macmillan learning

LEARNING MODEL

Project-Based Learning

Goal, Overview, and Application

Goal

At Macmillan, our goal is to drive learner outcomes. One important aspect of this is to leverage findings from the Learning Sciences to apply to product design, iteration, and implementation.

Overview

A Learning Model is a visualization of the instructional and assessment elements that underlie a learning experience and help instructors and institutions understand how a well-designed experience may drive impact. This Learning Model is based on research and practices in Active Learning, a pedagogy that has a substantial body of research demonstrating that it drives student engagement, satisfaction, and performance.

Application

This Learning Model underpins how we're developing a next-generation of learning products; however, it may be adopted or adapted for other learning experiences.

Research Foundation and Process

Foundation

This Learning Model is based upon a thorough literature review of educational research by learning researchers.

Process

Initially, our Learning Research team conducted several literature reviews in order to formulate this Learning Model, which then underwent a series of reviews, including:

- Internal review by a team of 4 learning scientists,
- External review by a team of 7 students, and
- External review by our 5-person Learning Research Advisory Board.

All of these researchers, contributors and reviewers are listed to the right.

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Components

Student Success
Opportunities to support student outcomes beyond course instruction and assessment.

Metacognition
Opportunities to engage in metacognitive activities that prompt evaluation of developing knowledge.

Instructional Content
Opportunities to provide new or review learning-objective aligned instructional information.

Assessment
Opportunities for formative and summative assessment activities that assess learning objectives.

Scaffolded Discovery Learning Activities
Opportunities to engage in problem- and project-based activities and scaffolded collaboration.

Elements

Motivation
Relevance
Self-Regulated Learning
Study Skills

Preflection
Reflection

Materials (Publisher, Supplemental, Reference, OER)
Lecture
Instructional Reviews

Integrated Formative Assessments
Practice/Homework
End of Unit or Term Summative Assessments

Project Segment
Novel Problem or Case Study
Small Group Problem Solving
Large Group Discussion

PROJECT-BASED LEARNING

This Learning Model is comprised of four parts: Beginning of term (intended to encompass the first few periods or week), followed by a cycle that continues throughout the term with learning elements happening before, during, and after class.

In this model, “class” can be face-to-face, blended, or online. This model can be applied to a class that meets once a week or multiple times per week.

BEGINNING OF TERM
And throughout

Motivation

Self-Efficacy

Persistence

Self-regulated Learning

Study Skills

Goal Setting

BEFORE CLASS

Instruction + Integrated Formative Assessment

Reflection

Project Segment

Relevance

Preflection

Project Management

DURING CLASS

Small Group Peer Workshopping

Large Group Discussion

Instruction + Integrated Formative Assessment

Reflection

AFTER CLASS

Practice / Homework / Project Segment

Reflection

END OF UNIT

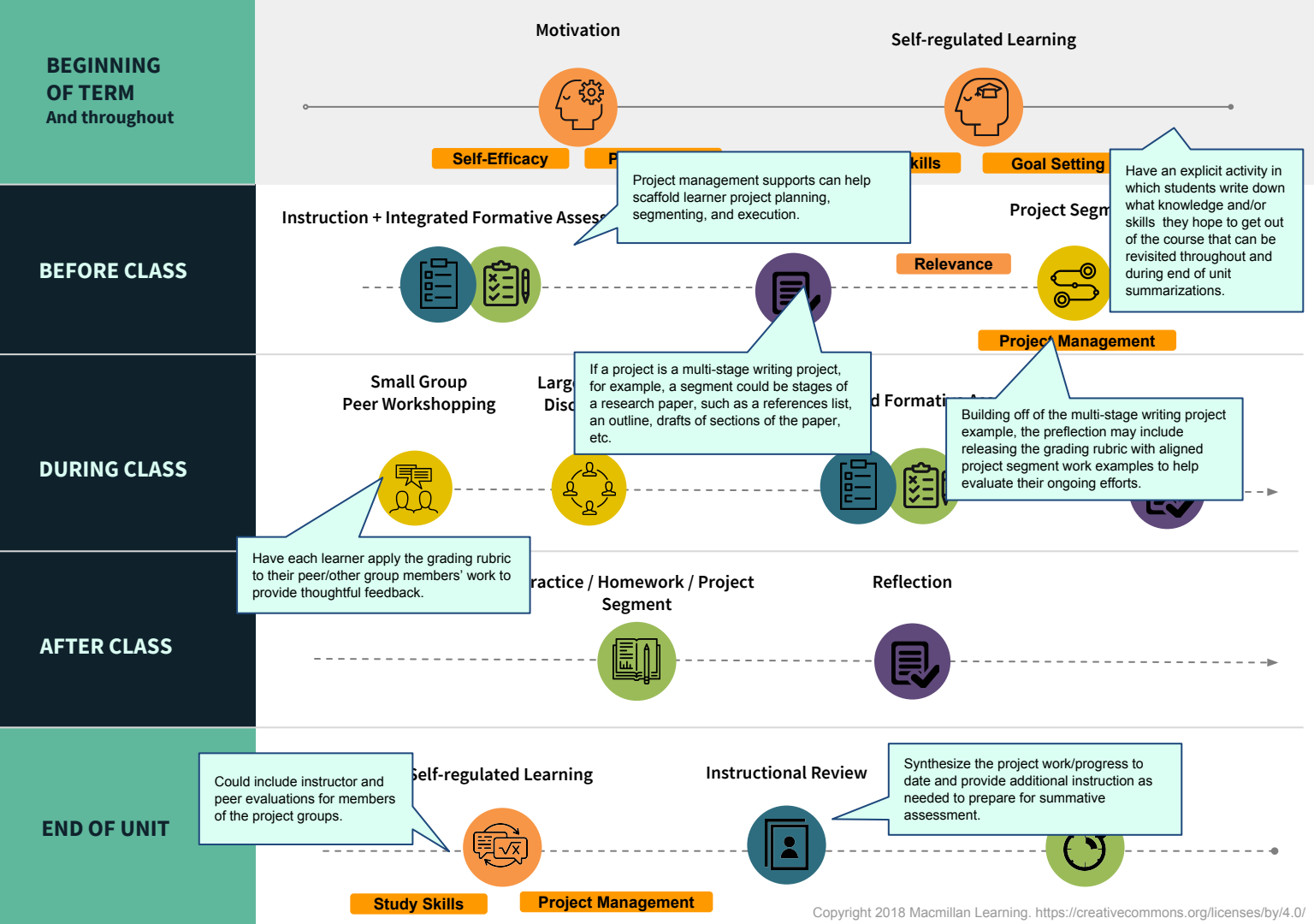
Self-regulated Learning

Study Skills

Project Management

Instructional Review

Summative Assessment



PROJECT-BASED LEARNING EXAMPLES

This Learning Model provides many opportunities to personalize the depth and frequency of activities to meet the needs of both instructors and students.

The components are meant to identify goals or milestones during an active learning experience. They provide flexibility in course design and meeting frequency. The activities used to accomplish each component can vary widely - some examples are given in the callouts.

EXPLANATION

At the beginning of the term, it is important to help set up students for success - to be effective, motivated, and self-directed.

Techniques includes:

- Promoting a growth mindset,
- Fostering student self-efficacy,
- Educating students on effective study skill techniques, and
- Encouraging students to set and track their own goals.

EXPLANATION

From this point, the Learning Model gets divided into things students should do before, during, and after class to optimize their learning.

Before class, students should:

- Clearly understand the relevance of the subject-matter to their lives, programs-of-study, other course content, and/or careers.
- Access instructional materials, such as readings or videos.
- Take low-stakes formative assessments to test their own understanding and to revisit difficult material.
- Reflect on their learning, what it means to them, and what questions they may have.
- Engage in a small group or peer-to-peer project activity.
- Reflect on the work they will do in their upcoming class.

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And throughout

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AFTER CLASS

Practice / Homework / Project Segment

Reflection

END OF UNIT

Self-regulated Learning

Study Skills

Project Management

Instructional Review

Summative Assessment

EXPLANATION

This stage in the Learning Model is focused on what students should do during an active learning class.

During class, students should:

- Collaborate in small groups in order to begin to make connections, discover ideas, and share questions.
- Discuss common themes as a larger group, surfacing common misconceptions and new ideas.
- Participate in an “active and constructive lecture” by responding to questions and generating ideas.
- Participate in integrated formative assessment, so that the instructor can make adjustments and provide interventions in real time.
- Reflect on their learning.

EXPLANATION

This stage of the Learning Model is focused on after class.

After class, students should:

- Complete practice homework that is closely aligned to the learning goals from before and during class.
- Reflect on their learning and any lingering questions or areas for improvement.

BEGINNING OF TERM
And throughout

Motivation

Self-Efficacy

Persistence

Self-regulated Learning

Study Skills

Goal Setting

BEFORE CLASS

Instruction + Integrated Formative Assessment

Reflection

Project Segment

Relevance

Preflection

Project Management

DURING CLASS

Small Group Peer Workshopping

Large Group Discussion

Instruction + Integrated Formative Assessment

Reflection

AFTER CLASS

Practice / Homework / Project Segment

Reflection

END OF UNIT

Self-regulated Learning

Study Skills

Project Management

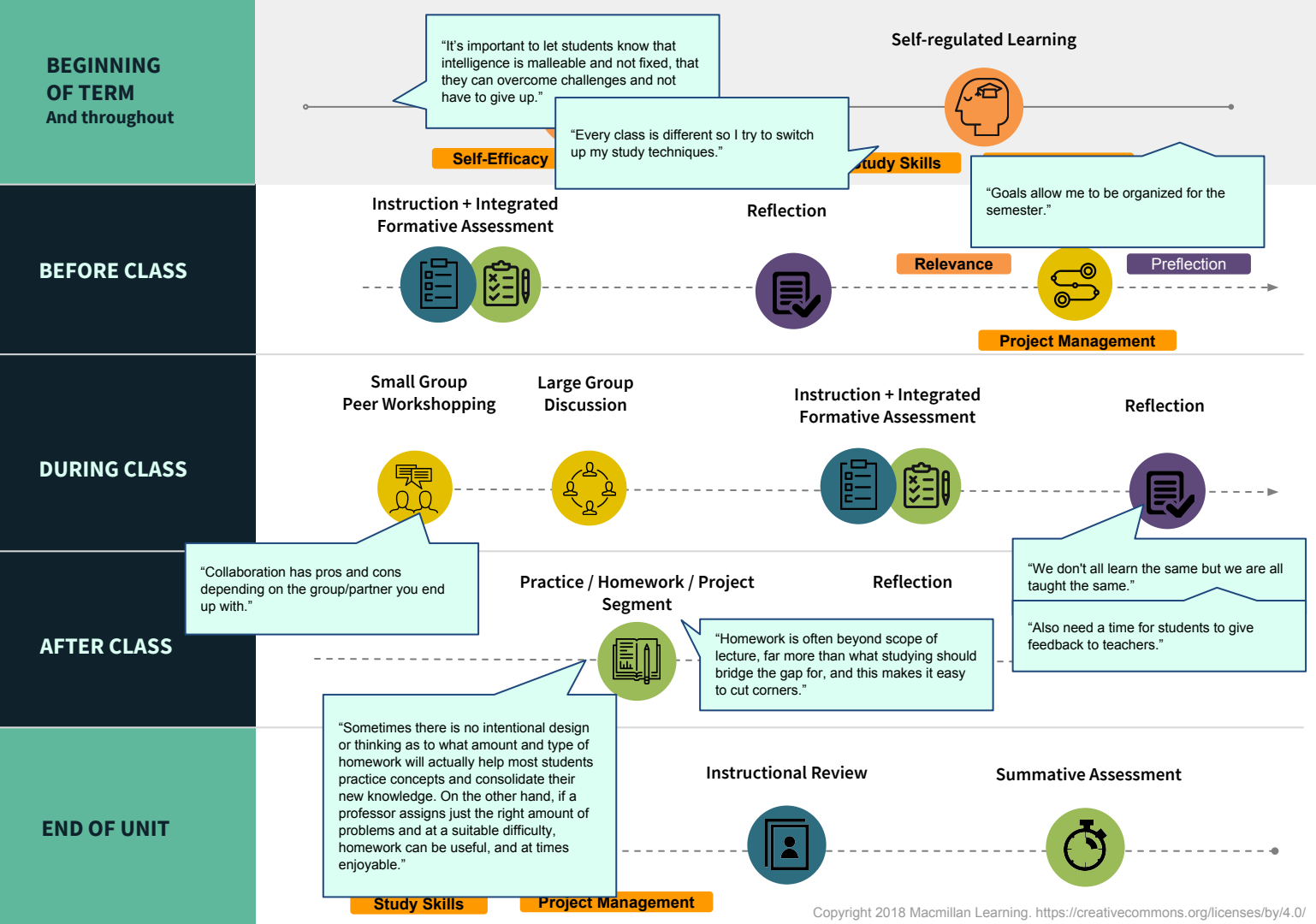
Instructional Review

Summative Assessment

EXPLANATION

At the end of a module, unit, or term, students should:

- Revisit study skills in the context of testing-taking strategies.
- Access an instructional review, either through notes, revisiting instructional materials, or a scheduled lecture.
- Participate in end of unit assessments.

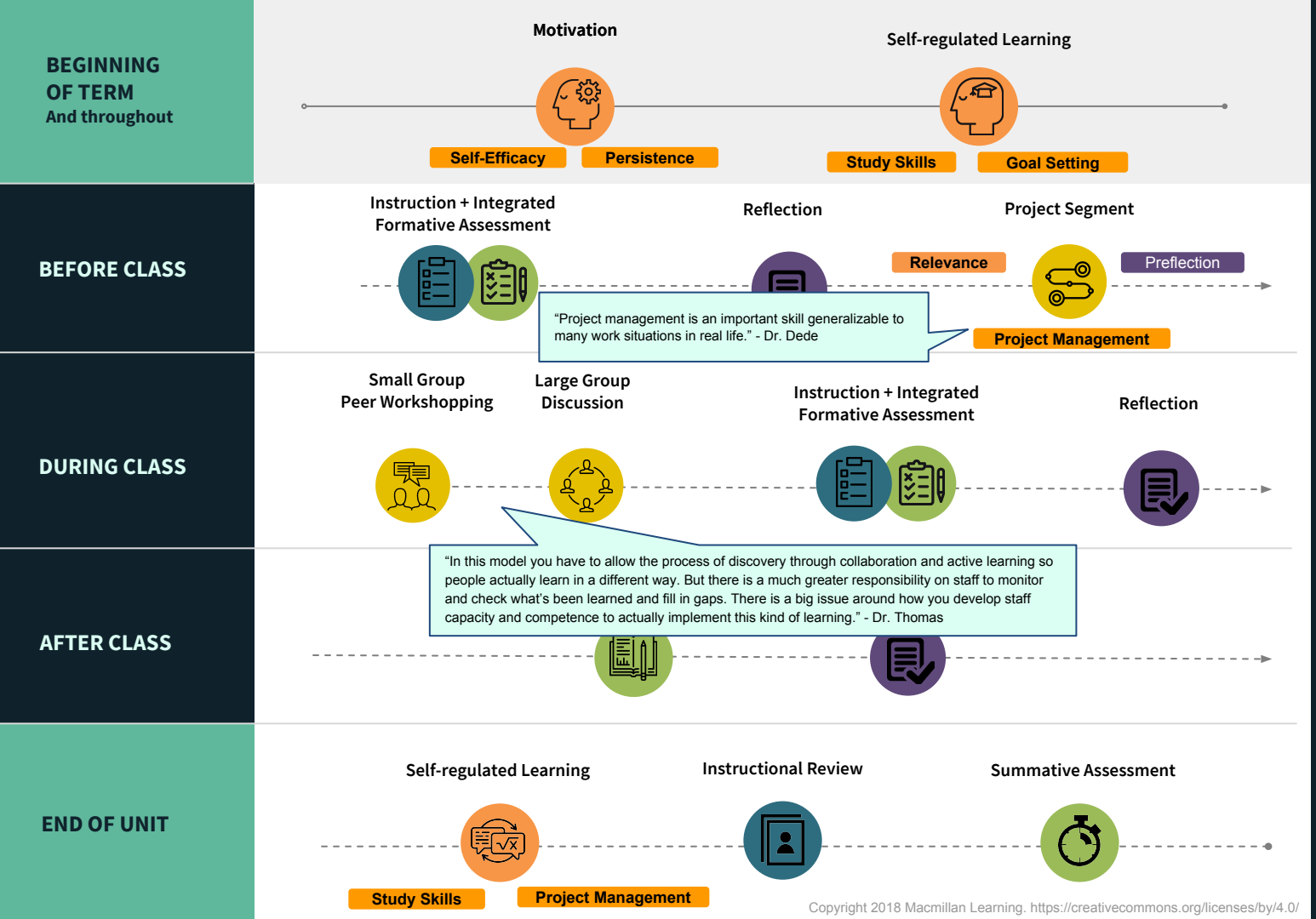


STUDENT FEEDBACK

Our student codesigners offered excellent insights into the relative value of specific elements from a student perspective.

They thought that the mindset and reflection elements were the most valuable. This was partly because these ideas appealed to them, and partly because they had negative associations with other elements, including traditional "one-size fits all" lectures, unfair collaboration, and misaligned homework.

Other comments, both positive and negative, are indicated in the callouts.



INSTRUCTOR FEEDBACK

Our Learning Research Advisory Council offered insights into the relative value of specific elements from a learning sciences and instructor perspective.

They emphasized the importance of persistence, reflection, and assessment. This feedback underscores the importance of elements that support student success, application of knowledge and skills, and data-based interventions.

Other comments, both positive and negative, are indicated in the callouts.

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