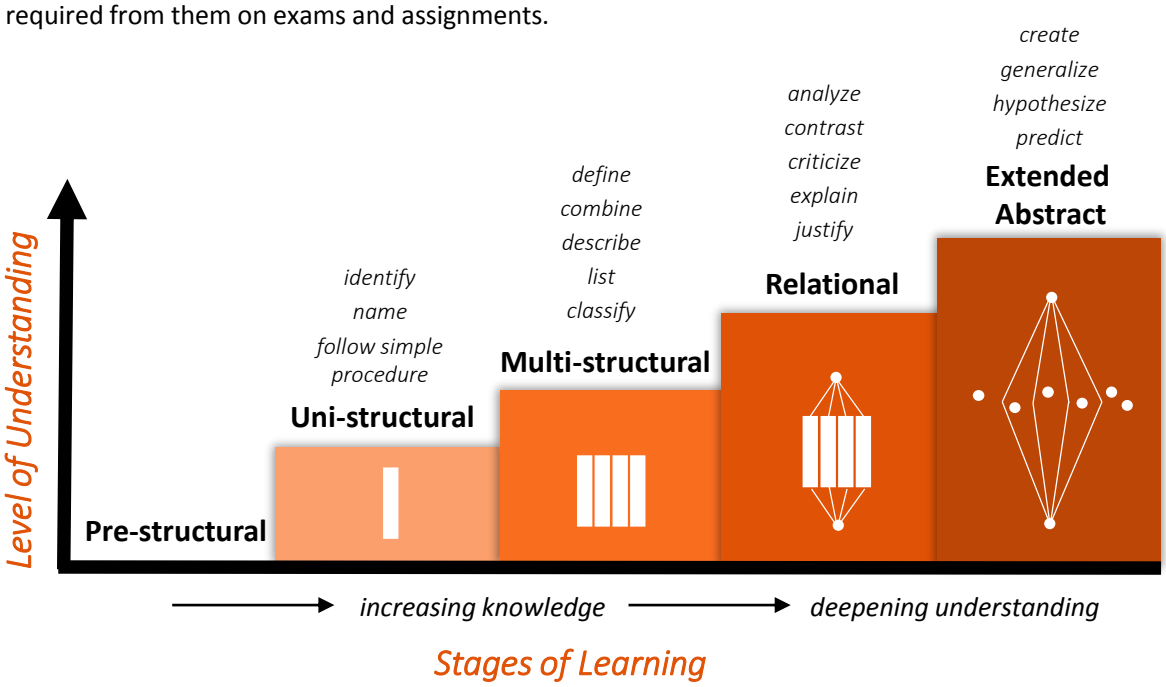
SOLO Taxonomy

(Biggs & Collis, 1982)

The SOLO (Structure of the Observed Learning Outcome) taxonomy is a systematic way of describing how a learner's understanding develops from simple to more complex when learning different topics or tasks. The SOLO taxonomy can be used by instructors to define learning outcomes, design assessments and evaluate student work. Students can also use SOLO to identify the level of complexity required from them on exams and assignments.



Pre-Structural (SOLO 1)**:** The learner does not have any understanding of the topic or task.

Uni-Structural (SOLO 2)**:** The learner has a basic understanding of the topic or task. They are able to make simple, obvious connections, but the broader significance of the information is not understood. They understand one or two aspects only.

E.g., A student can identify or list one or two events that happened during WW2.

Multi-Structural (SOLO 3)**:** The learner understands several aspects of a topic or task, but not the relationships between them or their significance to the whole.

E.g., The student can describe key events that took place during WW2.

Relational (SOLO 4)**:** The learner understands the relationships between ideas, concepts, events, processes etc. and how they contribute to the whole.

E.g., The student can explain the causes and effects of a number of WW2 events, and how they influenced the outcome of the war.

Extended Abstract (SOLO 5)**:** The learner is able to make connections within a given topic area and generalize and transfer principles and concepts to new contexts.

E.g., Based on their knowledge of previous wars and conflicts, the student can hypothesize about current political and military situations.

BIOLOGY
Uni-structural (SOLO 2): A student can label parts of a cell.
Multi-structural (SOLO 3): The student can list the parts of a cell and what each part does, but not the relationships between them.
Relational (SOLO 4): The student can explain the characteristics and functions of organelles and their relationships.
Extended abstract (SOLO 5): Based on her knowledge of the organelles of the human cell, the student can predict what might happen under certain conditions.

PSYCHOLOGY
Uni-structural (SOLO 2): A student can identify one factor that might influence the development of a child's ethical system.
Multi-structural (SOLO 3): A student can outline numerous factors that might influence the development of a child's ethical system.
Relational (SOLO 4): A student can discuss the influences of nature and nurture on the development of children's ethical systems and how these influences interact.
Extended abstract (SOLO 5): A student can discuss the influences of nature and nurture on the development of children's ethical systems in the context of general theories of child development.

Using the SOLO Taxonomy

Instructors can use the SOLO taxonomy when they are developing learning outcomes for new courses or programs as well as when they are selecting or creating exam questions and assignments. We can also teach the SOLO taxonomy to our students and get them to identify the levels of understanding they are required to demonstrate in assessment tasks such as writing assignments, lab reports, presentations, projects and answers on exams. This makes expectations of learning explicit to them.

Identifying Learning Outcomes

Q: What do my students need to know?
A: Systems of the body

Q: What level of understanding is reasonable to expect in this level of course (i.e., 1st year, 2nd year)?

After successfully completing this course, students should be able to describe (SOLO 3) the different systems of the body (nervous, skeletal, digestive etc.).

After successfully completing this course, students should be able to describe and explain (SOLO 4) the relationships between major systems of the body.

Creating Aligned Assessments

SOLO 3
Create an informational **video/pamphlet** for the general public that describes the parts of the human digestive system.
Develop an **infographic** that describes the parts and functions of the human nervous system.

SOLO 4
Draw a **concept map** that depicts how the cardiovascular and renal systems work together to modulate blood pressure.