

Desirable Difficulties

Education

Conditions that slow learning down while it happens and improve what survives.

Bjork's principle: current performance is a poor index of learning.

Difficulties that help

Spacing practice across days

Interleaving related problem types

Retrieving before rereading

Generating an answer before being told

Varying the conditions of practice

Difficulties that do not

Unreadable fonts and poor materials

Confusing instructions or unclear tasks

Material far beyond current knowledge

Difficulty with no route through it

Difficulty added for its own sake

The distinction is whether the difficulty engages the processing the task needs. Undesirable difficulty just consumes working memory.