BEAN: An action-oriented and scientifically-based model for how people learn health literacy skills
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Introduction: What’s missing from health behavior change interventions?

A interdisciplinary perspective on how people learn

The BEAN model

Conclusions and practice implications

Introduction

The challenge:
- Health behavior change interventions are not as effective as they could be for all participants.
- We need to find new ways to communicate health information and teach skills to low literate populations.

What we need to know:
- What aspects of other disciplines can inform health behavior change interventions?
- What can we learn from non-traditional partners about how functional skills are taught?

An Interdisciplinary Focus

The field of health behavior change needs to look outside the discipline for strategies to increase intervention effectiveness:

- Health Literacy
- Cognitive Psychology
- Adult Learning Theory

Outline

Presenter Disclosures

Ariela M. Freedman

The following personal financial relationships with commercial interests relevant to this presentation existed during the past 12 months:

No relationships to disclose

Why Health Literacy? Not Just an Issue for Poor Readers

Systemic: Demands of healthcare system
Organizational: Culture, literacy environment, physical environment
Interpersonal: Communication skills
Individual: Knowledge, skills, emotional state, perceptual abilities
**Why Cognitive Psychology?**

- Psychology dominated by behaviorism in early 1900's:
  - Mental processes not observable and not part of psychological theories.
- Behaviorist approach challenged in 1950's with a focus on cognitive psychology:
  - Interaction between how people perceive and process information, organize knowledge, and behave.
- Cognitive psychology can explain what's happening in the brain when new information is learned.

**Why Adult Learning Theory?**

- Describes how adults learn and make meaning from knowledge.
- Focus:
  - Placing learning in the context of real life situations.
  - Making learning immediately relevant.
  - Empowering participants to pose questions and develop solutions.
  - Provides guidance on how to create and maximize learning opportunities.

**Relevant Concepts from Cognitive Psychology (CP)**

- Learning is a process.
- Barriers/facilitators throughout process.
- Key terms and concepts:
  - Types of knowledge
  - Sensory input
  - Information processing
  - Comprehension
  - Depth of processing
  - Schema theory

**Relevant Concepts from CP: Types of Knowledge**

- **Declarative knowledge** is fact-based
  - Ex. "Olive oil is an unsaturated fat."
  - Ex. "Being overweight is a risk factor for heart attack."
- **Procedural knowledge** is knowing how to do something:
  - Ex. Cooking collard greens
  - Ex. Riding a bike
- Functional health literacy skills are procedural knowledge, yet may require declarative knowledge to provide context.

**Relevant Concepts from CP: Sensory Input**

- **Step 1: Sensory input from the environment:**
  - Information that is seen, heard, smelled, tasted, or touched.
  - Individuals with limited sensory ability have reduced capacity to obtain information.
- The "Effortfulness Hypothesis": Individuals have limited cognitive resources to expend at any time.
Relevant Concepts from CP: Information Processing

- Processing abilities: Speed of selecting and using meaningful sensory information.
- Working memory: Amount of information a person can remember and manipulate over a short time.
- Before information can be stored in long-term memory, it must be effectively processed in the short-term memory.

Relevant Concepts from CP: Comprehension

- Comprehension: Knowledge and meaning-making abilities.
- Smaller vocabulary → Difficulty making meaning of words and putting them in context.
- Bottom line: Don’t lose participants before the intervention starts!

Relevant Concepts from CP: Learning Facilitators - Depth of Processing

- Ability to recall information is affected by how deeply information is processed, determined by:
  - How information was obtained.
  - How connected new information is to existing information.
  - How much time is spent processing the information.
- Depth of processing exists on a continuum ranging from shallow to deep.
- Deeper processing → memory → use of information

Relevant Concepts from CP: Learning Facilitators - Schema Theory

- Explains how people view the world.
- “Schema” is Greek, meaning map or plan.
- Information resonating with the schema is easier to process and remember.
- When information does not fit the schema:
  - The information may be forgotten, or
  - Schema must be changed to accommodate new information.

Relevant Concepts from Adult Learning Theory (ALT)

- Collection of theories – not just one theory.
- Select principles of Adult Learning:
  - Adults have experience and knowledge that must be incorporated into learning opportunities.
  - Adults are goal-oriented and practical.
  - Adults prefer to be treated as equals in the learning experience.

Relevant Concepts from ALT

- Transformative Learning Theory explains the process of adult perspective change.
- Additional theories of adult learning emphasize:
  - Collaboration
  - Empowerment
  - Reflection
  - Fostering motivation
- These principles use participatory models so adults learn, teach, and reflect collaboratively.
Integrating Cognitive Psychology and Adult Learning Theory

- Why environment matters and what matters in the environment:
  - Physical layout
  - Social environment/presence of social support

- Educational strategies for facilitators:
  - Attending to participants’ goals and interests
  - Empowering participants and fostering autonomy
  - Attending to levels of processing/using repetition
  - Activating prior knowledge
  - Presenting information multimodally
  - Fostering perspective change

The BEAN Model: Better Education And Innovation
An Instructional Foundation for Increasing Acquisition, Use, and Sharing of Functional Health Literacy Skills

Environmental Factors

<table>
<thead>
<tr>
<th>Name</th>
<th>Origin</th>
<th>Application in Educational Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Environment</td>
<td>CP/ALT</td>
<td>Classroom in “U” shape for discussion and collaboration.</td>
</tr>
<tr>
<td>Social Environment</td>
<td>ALT</td>
<td>Participants comfortable to ask questions, share experiences, and use humor.</td>
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<td></td>
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<td>Participants encouraged by instructor and other participants.</td>
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Selected Instructor Strategies

<table>
<thead>
<tr>
<th>Name</th>
<th>Origin</th>
<th>Application in Educational Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attending to goals and interests</td>
<td>ALT</td>
<td>Incorporate participants’ goals into classroom activities.</td>
</tr>
<tr>
<td>Empowering participants and fostering autonomy</td>
<td>CP/ALT</td>
<td>Teaching skills for creating an action plan to meet goals; time for participants to reflect on progress towards goals</td>
</tr>
<tr>
<td>Attending to levels of processing</td>
<td>CP</td>
<td>Instructors provide specific questions to ask while participants learn new information (i.e., “While you’re listening, ask yourself…”).</td>
</tr>
<tr>
<td>Activating prior knowledge</td>
<td>CP/ALT</td>
<td>Instructors begin sessions with a question to engage participants by reflecting on experiences with a particular topic.</td>
</tr>
<tr>
<td>Presenting information multimodally</td>
<td>CP/ALT</td>
<td>Providing information in multiple ways: in writing on the board, using flashcards, or on a handout; visually with a picture or video; or spoken aloud.</td>
</tr>
<tr>
<td>Fostering perspective change</td>
<td>CP/ALT</td>
<td>Explaining how/why/impact. Discussing beliefs, concerns, and misconceptions.</td>
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### Sharing of Information: Within Class

<table>
<thead>
<tr>
<th>Value of Sharing</th>
<th>Implication</th>
</tr>
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<tbody>
<tr>
<td>Participants are often more knowledgeable of community resources than instructors.</td>
<td>Participants can become valuable resources for each other.</td>
</tr>
<tr>
<td>Participants use similar terminology and plain language.</td>
<td>Participants can &quot;translate&quot; complicated health information using familiar terms.</td>
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<tr>
<td>Provides opportunities for hearing personal experiences from other participants.</td>
<td>Participants recognize their own susceptibility to health problems and are motivated to change.</td>
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### Implications for Research and Practice

- Approach intervention development with a focus on teaching functional health literacy skills, not just teaching information.
- Attend to the instructional foundation AND the theoretical foundation of behavior change.
- Use strengths of Adult Ed to teach functional skills:
  - Balance content with receptivity to participant goals.
  - Break down complex concepts into usable ideas.
- Equip participants as lay health advisors to ensure accurate diffusion of information.

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Questions?

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