



Put chemical management into practice

ADULT LEARNING

Teaching or facilitating learning



- Requirements as per ZDHC CMS
- Key adult learning principles
- Experiential Learning cycle



Requirements as per ZDHC

ZDHC CMS 3.2 - Training

- To achieve a goal of zero discharge of hazardous chemicals, organisations should ensure that personnel are competent through appropriate education, training or experience.

ZDHC CMS - 3.2.1 Management

- Establish, document and implement a process for informing top management of their roles in managing chemicals and the human and financial resource needs for CMS implementation.

3.2.2 - Regulatory

- Establish, document and implement a training process for making appropriate staff knowledgeable about the legal requirements

3.2.3 - Work Practices

- Appropriate staff should be trained on chemical-handling work practices



ZDHC audit questions - example

Are training records maintained to demonstrate that facility personnel handling chemicals have the required education, training and skills to perform their assigned responsibilities and activities?
(CMT 2.1.1)



Pedagogy vs. Andragogy



	Pedagogy	Andragogy
The learner	Depending on teacher	Self-directed
Experience	No experience	Lots of different experiences
Readiness to learn	Told to have to	Need to or want to
Orientation	Acquiring prescribed subjects	Organised around life/work situations, task focused
Motivation	External pressure, grades	Usually internal motivation, self-actualisation,
Role of teacher	Designs learning process and decided subjects	Facilitator, enabler

Key Adult Learning Principles

1. Adults learn by doing.

- Act as a facilitator.
- The ultimate learning experience comes from getting people to throw themselves into the task at hand.



Key Adult Learning Principles

1. Adults learn by doing.

2. Use realistic examples.

- So use examples that they can relate to.
- Adults relate their learning to what they already know



Key Adult Learning Principles

1. Adults learn by doing.
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3. Variety is the spice of life.

- Use tone and pace during the course of training
- Resort to various delivery modes to get the message across with fun and flair.



Key Adult Learning Principles

1. Adults learn by doing.
2. Use realistic examples.
3. Variety is the spice of life.
4. Conduct training in informal environment

- Provide for friendly learning environment.
- Simple social activities or get-together sessions



The ideal learning environment...



- Good audiovisual support
- Appropriate seating pattern
- Comfortable chairs
- Good writing surface (depends)
- Room temperature and ventilation
- Good supply of coffee/tea and lunches
- Adequately sound proof room and free of other disturbances (telephone, walk-through)
- Natural daylight, at least 500 lux lighting

Key Adult Learning Principles

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5. Inform learners of learning objectives.

- Establishing clear objectives = key
- Allow learners to keep track
- Communicate at beginning and reflect at end



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5. Inform learners of learning objectives.
6. Guide and prompt; do not tell.

- Provide all the help learners need – Giving examples, demonstrations, using multimodality approach
- Allow participants to think through the lesson on their own and discover the answer



The Effectiveness of “Learning through Experience” – (=Experiential Learning)



When learning, you remember by



hearing / listening

20%



seeing

30%



hearing / listening and seeing

50%



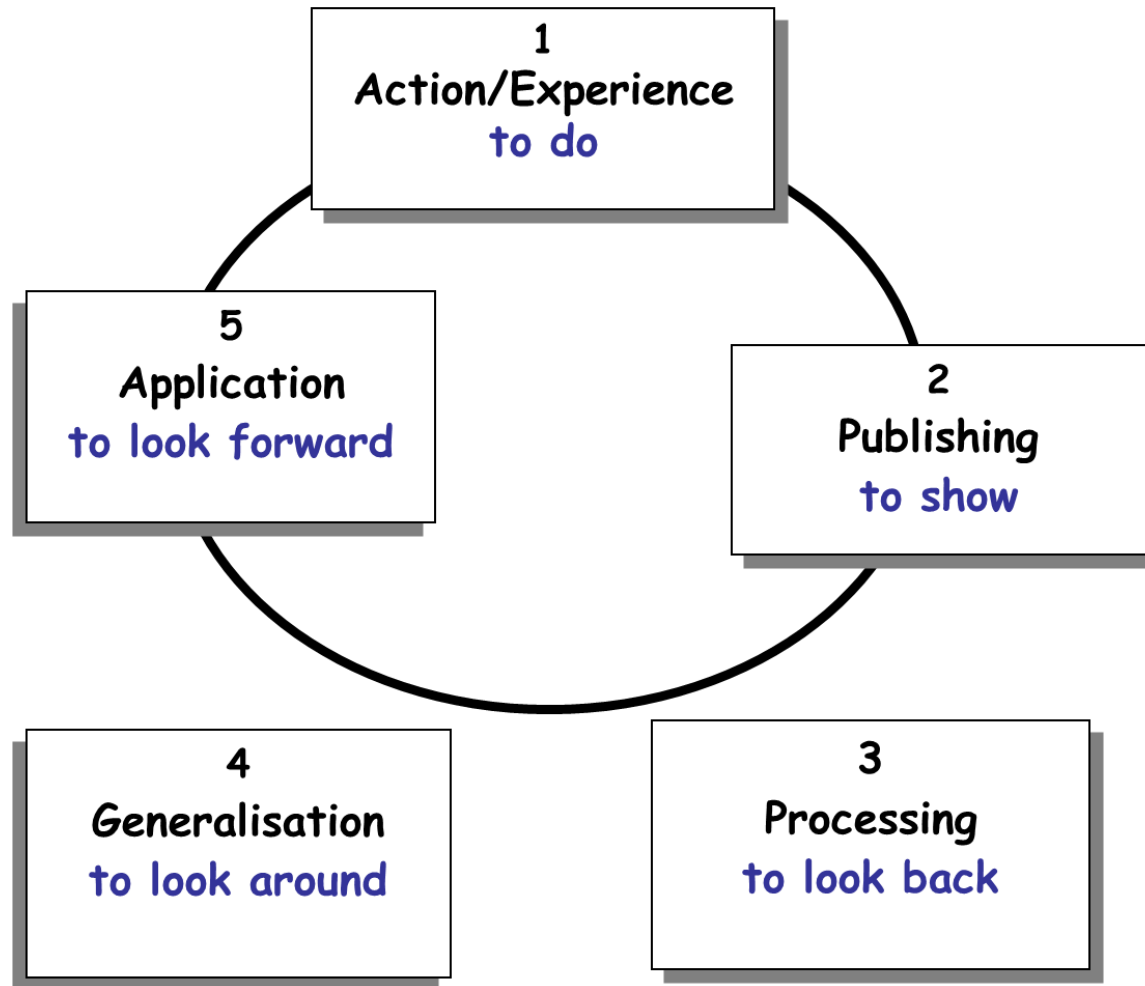
discussing / expressing yourself

70%



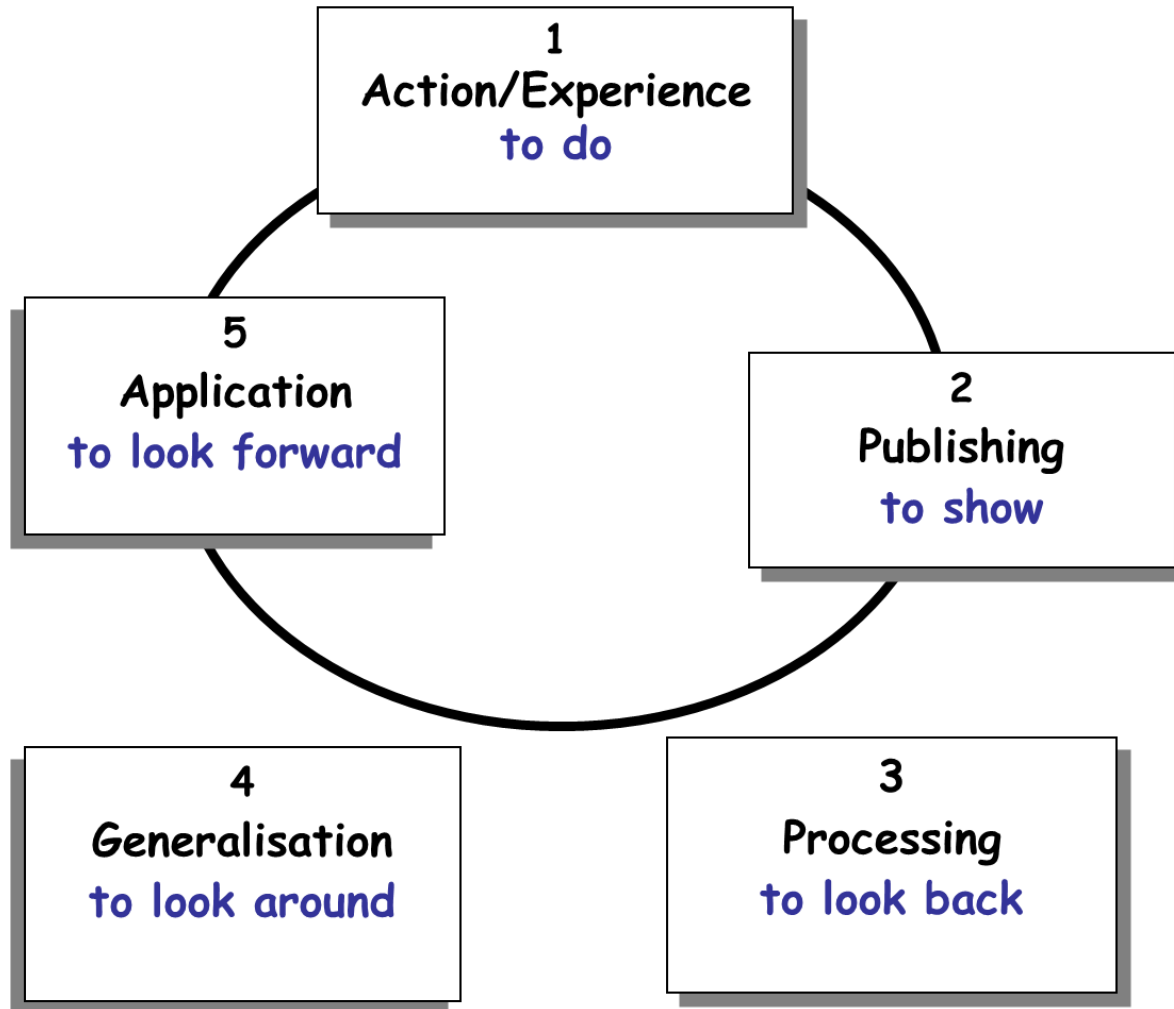
application /making personal experience 90%

The Experiential Learning Cycle



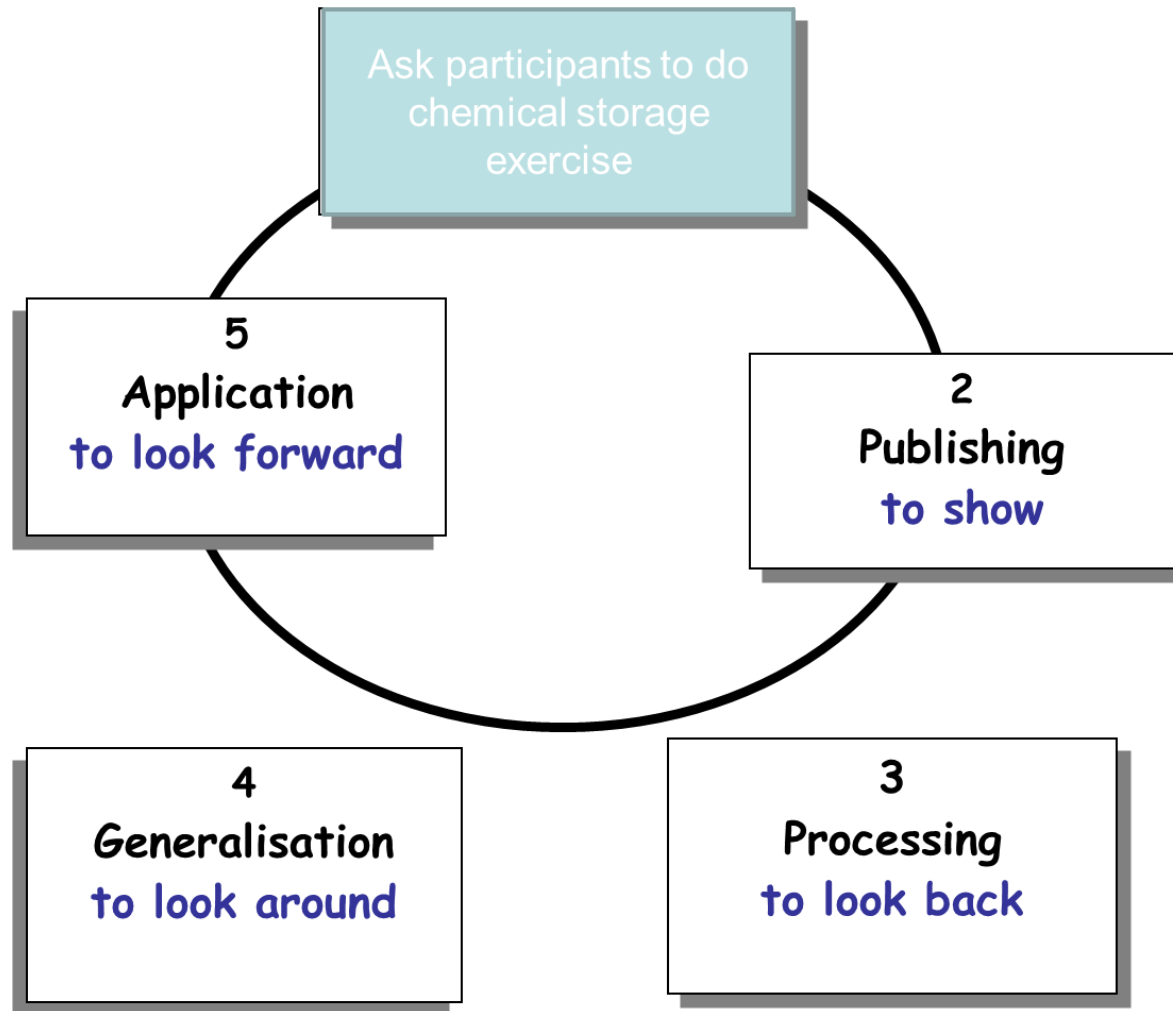
The Experiential Learning Cycle

Example - Safe Storage of Chemicals



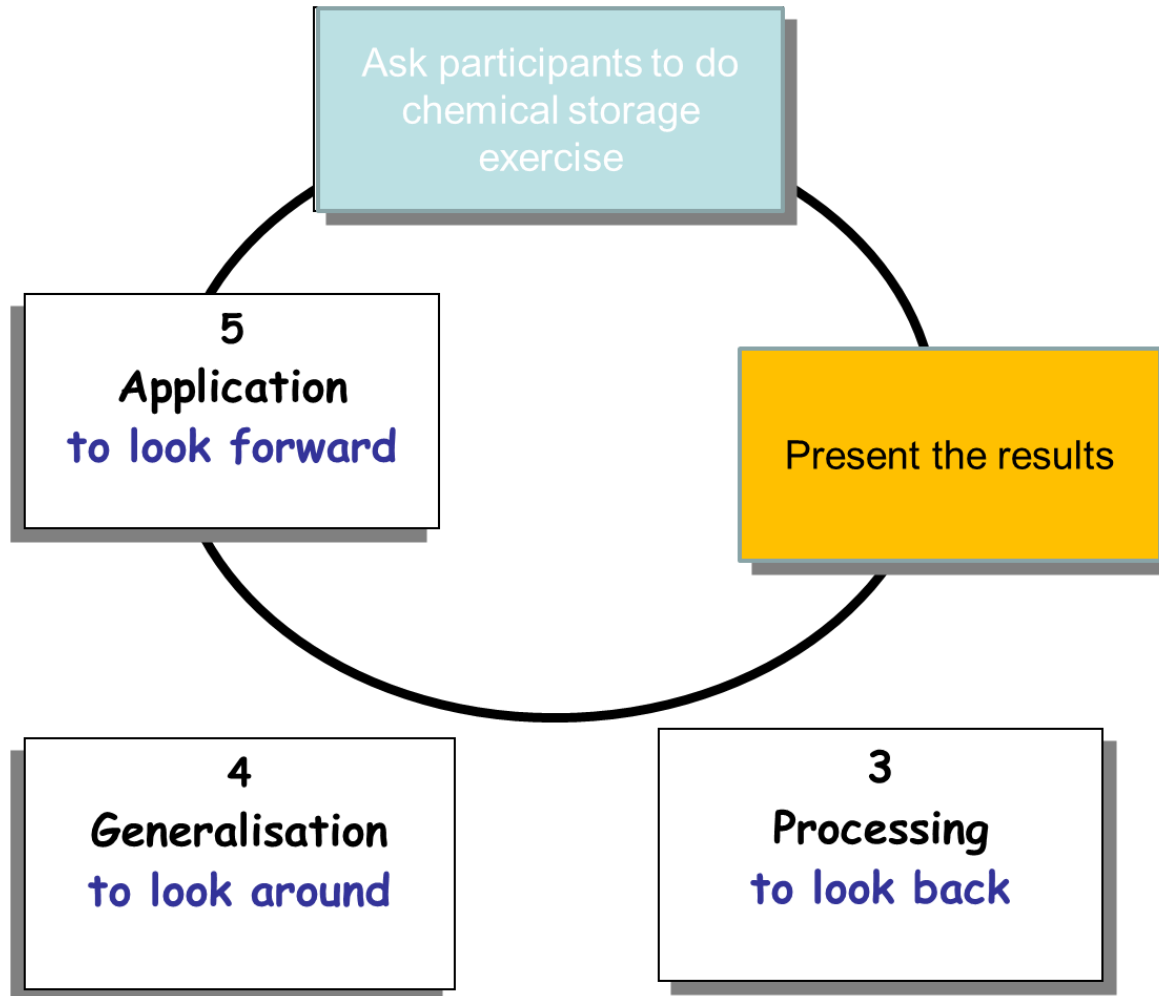
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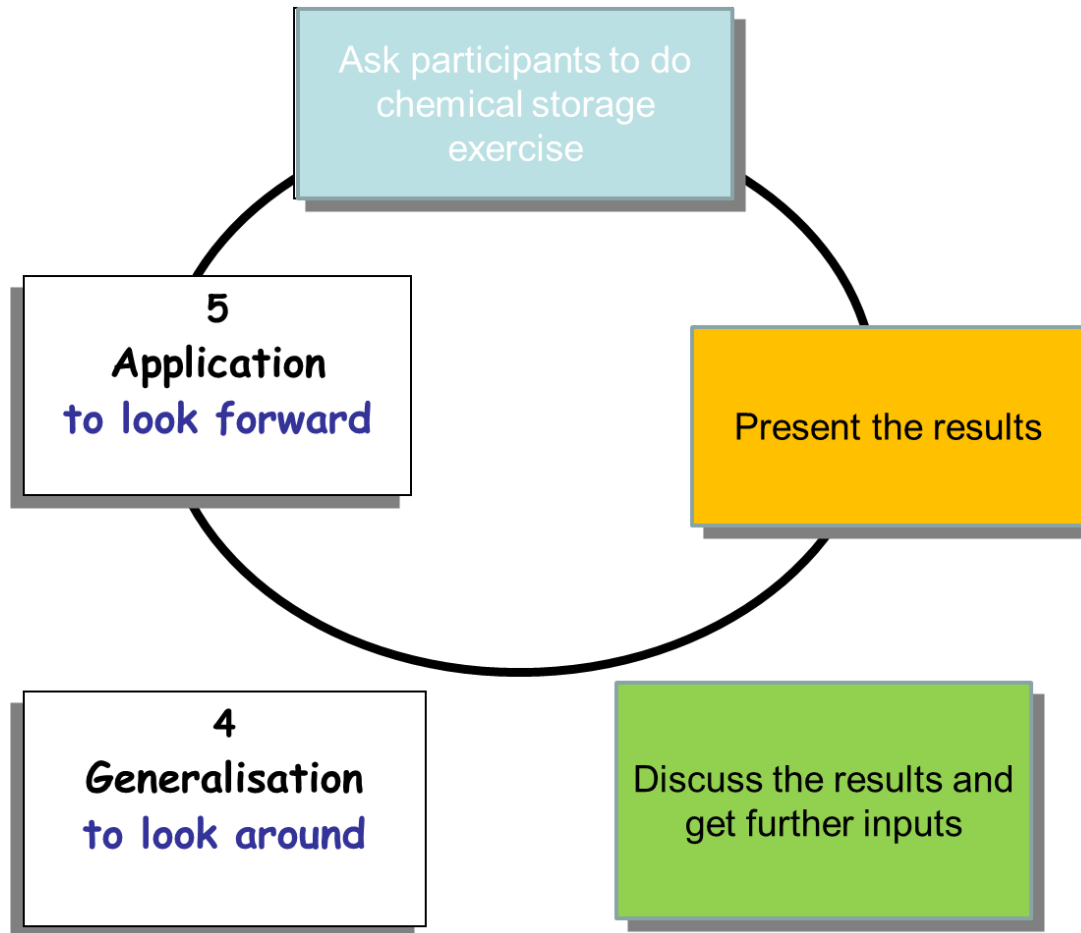
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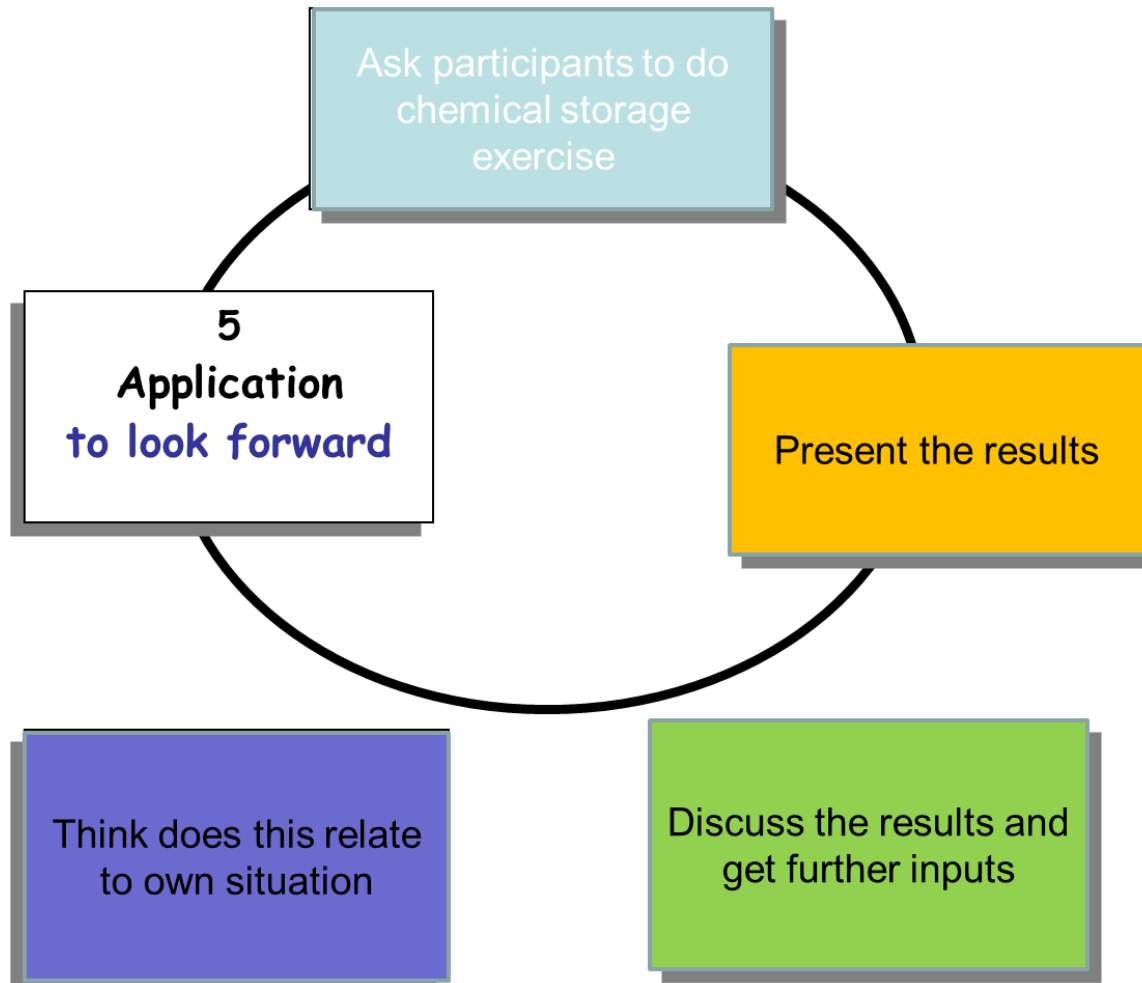
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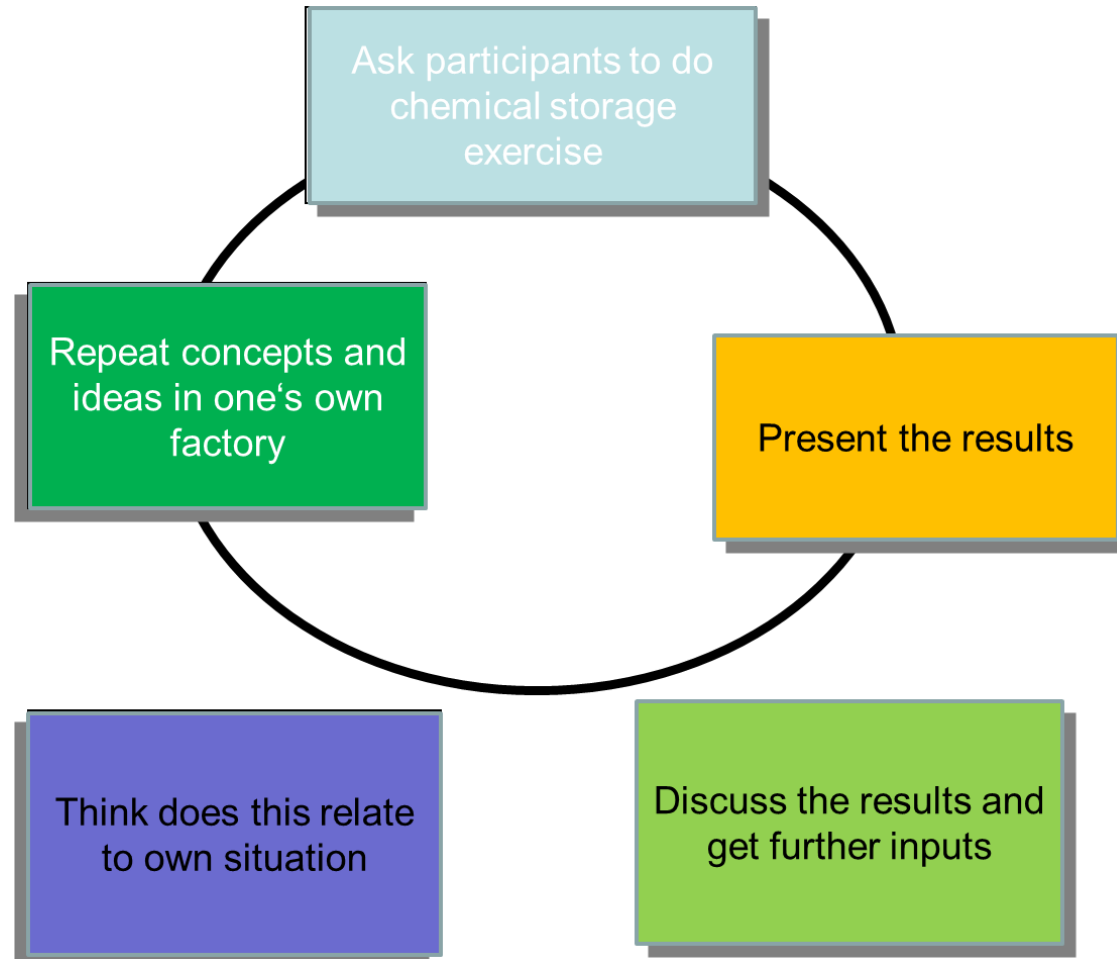
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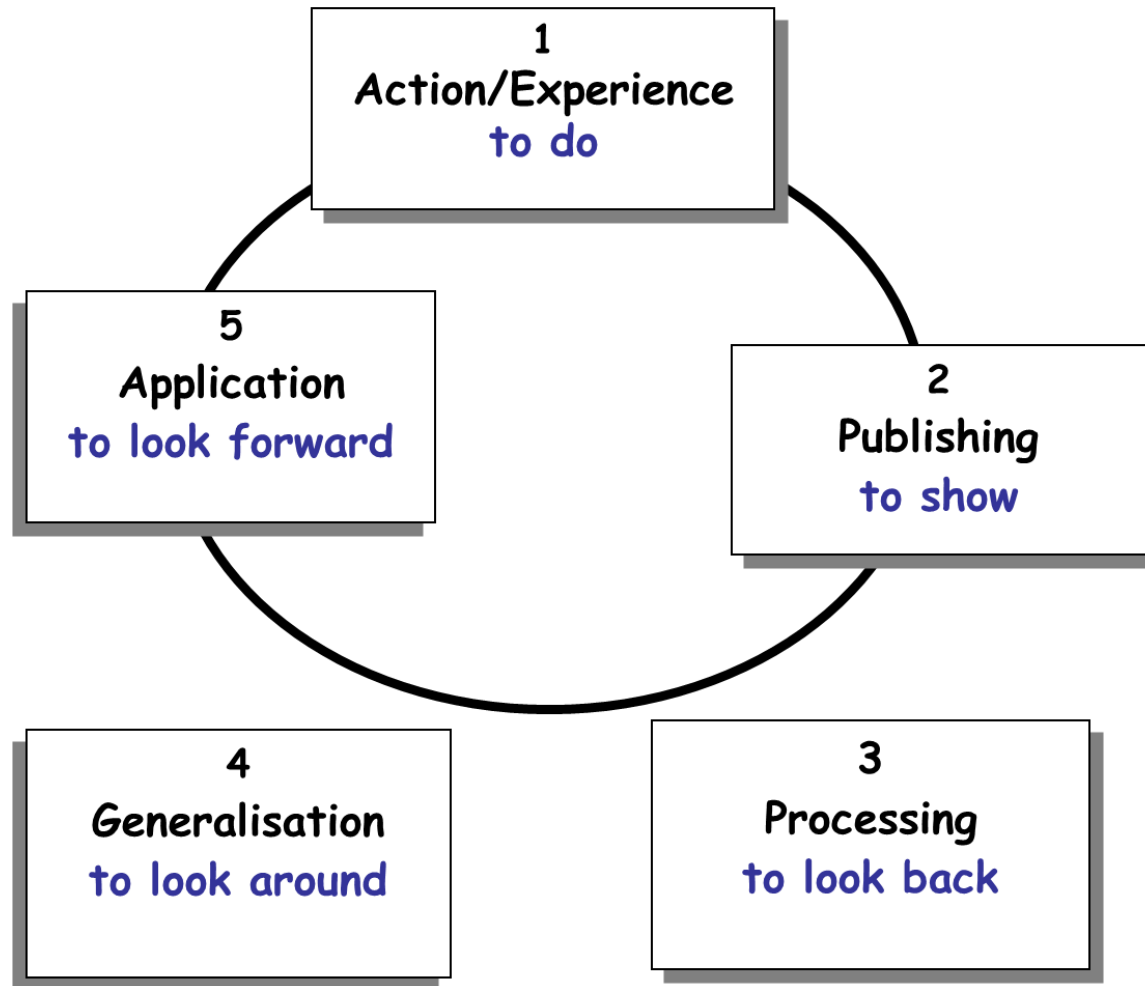


The Experiential Learning Cycle

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The Experiential Learning Cycle



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 - So we must vary the media and give multi-channel messages



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- Brain will go into “auto-shut off” after 10 minutes, if not given something to stimulate
 - So we must vary the media and give multi-channel messages
- A message given once, brain remembers 10% one year later. When given six times, recall rises to 90%

