student satisfaction in their education and institution, retention, and post-graduation performance. It is most commonly measured by course performance, GPA, and retention rates, though more recent models of success also incorporate non-academic indicators. Early prediction of student success--through both traditional instructor monitoring of progress or more advanced predictive analytics tools such as early warning systems--is crucial for timely interventions.

## Why is this important?

Interventions are most successful before signs of struggle emerge. Predicting success through both traditional means or data analytics can deliver actionable data that students can use to modify their learning behaviors, while instructors or counselors can use to intervene effectively with students who may be struggling. Predictive analytics can typically produce this data within the first three to six weeks of a course. There is limited research regarding which interventions are most effective when paired with early predictive analytics, though some research indicates that non-cognitive skills such as exam preparation and study skills show the largest benefits for students at risk of not retaining a course.

## Implementation Examples

|  |   |   |
|--|---|---|
| Early warning system dashboards                |   |   |
| Student-facing reporting and insights          |   |  |
| Instructor-facing reporting and insights       |  |  |
| Student surveys                                |  |  |
| Supplemental material for non-cognitive skills |  |   |

available in



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## Practical Applications

- ✓ Utilize an early warning system to get alerts on student progress or signs of struggle
- ✓ In the absence of early warning systems,
  - ✓ Identify signs you typically look for to indicate whether a student is struggling, such as attendance or number of assignment submissions by a given date
  - ✓ Use courseware or other educational products that offer student reports and look for notable trends
  - ✓ Assign surveys to identify social or emotional signs of struggle, such as stress or motivation
- ✓ Plan for and implement interventions, such as planning student reminders and check-ins, referrals for academic advisors or resources, or skill development such as exam preparation or study behaviors.

Sources: Akcapinar et al. (2019); Arnold & Pistilli (2012); Brown et al. (2017); Chen & Cui (2020); Cui et al. (2019); Krumm et al. (2014); Liz-Dominguez et al. (2019); Trussel & Burke-Smalley (2018); Villano et al. (2018); York et al. (2015)

# Monitoring

## Description

Monitoring is a skill associated with self-regulated learning (SRL). Self-monitoring skills fall into the performance phase of SRL, where an individual is responsible for tracking their current state of performance, deploying learning strategies, and monitoring their progress towards a goal. To do this, students need to recognize whether they understand information and identify gaps in their knowledge in order to self-select a strategy to bring performance closer to the goal. Monitoring skills can be broken down into self-control skills, such as self-instruction or attention focusing, and self-observation skills, such as self-recording and systematically varying behaviors to change performance

## Why is this important?

A student’s ability to adapt problem-solving behaviors in response to academic tasks and feedback is critical for successful learning and achievement. Improving their ability to monitor tasks can make students more aware of what degree of control they have over their learning, and better equip them to self-manage their resources. Accurate monitoring has been shown to lead to improved performance and act as an important predictor of student success.

## Implementation Examples

|   |   |   |
|---|---|---|
| Self-reflections in daily diaries                 |   |   |
| Adaptive quizzing                                 | ✓ |   |
| Self-explanation in homework                      | ✓ |   |
| Confidence polling                                |   | ▶ |
| Use data to monitor class history and performance | ✓ | ▶ |

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## Practical Applications

- ✓ Explicitly teach self-monitoring skills and encourage practice through peer monitoring activities
- ✓ Prompt students to ask themselves questions during a learning experience: are you close to an answer? What step are you on? Why are you on that step? Is your approach working? Would a different approach work better?
- ✓ Offer opportunities for students to record their work for later reference
- ✓ Ask students to rate their confidence or doubt regarding the subject matter at different points in a learning experience

Sources: Boekaerts & Corno (2005), Donker et al. (2014), Nicol and Macfarlane (2006), Nietfeld et al. (2005), Valdez (2013), Winne (1995), Zepeda et al. (2015), Zimmerman & Campillo (2003)

# Learner Experience Design

## Description

Learner experience (LX) design is a multidisciplinary approach to design, incorporating user experience, instructional design, and learning science pedagogies to create digital learning experiences that effectively manage cognitive load and foster student understanding. LX shifts the focus from what learners need to know and be able to do, to ways in which instruction or tools can support learners as they construct their knowledge. LX design cycles are done in rapid iterations and include participatory design from students. The goal of LX is to create experiences that center the learner—not just through instruction and assessment that accomplishes the learning outcomes, but also in the aesthetics, enjoyability, and quality of the learning experience.

## Why is this important?

LX is an emergent field of research and while not much conclusive data has emerged on its direct impacts on student outcomes, there is ample reason to believe it can improve engagement, affective responses, and equity for marginalized populations by taking a human-centered approach that centers the unique needs of learners and resonates with their lived experiences.

## Implementation Examples

|   |   |   |
|---|---|---|
| Content aligned to learning objectives                            | ✓ |   |
| Course design segmented around student-facing learning objectives |   |   |
| Intuitive navigation and student dashboards                       | ✓ |   |
| Self-regulated learning modules and surveys                       | ✓ |   |
| Class discussion  |   | ▶ |
| Corrective feedback in assessments                                | ✓ |   |
| Tools for monitoring performance                                  | ✓ | ▶ |

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## Practical Applications

- ✓ Instructional best practices include clear and aligned learning objectives, chunking content into digestible pieces, and scaffolding
- ✓ Assessment best practices include developing authentic tasks through active learning and real-life context to facilitate transfer, followed up with feedback that is personal, informative, and frequent
- ✓ Promote self-regulation by giving opportunities to set and plan goals, monitor their progress, and evaluate their learning
- ✓ Encourage social learning between learner-instructor, peer to peer, and cooperative group learning
- ✓ Learning technologies should have clear instruction and support, be designed to be accessible and usable, promote student autonomy and utilize multiple tools for learning and assessment

Sources: Bowen et al. (2020), Chung and Kuwata (2020), Crisp and Bonk (2018), Gray and DiLoreto (2016), Jahnke et al. (2020), Oprean and Balakrishnan (2020), Quintana et al. (2020), Schmidt et al. (2020), Vann and Tawfik (2020)