Conceptual Frameworks to Guide Research and Development (R&D) in Health Professions Education

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Conceptual frameworks (CFs)[1] are ways of…

- Thinking about a problem or question
  e.g., Thomas et al's six steps to curriculum development[2]
- Representing how complex things work
  e.g., Dual-Process Cognition Theory[3]

Each CF is inherently limited, focusing on specific operational elements while leaving others out.[1]

Use CFs to guide...

- Choices regarding the **content** (the *what*) of your R&D project
- Selection of educational and investigation **methods** (the *how*)
- **Interpretation** of outcomes and results (the *so what, what next*)

To find CFs...

- Critically review the literature for similar initiatives.
- Note the CFs used.
- Be open-minded to the many frameworks from which to choose.
- Select the one(s) that best fits your needs.

Review articles, essays

Journal articles

Books, compendiums
e.g., Irby et al's Handbook of Educational Theories[4]

Health professions education, basic science, and clinical journals

Journals from the social sciences (e.g., educational psychology, psychology, sociology, anthropology, economics)

When reporting educational research and development projects, state the CFs clearly so that others know your assumptions.

Why CFs?

- CFs are pervasive; they underlie, explicitly or not, all our educational choices and actions.
- CFs offer a variety of perspectives from which to look at educational problems or research questions.
- CFs provide a solid foundation, with standardized vocabulary and well-grounded principles, on which to build educational R&D projects and interpret outcomes and results.
- CFs allow researchers to build on one another's work, leading to an ever greater understanding that moves the field forward.[1]

Dimensions of a project or study	**Content**		**Methods**	
	Basic elements	Variables and their interrelatedness	Educational	Investigation
Key questions addressed	"What are the important elements to consider for this topic or issue?"	"How are the variables related?" "What's our model or theory?"	"How might I design instruction or assessment for this project?"	"How might I design evaluation or research for this project?"
Example study *Stefanidis et al.*[5]	Problem: Learners are making limited gains from simulation-based surgical skills training and they struggle to transfer that learning into practice under stress and distractions in the operating room.			
Authors' CFs	Fundamentals of Laparoscopic Surgery: Five Basic Skills	Dual-Process Cognition Theory[3]	Mastery Learning	Multiple Resource Theory
How each CF influenced the authors' study from the beginning	- Suggested a skill to focus on, *laparoscopic suturing*, which is standardized and familiar internationally. - Clarified what the authors did *not* choose to study (e.g., precision cutting or ligating loop).	Highlighted that whether learners have learned something to the point of *automaticity* (unconscious, effortless actions) is not evident solely by their strong performance of a task, but also by their having spare cognitive resources to multitask.	Suggested that learners should practice the skill until they reach a deliberately chosen performance standard, rather than that all learners simply practice for a fixed amount of time.	Suggested a research design for criterion measurement: Observe learners' performance on the main task under two conditions: (1) without distraction vs. (2) while also performing a secondary task that requires similar cognitive processes.
Major insight gained from the use of CFs	**Interpretation:** To help learners reach automaticity for a task (e.g., suturing) to a particular standard, clinical educators should require that they continue practicing the task until they can perform it well while substantially distracted.			

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