LEARNING for CHANGE AND INNOVATION

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CONGRESS SUPPORTERS
View of Action Research Based Education and Research Program Development from a Cognitive Science – Developmental Perspective

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How does Action Research connect with Cognitive Science in Education?
**Researcher**: John Sweller  
**Problem**: Learning and Problem Solving  
**Context**: School learning  
**Outcome**: Cognitive Load Theory (CLT)

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**Researcher**: Selva Abraham  
**Problem**: Organisational learning for change and development  
**Context**: Organisational consultancy/Management development  
**Outcome**: Work-Applied Learning (WAL)
Sweller – CLT
Limited Working Memory (WM)
- Need to ensure learning does not overload WM
- Numerous empirically validated learning effects
- Overarching learning perspective (evolutionary perspective)

Abraham – WAL
- Focus: Organisational Learning, Development & Change
- Importance of workplace as key context for learning & change
- Purpose: Enable managers to learn & introduce change via Action Research cycles + Action Learning
<table>
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<th>Cognitive Load Effect</th>
<th>Key References</th>
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<td>Worked-Example</td>
<td>(Renkl, 2005)</td>
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<td>Completion</td>
<td>(Paas &amp; van Merriënboer, 1994)</td>
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<td>Split-Attention</td>
<td>(Ayres &amp; Sweller, 2005)</td>
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<td>(Low &amp; Sweller, 2005)</td>
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<td>Redundancy</td>
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<td>(Paas, Camp &amp; Rikers, 2001)</td>
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<td>Element interactivity</td>
<td>(Sweller, 1994)</td>
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<td>Isolated/interacting elements</td>
<td>(Pollock, Chandler &amp; Sweller, 2002)</td>
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<td>Imagination</td>
<td>(Leahy &amp; Sweller, 2004)</td>
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WAL through AR cycles
AR groups – AL Sets

Departmental Action Learning Set

Dept Head

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WAL Process Components

- Action Research group meetings
- Knowledge workshops
- Work-Based activities
- Collaborative planning
- Acting
- Observation
- Reflection
- Monitoring
- Evaluation
- Validation
Sweller – CLT
- Problem solving – poor way of learning
- Alternative methods developed e.g. use of worked-examples, goal-free problem solving method, etc
- New theory for empirically-founded learning – Cognitive Load Theory (CLT)

Abraham – WAL
- Ineffective textbook-based organisational development
- Alternative methods found, e.g. Work-Based Learning (WBL), Action Research (AR), Action Learning (AL)
- Development of a new theory – Work-Applied Learning (WAL)
Struggles

**Sweller – CLT**
- Minimal support from research community
- Minimal support from university
- Struggle against accepted wisdom
- Activities needing research funding had to be found from outside own institution

**Abraham – WAL**
- No university context or funding for development
- Private higher education development of organisational development program
- Accreditation of private provider program/organisation at undergraduate & postgraduate levels
Triumphs

Sweller – CLT
- International acceptance of CLT
- International research network developed
- International conferences

Abraham – WAL
- Strong management development program established
- Accredited degree programs – using WAL principles
- Private HE institution developed
- Largest MBA program in Australia
Sweller – CLT

Borrowing Knowledge Principle

Abraham – WAL

Masters - Henley Management College

S Abraham borrowed knowledge on WBL, AR, AL

PhD - Flinders University - literature review
Connections #2

Sweller – CLT

- Reorganisation of Knowledge Principle

Abraham – WAL

- S Abraham's knowledge of WBL, AR, AL was reorganised when
- Employed WBL, AR, AL knowledge in organisational consultancies
- Indigenous Community Manager Development

Early Model of WAL
Sweller – CLT

Random Generate and Test Principle

Abraham – WAL

S Abraham utilised Random Generate and Test process

Identified & defined characteristics of AR applicable to organisational development & change

Developed organisational development educational programs using WAL model

Created international research & consultancy centre - Global Centre for Work-Applied Learning

Established an international refereed journal the Journal of Work-Applied Management

Mature Model of WAL
BORROWING KNOWLEDGE PRINCIPLE

In conducting AR/WAL we need to borrow from more expert people, or via literature from distant experts, knowledge about how to conduct AR/WAL effectively, and obtain information via the AR/WAL process from other people.
REORGANISATION OF KNOWLEDGE PRINCIPLE

- An important part of AR/WAL is **reflective practice**, which enables us to **reorganise our knowledge** about AR/WAL and knowledge obtained via AR/WAL.

- Our understanding of AR/WAL and knowledge obtained via AR/WAL needs to be held in humility, always seeking to understand it better by reflective practice, and via AR/WAL seek to understand situation better as well as act on situations to improve them.
RANDOM GENERATE AND TEST PRINCIPLE

- The importance of the random generate and test principle, which may be seen as a form of creative thinking, but described more precisely in these terms, is the realisation that as we go beyond the existing knowledge, we do not know precisely how the creative ideas (randomly generated moves) will work our in practice until they are tried out (tested), but without making these ‘random’ moves nothing new, or worthwhile will be achieved.

- This is where AR/WAL fits the process so well, as in AR/WAL the situation is analysed, plans are developed (without a certain outcome, i.e. random generation), then they are implemented the effects are observed and we reflect on the observed outcomes (testing stage).


