Everyone knows that learning must be ‘active’, but it’s not obvious how you’re supposed to put that commonplace advice into action. Learning as a Generative Activity tells you and provides an explanation of the supporting research that is both thorough and clear.

Logan Fiorella Richard E Mayer

**Summarizing**

**Definition:** Restate the main ideas of a lesson in one’s own words.

**Research:** Beneficial in 26 of 30 studies.

**Boundary Conditions:** Best when summary skills directly taught. Less effective when lesson content contains complex spatial relations, as in Physics and Chemistry.

**Effect Size:** 0.5

**Mapping**

**Definition:** Convert a text lesson into a spatial arrangement of connected key words.

**Research:** Beneficial in 23 of 25 studies.

**Boundary Conditions:** Best for novices — low knowledge base or young in age.

**Effect Size:** 0.62

**Drawing**

**Definition:** Create a drawing to illustrate content of a lesson.

**Research:** Beneficial in 26 of 28 studies.

**Boundary Conditions:** Best when drawing skills directly taught, and lessening cognitive load by providing partially-drawn illustrations.

**Effect Size:** 0.4

**Imagining**

**Definition:** Form internal images to illustrate the content of a lesson.

**Research:** Beneficial in 16 of 22 studies.

**Boundary Conditions:** Best when students have experience in the content and it is well designed.

**Effect Size:** 0.65

**Self-Testing**

**Definition:** Test one’s self on previously studied content by answering practice questions.

**Research:** Beneficial in 44 of 47 studies.

**Boundary Conditions:** Less effective when demanding only recognition (eg MCQ).

**Effect Size:** 0.62

**Self-Explaining**

**Definition:** Explain the content of a lesson to oneself by elaborating on the material covered.

**Research:** Beneficial in 44 of 54 studies.

**Boundary Conditions:** Best when studying diagrams and conceptual materials, for novices and with focused prompts.

**Effect Size:** 0.61

**Teaching**

**Definition:** Teach others about previously studied material.

**Research:** Beneficial in 17 of 19 studies.

**Boundary Conditions:** Best when students study the material knowing they will later be teaching it and, so, reflect on their own understanding, as well as answering peers’ deep questions.

**Effect Size:** 0.77

**Enacting**

**Definition:** Engage in task-relevant movements during learning.

**Research:** Beneficial in 36 of 49 studies.

**Boundary Conditions:** Best when students already have relatively high knowledge base, as well as receiving guidance and practice. Mainly for younger children.

**Effect Size:** 0.51