



RESEARCH IN DESIGNING LEARNING RESOURCES

RIDLR - where instructional design, development, assessment, and inquiry merge in an effort to understand and solve the riddles between interactive learning resources and learning. Our integrative inquiry approach is informed by generative learning, cognitive flexibility, level of engagement, and reflection.

Generative Learning

Learners actively create new knowledge by mentally forming relationships and connections between new information and prior knowledge/experiences.

Interactive learning resources (based on generative learning theory)

- are *learners centric*, prompting learners to simultaneously physically engage with and think about content.
- engage learners in *hands-on* (physical) *minds-on* (thinking) activities.
- focus learners on *connecting* new information to existing knowledge and *meaning making*.

Cognitive Flexibility

Learners develop, change, or adapt their content perspective based on new or complex situations.

Interactive learning resources (supporting cognitive flexibility)

- present *multiple dimensions* of knowledge representation.
- afford *flexibility* of interactions and interconnections across knowledge components.
- prompt learners to consider *multiple perspectives* on, and representations of, content.

Level of Engagement

Learners engage with content at levels appropriate to develop knowledge and trigger critical thinking.

Interactive learning resources (engaging learners in content)

- align *learning types* (cognitive, affective, psychomotor) with *levels of learning* (low → high).
- enhance *interaction* between the learner and content/peers/instructor/technology.
- move learners among *concrete* experience (practicum), *reflective* observation (journal), *abstract* conceptualization (model-building), and *active* experimentation (lab work).

Reflection

Learners transform experience into deep understanding by thinking continuously about connections among previous, current, and future experiences in the content domain.

Interactive learning resources (promoting reflection)

- prompt learners to *understand* and *make sense* of observations and experiences.
- allow learners to *develop experiences* into abstract concepts and generalizations.
- encourage learners to *test the implications* of concepts in new situations and contexts.

Results of RIDLR

- ◆ Empirical research that contributes to instructional, educational, and learning sciences.
- ◆ Evidence-based guidelines to design interactive learning resources to support learning.
- ◆ Validated guidelines for developing learning assessments aligned with different types of learning resources.
- ◆ International collaboration in the exploration of the intersections among instruction, learning, and digital technology.
- ◆ Graduate students with strong inquiry/research experiences and depth of knowledge in the instructional sciences and learning assessment.