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BEAN: An action-oriented and scientifically-based model for how people learn health literacy skills

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+ 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

+ Outline

- 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



+ 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?



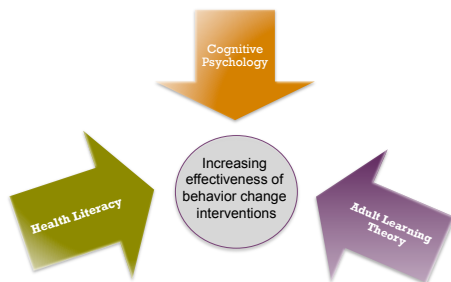
- Psychology dominated by behaviorism in early 1900's:
 - Mental processes not observable and not part of psychological theories.
- Behaviorist approach challenged in 1950's with a focus on **cognitive psychology**:
 - Interaction between how people perceive and process information, organize knowledge, 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.

"Educational practice can be improved when it is informed by an understanding of how the human mind works."
 – RE Mayer



+ 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 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

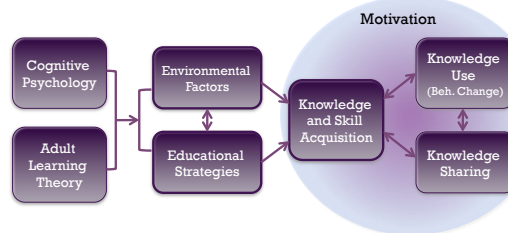


- Transformative Learning Theory explains the process of adult perspective change.
- Additional theories of adult learning emphasize:
 - Collaboration
 - Empowerment
 - Reflection
 - Fostering motivation
- These principles use participatory models so adults learn, teach, and reflect collaboratively.

+ 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

| Name | Origin | Application in Educational Setting |
|----------------------|--------|---|
| Physical Environment | CP/ALT | Classroom in "U" shape for discussion and collaboration. |
| Social Environment | ALT | Participants comfortable to ask questions, share experiences, and use humor. Participants encouraged by instructor and other participants. |

CP = Cognitive Psychology; ALT = Adult Learning Theory

+ Selected Instructor Strategies

| Name | Origin | Application in Educational Setting |
|--|--------|---|
| Attending to goals and interests | ALT | Incorporate participants' goals into classroom activities. |
| Empowering participants and fostering autonomy | CP/ALT | Teaching skills for creating an action plan to meet goals; time for participants to reflect on progress towards goals |

+ Selected Instructor Strategies

| Name | Origin | Application in Educational Settings |
|-----------------------------------|--------|---|
| Attending to levels of processing | CP | Instructors provide specific questions to ask while participants learn new information (i.e., "While you're listening, ask yourself..."). |
| Activating prior knowledge | CP/ALT | Instructors begin sessions with a question to engage participants by reflecting on experiences with a particular topic |

+ Selected Instructor Strategies

| Name | Origin | Application in Educational Settings |
|-------------------------------------|--------|--|
| Presenting information multimodally | CP/ALT | 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. |
| Fostering perspective change | CP/ALT | Explaining how/why/impact. Discussing beliefs, concerns, and misconceptions. |

+ Sharing of Information: Within Class

| Value of Sharing | Implication |
|--|---|
| Participants are often more knowledgeable of community resources than instructors. | Participants can become valuable resources for each other. |
| Participants use similar terminology and plain language. | Participants can "translate" complicated health information using familiar terms. |
| Provides opportunities for hearing personal experiences from other participants. | Participants recognize their own susceptibility to health problems and are motivated to change. |

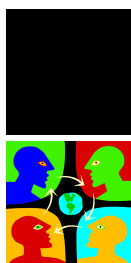
+ Implications for Research and Practice

- 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 useable ideas.
- Equip participants as lay health advisors to ensure accurate diffusion of information.



Questions?

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Thank you!