

Learning Tip:

Declarative vs Procedural Learning

Dr. Gary Au
au@math.usask.ca

University of Saskatchewan

Declarative vs. Procedural Learning

Learning can generally be categorized into two types: **Declarative Learning** and **Procedural Learning**.

- ▶ Declarative learning is developed through conscious thinking and explicit instruction. E.g.,
 - ▶ Baking a cake by following a recipe.
 - ▶ Memorizing details of a historical event.
- ▶ Procedural learning is acquired through repeated practice, allowing actions to be performed automatically. E.g.,
 - ▶ Driving a familiar route to a well-known destination.
 - ▶ Seeing 2×3 and immediately thinking 6.

Declarative vs. Procedural Learning

Key characteristics of the two types of learning:

- ▶ Declarative Learning:
 - ▶ Primarily conscious, more flexible, and can be explained.
 - ▶ Faster acquisition of facts, but slower to apply in practice.
- ▶ Procedural Learning:
 - ▶ Facilitates automation, from basic tasks to advanced mathematical reasoning.
 - ▶ Requires extensive practice; once mastered, skills can be executed without conscious thought.

Optimal learning occurs when both pathways are engaged!