



Active—Constructive—Interactive

A taxonomy for designing learning activities for subject-specific information literacy instruction

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Fundamental Questions

How do students learn?

How do students learn to do research?

What are the instructional strategies that scaffold their learning?



Pedagogical Toolkit: Learning Activities & Learning Techniques

Active

Rereading
Highlighting (underlining)
Summarization
Keyword mnemonic

Constructive

Imagery use of text
Practice testing
Distributed practice
Interleaved practice

Interactive (Chi, 2009)

Self-explanation
Elaborative interrogation
(Dunlosky, 2012)



Active—Constructive—Interactive Framework

Active

Characteristics

Doing something

Overt Activities

Look, gaze,
underline,
paraphrase,
select,
repeat

Cognitive Processes

Attending Processes

Activate existing
knowledge, assimilate,
encode, or store new
information, search
existing knowledge
(Chi, 2009)



Active—Constructive—Interactive Framework

Constructive

Characteristics

Producing outputs with ideas that go beyond the presented information

Overt Activities

Self-explain or elaborate, provide reasons, construct a concept map, self-monitor, connect, predict outcomes, generate hypothesis

Cognitive Processes

Creating Processes

Infer new knowledge, integrate new information with existing knowledge, organize own knowledge for coherence, repair own faulty knowledge, restructure own Knowledge (Chi, 2009)



Active—Constructive—Interactive Framework

Interactive

Characteristics

Dialoguing
acknowledging
partner's
contribution

Overt Activities

Respond to
Scaffolding,
revise errors,
argue, defend,
confront

Cognitive Processes

Jointly Creating Processes

Creating processes
that incorporate a
partner's contributions
(Chi, 2009)



Learning Techniques

Techniques:

Rereading
Highlighting (underlining)
Summarization
Keyword mnemonic
Imagery use of text
Practice testing
Distributed practice
Interleaved practice
Self-explanation
Elaborative interrogation
(Dunlosky, 2012)

Relative utility across four variables:

Learning conditions
Student characteristics
Materials
Criterion Tasks
(Dunlosky, 2012)



Self-explanation & Elaborative Interrogation

Self-explanation:

Explaining how new information is related to known information, explaining steps during problem solving
(Dunlosky, 2012)

Elaborative Interrogation:

Generating an explanation for why an explicitly stated fact or concept is true
(Dunlosky, 2012)



Self-explanation & Elaborative Interrogation

Examples of prompts:

Why would the distribution of oxygen (a system wide function) be less efficient if there is a hole in the septum (a structure of the septum)?

Identify the differences between the concepts. Generate an example

In what ways is Japan related to other civilizations we learned?

Why does an object speed up as its radius gets smaller?

Why does the Richardson's ground squirrel live in underground tunnels?

Why would that animal do/have that?
(Dunlosky, 2012)



Self-explanation & Elaborative Interrogation

Cognitive mechanisms involved:

Critical distinctive features to the explicit attention of the learner

Prior knowledge and its connection with to-be-learned material

Assess knowledge gaps

Compare and contrast, develop concept map, synthesis of ideas from multiple documents

(Dunlosky, 2012; Perfetti, 1999)



The “So What” or Why Should We Care?

Retention and transfer of higher-order cognitive tasks in information literacy knowledge practices

Using elaborative interrogation prompts and other learning techniques in our instructional practice

Designing constructive and interactive activities to scaffold learning

Learning techniques as assessment tools

“Instruction is assessment & assessment is instruction”

-Omer’s advisor



Research Process in Political Science

Why do some countries have democratic political systems while others have non-democratic systems?

What explains democratization (transition from non-democracy to democracy) in Spain in the 1970s?

What explains variation in success of social movements in Latin America?

What explains variation in informal public goods provision in neighborhoods in the Indian cities of Jaipur and Bhopal?



Subject-Specific IL Instruction

What is the puzzle behind the question?

What would you need to know to answer the question?

Where would you go to answer the question? How would you answer the question?

What do you already know? What questions come to mind when you think about...?



Subject-Specific IL Instruction

What platforms/venues of information would be appropriate? How are these organized/structured?

Who might produce this information?

What search strategies would you employ? Why?

How would you manage the results?



Subject-Specific IL Instruction

How are format, process, and delivery related?

What unique value does each format provide for your RQs?

What is the value of examining different formats of information for specific information needs?

What is the value of peer-reviewed sources?

What factors do you look for in your assessment of authority?



Subject-Specific IL Instruction

How do you give credit to the ideas/opinions of others? Why?

How do you value information in various online venues?

What are the issues related to this diversity of venues?

Do you value information differently using different platforms/venues of Information? Why?



Subject-Specific IL Instruction

What are the key issues surrounding this topic? Who are the people in the conversation?

Where are these conversations taking place? Venues of scholarly communication?

What new themes emerge? How are they related to what you already know?

What are the products of the conversation? Citation chaining/paradigm shifts?

How has the perspective evolved over time?



References

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