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

Georges Bordage, MD, MSc, PhD, professor of medical education, Matthew Lineberry, PhD, assistant professor of medical education, and Rachel Yudkowsky, MD, MHPE, associate professor of medical education, Department of Medical Education, College of Medicine, University of Illinois at Chicago

Conceptual frameworks (CFs) are ways of...  
- Thinking about a problem or question e.g., Thomas et al’s six steps to curriculum development
- Representing how complex things work e.g., Dual-Process Cognition Theory

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

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.

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.

<table>
<thead>
<tr>
<th>Dimensions of a project or study</th>
<th>Content</th>
<th>Variables and their interrelatedness</th>
<th>Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Key questions addressed</td>
<td>“What are the important elements to consider for this topic or issue?”</td>
<td>“How are the variables related?” “What’s our model or theory?”</td>
<td>“How might I design instruction or assessment for this project?” “How might I design evaluation or research for this project?”</td>
</tr>
<tr>
<td>Example study Stefaniadis et al.</td>
<td>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.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Authors’ CFs</td>
<td>Fundamentals of Laparoscopic Surgery: Five Basic Skills</td>
<td>Dual-Process Cognition Theory</td>
<td>Mastery Learning</td>
</tr>
<tr>
<td>How each CF influenced the authors’ study from the beginning</td>
<td>- 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).</td>
<td>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.</td>
<td>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.</td>
</tr>
<tr>
<td>Major insight gained from the use of CFs</td>
<td>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.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

References:

Author contact: bordage@uic.edu

First published online September 20, 2016