Inspiring Mature Minds: Adult Education in IP&C
Barbara Catt, Sunnybrook Health Sciences Centre, Toronto
A Webber Training Teleclass

Disclosure
• I have no conflicts of interest in relation to this presentation
• Presentation is intended as a guide for those individuals who wish to teach adult learners within healthcare

Objectives
• Understand the theory
  – Assumptions about adult learners
  – Learning
  – teaching principles and teaching strategies for adult learners
• Identify methods for teaching adult learners IPAC education, as it pertains a minute, an hour and a day
• Provide tips for improving your presentation and retention of the information

Professional Ethic
• “When a difficult time occurs one needs to discover what can be learned from the situation and then seize the opportunity to make the indicated changes.”
  (Barry C. 2004)

“Every job is a self portrait of the person who does it. Autograph your work with excellence.”

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Teaching IPAC

“What . . .
- am I trying to teach?”
- is the learners’ needs and past experiences?”
- approaches are needed?”
- material or resources are available?”

Teaching IPAC

“Is this a good topic for self-directed learning?
- Who is my audience?
- Are they motivated to learn?
- How long do I have?”

Putting Theory into Practice

"There is nothing so practical as a good theory.”

Putting Theory into Practice

“If you use a tool without knowing the theory, the tool may work in one situation and not in another, and you’ll never know why it failed.”

Value of knowing the theory

Peter Senge (5th Discipline)

What is learning?

- Learning (n) is acquiring new knowledge, behaviours, skills, values, preferences or understanding, and may involve synthesizing different types of information

Learning

- Need to acknowledge multiple perspectives as a result of religion, gender, ethnicity, class, age, sexuality, and/or physical abilities

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Learning
• Learning may occur as part of personal development, education, or training

Education vs Training
• Education:
  – measured by tenure
    • e.g. spend a day in a seminar/4 yrs in college
  – Giving out information or communication to the trainees

Education vs Training
• Training: (doing)
  – measured by what you can do when you have completed it
  – About practice and building skills

Assumptions of Adult Learners
1. Autonomous and self-directed: need to be free and to direct themselves
2. Have an accumulation of life experiences and knowledge
3. Relevancy-oriented: they must see a reason for learning something (e.g. applicable to their work)

Assumptions of Adult Learners
4. Practical: focusing on the aspects of a lesson most useful to them in their work Readiness to learn
5. Goal-oriented: upon enrolling in a course, they usually know what goal they want to attain
6. Respectful: instructors must acknowledge the wealth of experiences that adult participants bring to the class

Kolb, D: Learning Styles
• 2 preference dimensions
  – Perception dimension
  – Processing dimension
  – Giving to 4 styles of learning

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Perception Dimension
- Concrete Experimenter
  - feeling, accepting, receptive, guide them, demos; (Feeler)
- Abstract Conceptualizer
  - analytical, writes the theories and models, likes to see the big picture, loves Total Quality Management, likes things logical, evaluative (Thinker)

Processing Dimension
- Active Experimenter
  - high risk taker, “see me do one, learn on the job, do the skill and do it quickly”- type person, (Doer)
- Reflective Observationist
  - read the manual several times, self learning packages, sit back, look and think about “it” (Watcher)

How Does One Facilitate Learning?
1. Involve learners
   - Mutual plan for the methods and content
   - Identified a need
   - Meaningful material is better remembered
   - Develop own learning objectives

Tell me and I’ll forget.
Show me and I may remember.
Involve me and I’ll understand.

Chinese Proverb

How Does One Facilitate Learning?
2. Provide an effective environment
   - comfortable expressing ideas
   - Mutual respect, friendly, supportive

Flexible Learning Environment
- Self directed learning
  - paper copy and/or on-line training allows the most flexibility for the learner

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Flexible Learning Environment

- **e-Learning**
  - Web-based curriculum just as effective as traditional curriculum
  - Compliments traditional teaching methods
  - Caution for simplicity: boredom
  - Difficult for complex procedures (IV)
    - Preferred combination
  - iPod Project in Australia (2008)

How Does One Facilitate Learning?

3. Ensure that there is sound factual information
   - Identify and explore resources
4. Document the rationale for the change
5. Evaluate learning

Other Principles to Facilitate Learning

- Satisfaction from learning increases drive to learn more
- Moderate anxiety due to lack of knowledge stimulates the need to learn
- Learning is best accomplished by doing, imitation and frequent feedback

Feedback is a Gift

- Don’t give feedback because you want to “get something off of your chest”
- Will not fix what you believe is wrong with another person
- Once feedback is given, the receiver decides the value of it and the impact on their behavior.

Feedback

*Praise is like champagne... It should be served while still bubbling*

Effective Teaching Strategies

1. Discovery
2. Direct Instruction
3. Discussion
4. Cooperative learning
   - Can incorporate self-directed learning into each (on-line education, role and/or game playing, mock events, picture boards)

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1. Discovery
• Active involvement with concepts, principles, experiments, problem solving
• Helps develop critical thinking skills
Examples
• Experiment which of two dressings stay intact; introduce CHG bathing ICU to see decreases in HAIs

2. Direct Instruction
• Review prerequisites to the session
• Learner objectives
• Present new material and solicit responses
• Independent practice (assignments)
• Assess performance (e.g., pretest, post test)
• Provide effective feedback
  – Example: core competency training on RP/AP

3. Discussion
• For subjective and controversial topics or difficult concepts (triggers opinion, judgment, assumptions)
• May be a concern with learners’ attitudes and beliefs
  – e.g. discuss peer to peer learning, professional values
• Prerequisite ⇒ adequate knowledge base

3. Discussion
• Allows for role-modeling
• Helps the learner see that there may be more than one answer or more than one way to learn
  – Example: “Give it a Shot, or Not- Mandatory Vaccinations Debate” (CHICA Conference, Toronto, 2011)

4. Cooperative Learning
• Combination of direct instruction and discovery
• Project-based or active learning
• Small groups, help each other learn
• Still has individual accountability
• Facilitative teaching is more pronounced
• Problem based learning

Problem Based Learning (PBL)
• a student-centered instructional strategy in which students collaboratively solve problems and reflect on their experiences
  – Influences behavior - learners are engaged in a group process
  – Facilitates expression of ideas, collaboration, integration of past and present ideology, reflection of learning.

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Your Role as a Facilitator
• Utilized when presentations become interactive (cooperative learning/PBL)
• Set the agenda, coach participants, guide the pacing
  – NB when providing training and education
  – Example:
    • Recertification of core competency and use of assimilation room & case scenario

PBL: Working Groups
• Alternate leader role
  – Keep on track
• Circulate, feedback
• Specific purpose
• Specific audience
• Problem solve
• 4-6 people
• 5 min. for the brainstorming
• Relate information to learners’ experience
• Recorder, secretary, timer

Professional Ethic
• “When group members must publicly commit themselves, it’s more effective in changing individual attitudes and practices.”
  – (Ref: Slavin RE. 2000 p 243)
“Every job is a self portrait of the person who does it. Autograph your work with excellence.”

Bloom’s Taxonomy
• Benjamin Bloom
• Refers to the classification of the different objectives that educators set for students (learning objectives)
  – First presented in 1956

RECALL: Objectives
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Bloom’s Taxonomy
Educational objectives are divided into 3 “domains”
• Cognitive phase
• Psychomotor phase
• Affective phase
Higher levels of learning is dependent on having attained prerequisite knowledge and skills at lower levels

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Bloom’s Taxonomy: Cognitive Phase
• Knowledge (mental skills)
• Applies concepts and processes on the information by recall
• Analyzing and critical thinking

E.g. recites a policy; knows how to perform a C-diff clean
– words may include describe or discuss

Bloom’s Taxonomy: Psychomotor Phase
• Skills (manual or physical)
• Applies the overall knowledge and theory by demonstrating the correct skills and technique

E.g. drives a car; donning and removal of PPE
– words may include demonstrate or show

Bloom’s Taxonomy: Affective Phase
• Attitude (feelings, values or emotion)
• Applies the manner that emphasizes a feeling tone, an emotion, or a degree of acceptance or rejection
– appreciation, enthusiasm, motivation

E.g. Knows the differences with the management of MRSA within the community vs the hospital setting
• words may include understands, identifies

Learning as a graded Sequence
What you
– MUST know
– SHOULD know
– COULD know
(nice to know)

Teacher Methods and Learner Retention
Ref: Hinson Pat L APIC Text 1996, 30-3

<table>
<thead>
<tr>
<th>Method</th>
<th>Average Retention Rate (%)</th>
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<tr>
<td>Lecture</td>
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<tr>
<td>Reading</td>
<td>10</td>
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<tr>
<td>Audiovisual</td>
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<td>Demonstration</td>
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<tr>
<td>Discussion</td>
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<td>Practice by doing</td>
<td>75</td>
</tr>
<tr>
<td>Teaching others</td>
<td>95</td>
</tr>
</tbody>
</table>

What is the research saying?
• Methodologies for teaching adult learners
– Survey SAYs: simulation, case studies, PBL/group work, mixture of teach methods
– These work BEST!
• Opportunities to maximize “on the spot” education
– There is NONE!

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Teaching Others 95% Retention
- Wound care
- IV site procedures
- Hand hygiene
- Clean and sterile technique
- IC and the patient
- Preventing outbreaks
  Improves critical thinking skills

PHOTOS
- Attract attention
- Story boards

Learning and Visual Effects

Is this blood still infectious?

Pictures Tell Many Different Stories
Apply Theory to Practice
- Particles of 1 micron or less adhere to surfaces by molecular adhesion
  - Scrubbing is generally the only way to remove them.
  - How much Microbiology do they know?
  - How strong are their assessment skills?

Pictures and Associations
- Nearly 1 million skin squames containing viable organisms are shed daily from normal skin
  - Just Clean Your Hands
  - http://www.oahpp.ca/services/oahp/hospitals-education-training.html

Visible particles only 10% of indoor air

Common Items and Their Respective Particle Sizes
- Pollens - 10 to 1000 microns
- Human Hair - 40 to 300 microns
- Beach Sand - 100 to 2000 microns
- Tobacco Smoke - 0.01 to 1 micron
- Mold Spores - 10 to 30 microns
  - 1 millimeter = 0.001 meter
  - 1 micron = 0.000001 meter (1 millionth of a meter)

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Common Items and Their Respective Particle Sizes

- Bacteria range 0.5-5.0 µm
  - E.g. Anthrax spore 6 µm, TB droplet 2-4 µm length, 0.2-0.5 µm width, staphylococci and e.coli 2 µm
- Viruses usually too small to be seen with the light microscope, Electron microscopy
  - E.g. influenza 0.1 µm, SARS-CoV 0.1 µm, Ebola 0.2 µm
- A submicron filtration mask:
  - Meets specifications and filtration level >95% for particles 0.1 to 0.3 µm (micron).

Getting Your Point Across

- Concentrate less on what you want to say and more on what you want them to hear

Know How to Give a Message

and

Know How to Handle a Message Well

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Story Telling

- Captures learner’s attention  
- Stimulates thought  
- Alters perception, enhances memory  
- Provides a link between theory and practice  
- Evokes emotions and values  
- Audience co-participates

Let me tell you a true story..

- Outbreak of sternal surgical site infections due to *Pseudomonas aeruginosa* traced to a scrub nurse with onychomycosis
  - Multiple cosmetic products from the nurse’s home yielded the identical *P. aeruginosa* strain.
  - Outbreak of surgical site infections due to *P. aeruginosa* was caused by wind contamination from the thumbnail of this nurse, despite her appropriate use of latex surgical gloves.


Impact of Story Telling

NICU outbreak of *P. aeruginosa* in 2000  
- 46 neonates affected (10%); 35% died  
- Cared by nurses with same strain, one with artificial nails, another with long natural nails  

NICU outbreak with *K. pneumoniae* in 2004  
- 19 neonates affected (45%)  
- Cared by a nurse with artificial nails with the same strain


Photos, Case Studies, Simulation Lab: Increase Retention

Photos and Videos for Teaching: Coughing and Where Flu Germs can Land

Entertaining 2 minute clip  

[http://www.youtube.com/watch?v=-K_boO2ocel&feature=fvw]

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Coughing and Where Flu Germs can Land

Talking points
- Risk of air-borne dissemination of microbes
- Consequences include surface contamination which may spread infection
- Prevention Strategies such as coughing in your sleeve

TIPS For Teaching-Learning
- Welcome
- Self, topic, objectives
- Icebreaker, +/- humour, story
- Presentation - opening, middle, ending (Be CREATIVE)
  - Demonstrations if time permits!
  - Story boards
  - AV Aids
- Closing, Evaluation, Follow up

Guidelines During Teaching
- Be yourself
- Review your material
- Maintain contact (physical and psychological)
- Pace, tone and vocal variety, body language

Guidelines During Teaching (con’t)
- How does training “fit” the big picture or link to experience?
  - e.g., a practice changed and the outbreak was stopped
- Avoid Ums, Ahs, OKs, crutch words

Preparation Check List
- Topic and objective(s) clear?
- Keep to my time limit?
- Consulted enough sources?
- Materials and teaching aids ready?

Preparation Check List
- Enough time for group presentations or role play?
- Can I get hold of material for back up?
- Is my plan flexible?
- Can I give /receive effective feedback?

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Presenting Your Material

- Pictures speaks a thousand words
- A message sent is not always received or heard the same way you hear it
- Body language can be misinterpreted

PowerPoint TIPS

- Max 3-4 bullets/slide; 6 words/line
- Effective with graphics (colors/font/backgrounds)
- Video clips/sounds, music (hyperlinks)
- Careful!

PowerPoint TIPS

- Search for Google images
- KISS principle
- Good teaching is about connecting materials, experiences, ideas

How Will You Teach....

- The science behind PPE - their use and misuse?
- When science is lacking what do the “experts” say?
- Environmental contamination?
- How to don and doff a mask or gown properly?

Recognize what is relevant and what is not

Who Will You Teach To?

Know your audience
- Traditionalist (1900-1945)
  - Build a legacy
- Baby boomers (1944-1964)
  - Build a stellar career; tell me what I need to know
- Generation Xers (1965-1980)
  - Build a portable career; show me how to do it
  - Build parallel careers; why do I need to know this?

Teaching Whose Job Is It?

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Teaching Whose Job It Is

- Everyone owns a little bit of the problem
- Everyone has a role
- Incorporate patient safety and worker safety first
- First, do no harm . . .

Sharing What You Learn

Remember the 3 touch rule:
1. Circulate the hot bulletins before filing for future use
2. Highlight key items
3. As a team we are as strong as our weakest link

Team Work Lessons

- There is no limit to what can be done—if it doesn’t matter who gets credit

There are two ways of spreading light: To be the candle or the mirror that reflects it
Edith Wharton Vesalio in Zante

Budget For Education!

Use this phrase to appeal for training and education:

If you think education is expensive, what’s the price of ignorance?

Use Humour and Laughter

H- Help yourself see the lighter side
U- Unite your ideas by sharing them with others
M- Move ahead quickly (the past is over)
O - Outreach for support
U – Unleash your creativity
R - Risk is easier when you can laugh and learn from the failures
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Use Laughter and Humour

L - Look at every opportunity to teach
A - Accept responsibility for being pos+
U - Uniqueness can be fun
G - Give more than you take
H - Humour yourself and others
T - Teach others to enjoy the moment
E - Each person is valued
R - Reach for those in need of help

Careful use of Humour in Medicine

“The patient in the next bed is highly infectious. Thank God for these curtains.”

“Education is when you read the fine print……
Experience is what you get when you don’t!”

. . . . Pete Seeger

Change does not take place until the learning has occurred.

References

• Association for Professionals in Infection Control and Epidemiology-APIC. (1996). APIC text of infection control and epidemiology. Association for Professionals in Infection Control and Epidemiology Inc., Washington DC: APIC Inc.
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Thanks for listening!

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References