

COLUMBIA COLLEGE

The Four Stage Learner-Centered Model Incorporating Mastery Learning

NOTE: Must; Shall; Will: Should: May or Could; Can:	Clarification of Terms These words or phrases indicate actions or activities that are <i>essential</i> or <i>mandatory</i> . This word implies that it is highly desirable to perform certain actions or activities, but not essential or mandatory. These words imply freedom or liberty to follow an alternative to the action or activity being presented in a document.
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The Four Stage Learner-Centered Model

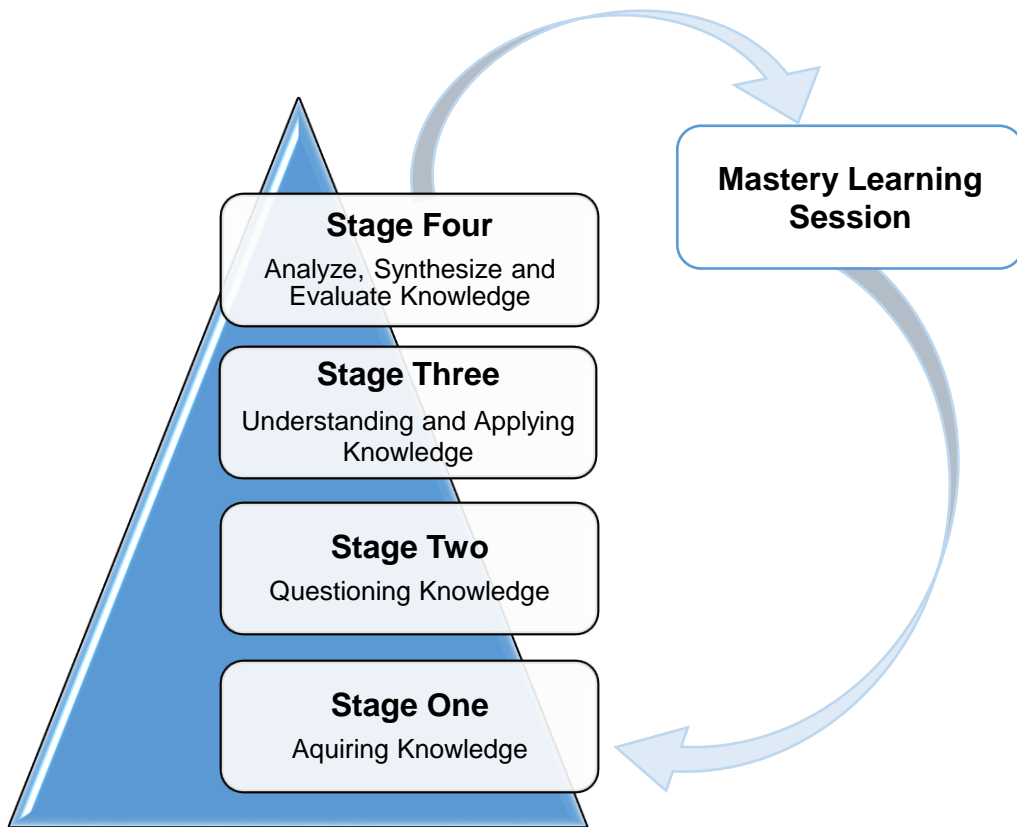
Part of Columbia's approach to classroom facilitation is based on a classification system developed in the late 1950s by Benjamin Bloom and a group of educational psychologists. It is called Bloom's Taxonomy and it is as relevant today in higher education as it was a half century ago. Bloom found that over 95% of test questions that students experienced required them to think only at the lowest level of learning. Put simply, they were asked to recall facts and terms by labeling, defining, matching or selecting. Although this demonstrated their ability to recall information, it did not indicate whether the students really understood the knowledge they had recalled. Nor did it demonstrate they could apply it to solve problems, and certainly, it gave no indication they could analyze or evaluate it when applied to a certain situation.

The Four Stage Learner-Centered Model and Bloom's Taxonomy The four-stage learning model is designed to incorporate a clear system that moves learners through various stages of learning and past the bottom level of simply memorizing and recalling information. It not only includes the various levels of cognitive thinking posed in Bloom's Taxonomy, but it also outlines an approach to learning that is much more learner centered than that typically found in universities and colleges across North America. Bloom's Taxonomy has been updated in 1990 to include stages of understanding and remembering both of which have been incorporated into the Columbia College Mastery Learning Model.

The following model (see Table 1) was developed based upon Bloom's Taxonomy Model to describe the fundamental stages that faculty at Columbia College follow in designing a learning environment that will support the introduction of new knowledge, skills, attitudes, and behaviors learners need to acquire.

Further information about the research and views that support this model can be found by reviewing the Columbia College Facilitator Handbook (ADM-M006).

The pyramid presented in Diagram 1 is adapted from Bloom's Taxonomy.



It indicates that the first stage of learning is for the student to acquire knowledge.

At Columbia College this commonly occurs prior to class. Stage two is a questioning stage where students begin a class by discussing questions they identified prior to class.

During the third stage the facilitator normally presents a case or activity where students are expected to demonstrate their understanding of newly acquired knowledge by properly applying it to solve a problem posed in the case or activity. This may require students to demonstrate their understanding by explaining, inferring, summarizing, or demonstrating. They may also be asked to apply, construct, or indicate how they can make use of something by experimenting with it.

Wherever possible, the final hour of a class shifts focus when the facilitator starts asking students to analyze, synthesize, and evaluate what activities they have just completed (stage 4). This may involve giving and defending opinions, making judgments, analyzing choices, justifying, and proving or disproving a position. This will normally include the taking of a test to evaluate the students' knowledge. The results of this test will be given a numerical passing

grade (determined by the department). Students whose morning test results fall below the Mastery Learning set level must attend tutorial classes that afternoon. This begins the Mastery Learning feedback loop seen in Diagram 1. The students are once again moved to a form of stage one of the four stage learning model and offered associated material, study groups, or individual tutoring until they can demonstrate that they now understand and remember the concepts related to the questions they got wrong in order to attain Mastery Learning.

The Inclusion of Mastery Learning into the Four Stage Learner –Centered Model

Mastery learning is a program delivery approach that was designed by Keller (1968) who developed an instructional model that is compatible with the basic assumptions of Bloom's model to increase student learning outcomes. Using this model of education, the program team will establish a mastery learning daily test pass level that each student must reach.

Mastery Learning activities are aimed to support students, by utilizing resources tailored to meet individual needs and learning.

Examples of Mastery Learning activities, could include:

- a different instructional approach,
- different material,
- study groups, or
- individual tutoring during the provided Mastery Learning session.

The facilitator will help learners be actively engaged with others, as well as themselves, before, during, and after each class as it relates to the subject being studied during each of the four stages.

Mastery Learning

The Mastery Learning session interacts with the Four Stage Learning Model after the completion of the “Assess” stage. This can occur informally through observation and inquiry, or more formally following the taking of a test. Students who have been identified as not meeting the set mastery learning levels outlined for that particular lesson, will be required to participate within a Mastery Learning session.

The Four Stage Learner-Centered Model of Education incorporating Mastery Learning has been adopted by Columbia College and it will be applied in each of its professional programs. The model also applies, wherever possible, in pre-career programs and courses. Table 2 presents “The Four Stage Learner-Centered Model” including Mastery Learning as it has been adapted by Columbia College for classroom instruction.

Table 2: The Four Stage Learner-Centered Model Incorporating Mastery Learning

Stage	Instructor/Facilitator Approach	Learner Activities
1 Introduction	Ensure new knowledge, skills, attitudes, and/or behaviors are introduced and explained.	Read, write, study, share, observe, question, discuss, reflect, and listen to others.
2 Example	Ensure learners are provided with relevant and meaningful examples of new concepts and skills.	Listen, question, note, assess, share, relate, recall, and compare personal example(s) with that of others and instructor/facilitator.
3 Apply	Engage learners individually or in small to large groups in the application of new concepts and skills by such methods as problem based learning or experiential learning.	Use, demonstrate, role play, discuss, apply, observe, assess, question, listen, analyze, solve, synthesize and describe.
4 Assess	Facilitate the evaluation measurement, (daily quiz), assessment, and reporting of learning outcomes at each stage of this model.	Review, study, recall, observe, measure, record, compare, question, listen, analyze, share, evaluate (self, peer, or group), at each stage of this model and report on the acquisition of new concepts or skills.

Mastery Learning

A student whose morning test results fall below the Mastery Learning set level must attend the corresponding tutorial classes (often scheduled later that afternoon).

Tutorials may include additional materials, study groups, or individual tutoring in the Mastery Learning tutorial session until the student can demonstrate that they now understand and remember the concepts related to the question(s) they got wrong in order to attain the Mastery Learning set level.

Stage 1 Introduction

In the first stage called the 'Introduction' stage, the facilitator will identify and ensure that learners are introduced to the new knowledge, skills, attitudes, and/or behaviors. The facilitator will also determine what activities the learners will be engaged in at this stage. For example, learners:

- Will normally be asked to read material prior to class.
- They may be directed to a website and observe and reflect on what they have learned.
- They may be asked to interact and engage with other learners using such tools as Moodle.
- They may be asked to write about their experiences and share them in class.

Stage 2 Example

During the second ‘Example’ stage, learners will be provided with examples that relate to what they are learning. These examples may be experienced prior to their class as part of their homework assignment, as well as during their class. The facilitators will do their best to ensure the examples are as relevant to the learner’s future employment. The more relevant each example is, the more meaningful it becomes to each learner. During this stage the facilitator may share their own experiences or may ask the learners to provide their own examples related to the subject they are learning about.

During this stage the facilitator will also do their best to ensure learners are able to:

- share with and listen to others
- ask questions to others, and
- take notes about what they are learning.

The facilitator may also ask learners to recall and compare personal experiences with others to help solidify what is being learned.

Stage 3 Apply

The third stage of this model is referred to as the “Apply” stage. At this point learners will have been introduced to new knowledge, skills, attitudes, and behaviors as well as have received and shared examples for these. It is now time for learners to experience the subject by using or applying it in selected situations or simulations. This may occur prior to class as part of homework; however, will normally occur during class. It may also occur after class. The facilitator will often divide the class into smaller groups and then have each group go through one or more experiential exercises. Often the group will be faced with a problem or case. They will then be asked to experience, study, assess, analyze, and resolve their challenge. During this stage, learners may be engaged in:

- role playing,
- demonstration,
- discussion,
- observation,

- presentation,
- debate,
- analysis, and synthesis.

Small groups may be asked to share their views with the larger class. During the 'Apply' stage, learners may also be asked to assess, evaluate and provide feedback to others based on what they observed. These observations may be presented in written form, verbal form, or both.

Stage 4 Assess

The final stage of The Four Stage Learner-Centered Model is called the "Assess" stage. Although it is listed as the fourth stage it may actually be a range of activities the facilitator formally and/or informally engage in during each stage of this model. During this stage the facilitator will be observing, monitoring, assessing, analyzing, and using tests to determine how effectively learners are acquiring their new knowledge, skills, attitudes, and behaviors, and the related learning objectives they are trying to help learners achieve. Based on their ongoing assessment of the situation, the facilitator may modify their lesson plan in order to improve the students' learning outcomes.

Applying the Model in the Classroom

The greatest criticism of educators and educational institutions over the last half century is that they do not teach students how to think and solve problems. What educators are accused of in a classroom based course is creating a learning environment where students listen, take notes, study (which often means memorizing what they heard), and repeating what their instructor (or a noted expert) said either in a test or paper.

It should be noted that at Columbia, students may be placed in several different learning environments, the most common of which is a faculty led classroom. Another type of learning environment at Columbia College is the tutorial. The tutorial is an environment set up for students to meet with a faculty member or subject specialist in order to review and/or discuss specific subjects or topics presented in their textbooks or classroom that they require a different approach to increase their understanding see Table 3

Table 3

Environmental Tutorial Strategies

Effective Discussion	Discussion is an excellent way to engage students in thinking and analyzing or in defending one side of an issue, interacting intellectually with the instructor.
Concept Sketches	Concept sketches (different from concept <i>maps</i>) are sketches or diagrams that are concisely annotated with short statements that describe the processes,

	concepts, and interrelationships shown in the sketch. Having students generate their own concept sketches is a powerful way for students to process concepts.
Using Case Studies	Case studies have been used successfully for many years in business school and in medical school for actively engaging students in problem-solving relevant to the discipline. The primary hallmark of a case study is presentation of students with a problem to solve that revolves around a story (the "case"). In medical school case studies, the "story" typically involves a sick patient. In science case studies, "stories" can range from public policy issues to science research questions. Good case studies give the students considerable latitude in deciding how to solve the problem, rather than leading them through the problem by the nose, and provide excellent opportunities to engage students.

Another type of learning environment that is recognized more of a hands-on, skill-based courses is the lab – which is often found in programs like nursing or dental health. These learning environments are set up for students to develop hands-on skills that usually relate to their theory courses. A computer lab where students are learning particular skillsets relating to a software program would also be an example of a hands-on skill-based course. The final type of course set up by Columbia is the co-operative education course. Unlike most universities and colleges in North America, Columbia College requires students in all professional programs to enroll in this credit based course. This course places students into real world settings where they have an opportunity to observe, assess, apply, and demonstrate the knowledge and skills they have acquired. This exposure can bring real meaning to theories, concepts, and values studied at the College.

It should also be understood that when we speak of facilitating at Columbia College we are usually speaking about the behavior and actions of our faculty in the classroom. We are speaking about the various activities they engage in which support student learning. These activities include a wide array of behaviors that move learners from being passive receptacles absorbing traditional lectures, to learners who actively participate throughout each class period. Student participation can come in many collaborative forms such as:

- sharing,
- questioning,
- listening,
- discussing,
- applying,
- debating,
- observing,

- understanding,
- analyzing and evaluating with classmates.

Regardless of the form, the key factors involved are that the student's mind is not simply passively listening to a lecture but instead is being challenged to actively think, engage in problem solving, and collaborate with fellow students to resolve questions being posed by the facilitator. There is a purpose to distinguishing the difference between the term 'instructor' and 'facilitator'. Faculty are strongly encouraged to not speak or lecture in class for more than twenty-five percent of the class period. The resulting void creates a lot of active and collaborative student centered learning time. The role of the 'facilitator' is one of coordinating engagement and interaction between the students and the learning materials.

References

Bloom, Benjamin, et al. Taxonomy of Educational Objectives: The Classification of Educational Goals. New York: McKay, 1956

Keller, Fred (1968). Good Bye Teacher. *Journal of Applied Behavior Analysis*.