

# About SOLO Taxonomy

## What is SOLO Taxonomy?

SOLO is a model or taxonomy of learning.

The SOLO model classifies students' learning outcomes from any activity, unit or classroom programme. Teachers and students can use it to easily sort learning outcomes into three levels of knowledge:

- surface knowledge
- deep knowledge
- conceptual (or constructed) knowledge.

## What does SOLO stand for?

SOLO is an acronym for the **Structure** of the **Observed Learning Outcome**.

## Who developed this model of learning?

University academics, Biggs and Collis, developed SOLO after researching samples of students' thinking in many different subjects (and across many different levels).

## What are the five SOLO levels of understanding?

SOLO shows students' learning outcomes at these five levels:

Prestructural level			The student has not yet grasped the idea and/or needs help to start.
<b>Surface knowledge (loose ideas)</b>			
Unistructural level			The student has one relevant idea.
Multistructural level			The student has several relevant ideas.
<b>Deep knowledge (connected ideas)</b>			
Relational level			The student has related (or linked or integrated) the ideas.
<b>Conceptual or constructed knowledge (extended ideas)</b>			
Extended abstract level			The student has taken the related ideas and extended them.

## What does SOLO do?

The SOLO model describes the structure of the learning outcome. In this way, it makes clear to students and teachers alike what the learning outcomes of an activity, unit or classroom programme are.

In the SOLO model, a student's learning outcome may be understanding at any one of five levels of complexity: no idea, one idea, loose ideas, connected ideas, extended ideas.

This model works well with both descriptive (declarative knowledge) and performance (functioning knowledge) learning outcomes.

Teachers can use SOLO to design differentiated learning tasks and to create differentiated success criteria. They can use it with any topic to:

- plan the level of learning required for that topic
- assess the extent to which each student has reached that level
- make decisions on next steps for learning.

## What do people say about SOLO?

In 2013 Professor John Hattie described SOLO as “the most powerful model for understanding these levels and integrating them into learning intentions and success criteria”.

## How will SOLO benefit my students?

Teachers have found that using SOLO in the classroom is a powerful approach because it helps students see that their learning outcomes are due to their efforts and strategies rather than luck or fixed ability.

*My learning outcome is due to **my efforts** to bring in ideas, relate ideas and or extend ideas.*

*I used the following **effective strategies** to help me bring in ideas, relate ideas and/or extend ideas. (SOLO Higher Order Thinking (HOT) Maps and self-assessment rubrics, thinking skills or e-learning)*

In this way SOLO supports students in developing metacognition, self-regulation, self-efficacy, engagement and resilience when learning.

Using SOLO, students and teachers can give and discuss feedback more effectively. These conversations may be between:

- students and students
- students and teachers
- teachers and teachers.

For example, the SOLO levels help teachers and students to talk about:

- what they are doing (level of the task)
- how well it is going (level of students' achievement of the task)
- what students should do next (next steps for learning).

## Why is SOLO an excellent model to use in the classroom?

SOLO helps students learn to learn.

SOLO is a blissfully simple model, moving from idea to ideas to relate to extend. By making the learning outcome clear, it improves students' understanding of the purpose of everything they do. In the classroom it is an “enabler”, not another “add on”. It enables teachers to look at what they do and measure its effect on students' learning outcomes.

SOLO is academically robust, evidence based and well established. It is also highly reliable in that teachers and students tend to agree on what SOLO level the students have achieved.

SOLO challenges students to think more deeply by giving them a framework for thinking about loose ideas, connected ideas and extended ideas.

The task and the outcome can be at different levels of SOLO. This means that SOLO can easily differentiate learning tasks and learning outcomes for every student.

SOLO is used in constructive alignment (Biggs 2003) to design learning intentions and success criteria for Outcomes-Based Education (OBE).

## How can schools, teachers and student use SOLO Taxonomy?

Schools use SOLO as a school-wide common language of and for learning.

Schools, teachers and students can use SOLO anywhere learning is happening. For example, they might use it to:

- inform planning and student inquiry
- work out what students' prior knowledge is
- write SOLO-coded learning objectives or learning intentions (“We are learning to” statements that clearly show the cognitive complexity of the task)
- co-construct success criteria for each of the SOLO levels
- assess and self-assess learning outcomes for declarative and functioning knowledge
- determine next steps (feedback and feedforward)
- make decisions about how to effectively use HOT SOLO maps, thinking skills and e-learning strategies.

## How do we get SOLO working in our school?

With careful planning, SOLO can be integrated as a powerful and popular school-wide model of learning:

- Identify **evidence-based strategies** that make the biggest difference to students' learning outcomes.
- **Introduce** the model.
- Describe **ways of using the model** to make it easier to use effective strategies for teaching and learning.
- Suggest ideas for **introducing the model to students** (and for students to introduce the model to others).
- Provide **resources to support teachers and students** as they use the model – for example, SOLO symbols, maps, self-assessment rubrics, learning logs, hexagons, learning intention generator, posters, stamps and stickers.
- Offer **professional training** on how to use the model in teacher planning, student learning and assessment using HOT SOLO maps and self-assessment rubrics.
- **Model classroom practice** using SOLO-coded learning intentions, success criteria, HOT maps, self-assessment rubrics and other SOLO tools.
- Ask for (and act on) **feedback** from teachers and students who have explored the use of SOLO in teaching and learning.
- **Assess progress** in how teachers and students are using SOLO as a mental model for learning and give feed-forward on next steps.
- **Share successes and failures** that you experience when you implement the model. (Draw on descriptions from students, teachers, administrators and communities about how they have integrated SOLO into teaching and learning.)
- **Evaluate the effect** of using SOLO in the classroom in terms of improving students' learning outcomes, raising their confidence and increasing their engagement in learning.
- Encourage teachers and students to **develop new ways to use the model** to enhance learning and share these with others.

## Do teachers need a lot of training to use SOLO?

No. The model is simple.

SOLO provides a practical framework for looking at the learning process and learning outcomes. It is aligned to evidence-based practice and effective pedagogies that make common sense to teachers.

So effective teachers do not need to throw out what they do already and adopt something new. Instead, they look at what they do in a new way – through the lens of prestructural, unistructural, multistructural, relational and extended abstract learning outcomes.

