Inquiry learning & the Australian Curriculum: A birds-eye view

Dr Mandy Lupton
Co-ordinator: Master of Education (teacher-librarianship)
Queensland University of Technology
mandy.lupton@qut.edu.au
Twitter: LuptonMandy

http://inquirylearningblog.wordpress.com/

birds-eye view

http://www.research.qut.edu.au/

blog

INQUIRY LEARNING & INFORMATION LITERACY

ideas & musings from mandy lupton

inquiry learning vs information literacy

- Isn't this what TLs have been doing all along…..?

inquiry skills vs inquiry learning

- **Inquiry skills** – information literacy, ICT literacy, information process, discipline specific skills (e.g. data gathering, maths, measurement, data analysis, presentation of data)
- **Inquiry learning** – principles, philosophical stance, pedagogy
- The Australian Curriculum deals with **inquiry skills, NOT inquiry learning**
- The inquiry skills strands are different in each subject area
- TL role in school:
  - Birds-eye view - marry inquiry skills, CCT & ICT with **inquiry learning**
  - Advocate for a whole school inquiry approach

problems

- Teachers may be implementing the Australian Curriculum without knowing how inquiry skills relate to inquiry **learning**
- Within ACARA there seems to be no recognition that many teachers (TLs, primary classroom teachers, heads of curriculum) need a **bird's eye view** of the curriculum

http://pixabay.com/en/parrot-ave-captivity-animals-birds-55293/

principles of inquiry learning

- natural
- universal
- authentic
- real word
- holistic
- constructivist

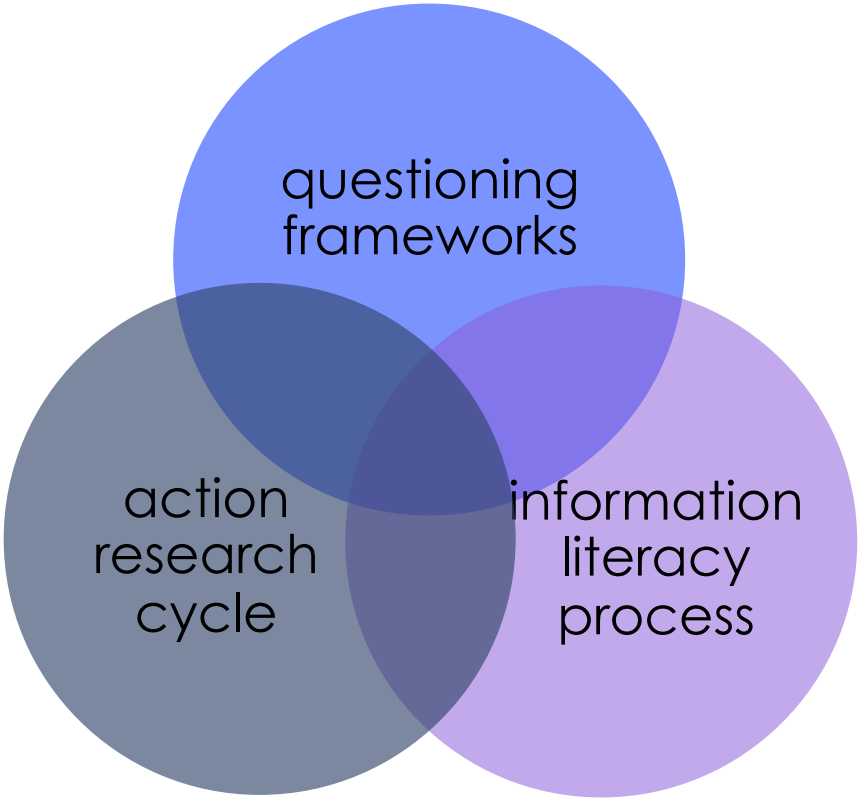
outcomes

- empowerment
- life-long learning

pedagogy

- ‘any conscious activity by one person designed to enhance learning in another.’ (Watkins and Mortimer 1999, p. 3)
- Pedagogy is the way teachers organise learning, underpinned by the values and beliefs that they have regarding teaching and learning.

3 elements of inquiry learning pedagogy

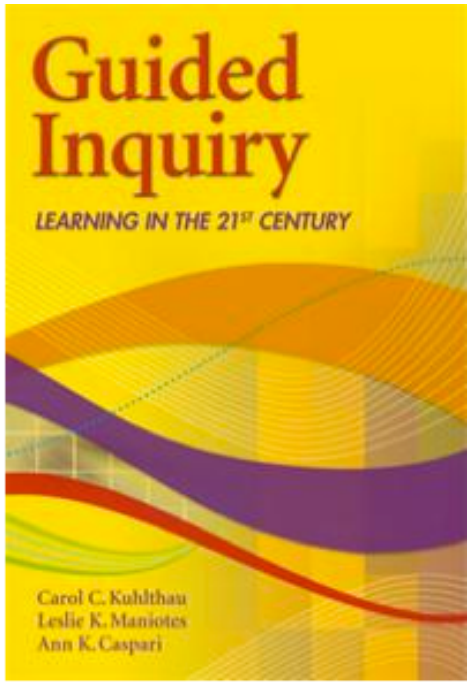


questioning frameworks

types of questions

- **essential**/big questions
- **evaluative**/critical questions
- **disciplinary** questions (e.g. geographical questions, historical questions)
- **process** questions (relating to each stage of the information seeking process)

information literacy / information seeking process



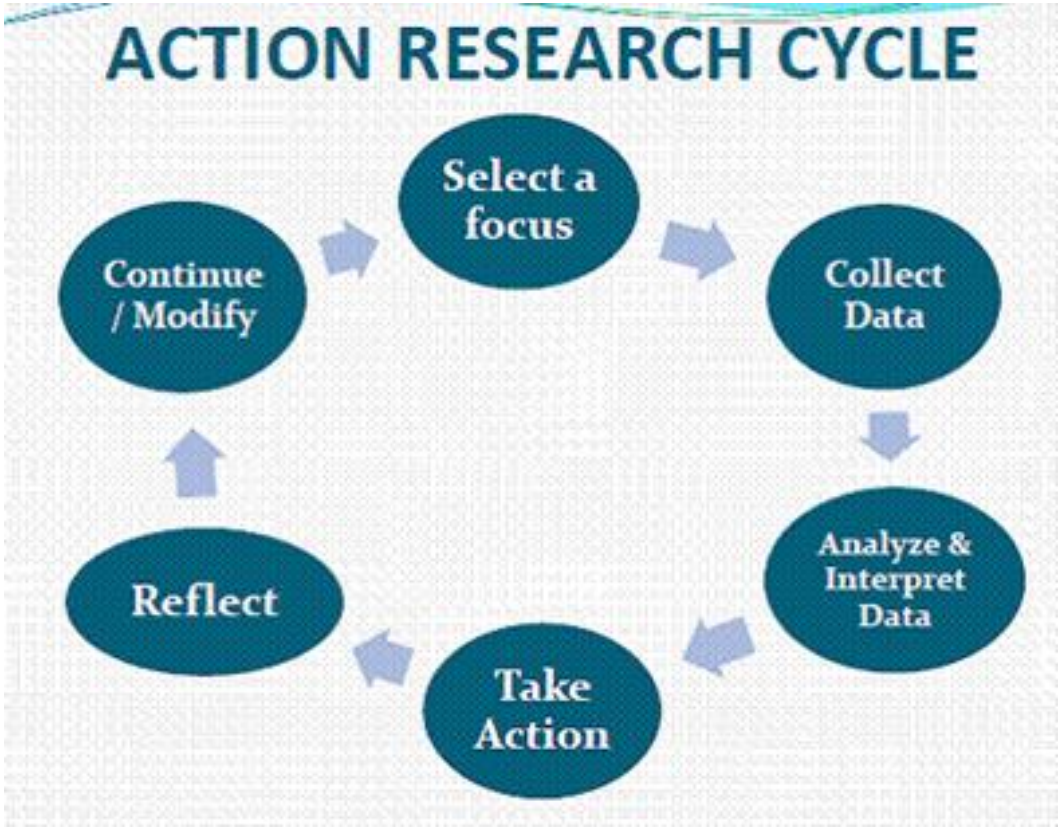
steps in the process

Big 6	ISP	IP	ILP
Define	Initiate	Define	Define
Search	Select Explore Formulate Collect	Locate Select	Locate Select/analyse
Locate			
Use	Present	Organise Present	Organise/ synthesise Create/present
Synthesise			
Evaluate	Assess	Assess	Evaluate

Point of reflection

- Information literacy vs ICT literacy
- TL – ICT coordinator – eLearning coordinator – digital pedagogies coordinator
- Politics of having certain skills & knowledge in the ICT general capabilities vs in inquiry strands

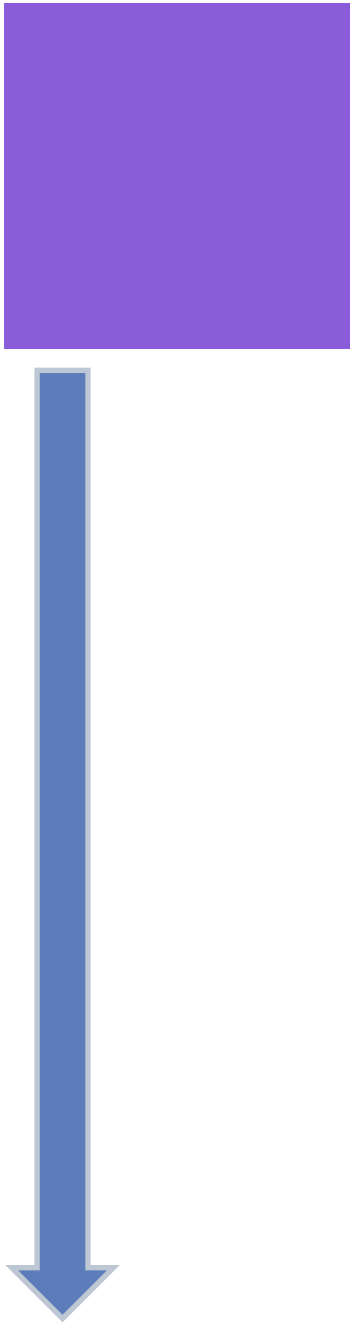
action research cycle



http://nursingplanet.com/Nursing_Research/action_research_nursing.html

scaffolding inquiry learning

	National Research Council (2000) **Martin-Hansen (2002)** **Bell, Smetana & Binns (2005)**
Teacher-directed	**Confirmation** •Results are known in advance
	Structured •Teacher question •Teacher prescribed procedure
Teacher & student directed	**Guided** •Teacher question •Student procedure **Coupled** • Progresses from guided inquiry into open inquiry
Student-directed	**Open** •Student question •Student procedure



disciplinary approaches to inquiry

Science - scientific method, gathering data

History - use of primary & secondary sources, constructing a narrative (an account of the past)

Geography - taking action at a personal, local, national or global level

how is inquiry represented in the Australian Curriculum?

- Inquiry skills are **explicit** in:
  - Science F-12
  - History F-12
  - Geography F-12
  - Civics and Citizenship 3-10 (draft)
  - Economics and Business 5-10 (draft)
  - CCT (Inquiring, identifying, exploring and organising information and ideas)
  - ICT (Investigating with ICT)
- Inquiry is **hinted at** in Mathematics:
  - F-10 - Data representation and interpretation - Stats & probability
  - Senior General Maths – statistical investigation

inquiry strands

Science F–10	History F–12	Geography F–12	CCT	ICT
Questioning & predicting	Historical questions & research	Observing, questioning & planning	Pose questions	
Planning & conducting		Collecting, recording, **evaluating** and representing	Identify & clarify information & ideas	Define & plan info searches Locate, generate & access data & info Recognise intellectual property
Processing & **analysing** data & information	**Analysis** & use of sources	Interpreting, **analysing** & concluding	Organise & process information	
Evaluating	**Perspectives** & interpretations	Reflecting & responding	Reflecting on thinking & processes Evaluate procedures & outcomes	
Communicating	Explanation & communication	Communicating		Collaborate, share & exchange

questions, information literacy, **evaluating information**

General Maths (senior)

Unit 2 Univariate data analysis & the statistical investigation process

"The statistical investigation process:

- review the statistical investigation process; for example, **identifying a problem and posing a statistical question**, collecting or obtaining data, analysing the data, interpreting and communicating the results.
- implement the **statistical investigation process to answer questions** that involve comparing the data for a numerical variable across two or more groups; for example, are Year 11 students the fittest in the school?"

Also:

Unit 3 Bivariate data analysis

Unit 4 - The data investigation process

to come…

Civics & Citizenship (draft):

- **Inquiry and research**: "inquiring and investigating information and ideas, using research skills in reviewing the literature & collecting data, questioning existing situations; preparing reports & critiquing research" (p. 10)

Economics & Business (draft):

- **Research, analysis & synthesis** "identifying & clarifying ..from a variety of sources…selecting & organising economic & business info…interpreting & critiquing media messages" (p. 12)

problems

- Lack of alignment across year levels
- E.g. critical evaluation of information:
  - Year 5 Geography
  - Year 7 History
  - Year 9 Science
- Terms:
  - Science: pose, identify, formulate, construct
  - History: pose, identify, formulate, frame
  - Geography: pose, develop, formulate
- Scaffolding sequence is different e.g. Year 7 Science students 'individually plan', Year 9 Geography students' independently design' investigations

Science-History-Geo-CCT-ICT

http://pixabay.com/en/seagull-bird-beach-bill-nature-183303/

Questioning: Sc, Hist, Geo, CCT

Science	History	Geography	CCT
F - Respond to questions about familiar objects & events 1 - Respond to & pose questions, & make predictions about familiar objects & events	F - Pose questions about the past using sources provided	F - Make observations about familiar places & pose questions about them 1 - Pose questions about familiar & unfamiliar places	F - Pose factual & exploratory questions based on personal interests & experiences 2- Pose questions to identify & clarify issues, & compare information in their world
3 - With guidance, identify questions in familiar contexts that can be investigated scientifically & predict what might happen based on prior knowledge 5 - With guidance, pose questions to clarify practical problems or inform a scientific investigation, & predict what the findings of an investigation might be	3 - Pose a range of questions about the past 5 - Identify questions to inform an historical inquiry	3 - Develop geographical questions to investigate 5 - Develop geographical questions to investigate & plan an inquiry	4 - Pose questions to expand their knowledge about the world 6 - Pose questions to clarify & interpret information & probe for causes & consequences
7 - Identify questions & problems that can be investigated scientifically & make predictions based on scientific knowledge 9 - Formulate questions or hypotheses that can be investigated scientifically	7 - Identify a range of questions about the past to inform a historical inquiry 9 - Identify & select different kinds of questions about the past to inform historical inquiry, Evaluate & enhance these questions	7 - Develop geographically significant questions & plan an inquiry, using appropriate geographical methodologies & concepts 9 - Develop geographically significant questions & plan an inquiry that identifies & applies appropriate geographical methodologies & concepts	8 - Pose questions to probe assumptions & investigate complex issues 10 - Pose questions to critically analyse complex issues & abstract ideas

teacher or student directed

	Science	History	Geography
F	Respond to questions about familiar objects & events	Pose questions about the past using sources provided	Pose questions
1	Respond to & pose questions, & make predictions about familiar objects & events Participate in different types of guided investigations to explore & answer questions	Identify sources	Pose questions
3	With guidance, identify questions in familiar contexts that can be investigated scientifically Suggest ways to plan & conduct investigations to find answers to questions	Identify & locate a range of relevant sources	Develop geographical questions
5	With guidance, pose questions to clarify practical problems or inform a scientific investigation With guidance, plan appropriate investigation methods	Identify questions to inform an historical inquiry	Develop geographical questions to investigate & plan an inquiry
7	Collaboratively & individually plan & conduct a range of investigation types,	Identify a range of questions about the past to inform a historical inquiry	Develop geographical questions to investigate & plan an inquiry
9	Plan, select & use appropriate investigation methods	Identify & select different kinds of questions	Develop geographically significant questions to investigate & plan an inquiry
12	Design investigations, Conduct investigations	Formulate, test & modify propositions to investigate historical issues, Frame questions to guide inquiry, Develop a coherent research plan for inquiry	Formulates geographical inquiry questions Plans a geographical inquiry

finding, selecting, accessing sources

	Science	History	Geography
F		Using sources provided, Explore a range of sources	
1	Accessing information sources		Sources such as photographs, plans, satellite images, story books & films
3		Identify sources, Locate relevant information from sources provided	Sources such as maps, photographs, satellite images, the media & the internet
5		Identify & locate a range of relevant sources, Locate information related to inquiry questions in a range of sources	Primary & secondary sources, for example, people, maps, plans, photographs, satellite images, statistical sources & reports,
7	Secondary sources	Identify & locate relevant sources, using ICT & other methods; identify the origin & purpose of primary & secondary sources, Locate, compare, select & use information from a range of sources as evidence draw conclusions about the usefulness of sources	Collect, select & record relevant geographical data & information, using ethical protocols, from appropriate primary & secondary sources
9	Critically analyse the validity of information in secondary sources	Identify & locate relevant sources, using ICT & other methods, identify the origin, purpose & context of primary & secondary sources, Evaluate the reliability & usefulness of primary & secondary sources	Collect, select, record & organise relevant geographical data & information, from a range of appropriate primary & secondary sources,
12	Primary &/or secondary data to be collected, Interpret a range of scientific & media texts	Identify, locate & organise relevant information from a range of primary & secondary sources, Identify the origin, purpose & context of historical sources, Evaluate the reliability, usefulness & contestability of sources	Collects geographical information incorporating ethical protocols from a range of primary & secondary sources

acknowledging sources

	Science	History	Geography
F			
1			
3			
5			
7		Use evidence from a range of sources that are acknowledged	
9		Use evidence from a range of sources that are referenced	
11-12		Apply appropriate referencing techniques accurately & consistently	

…ICT – digital sources

	Science	History	Geography	ICT
F				
1				2 - recognise ownership of digital products that others produce
3				4 - acknowledge when they use digital products created by someone else, & start to indicate the source
5				6 - identify the legal obligations regarding the ownership & use of digital products & apply some referencing conventions
7		Use evidence from a range of sources that are acknowledged		8 - apply practices that comply with legal obligations regarding the ownership & use of digital products resources
9		Use evidence from a range of sources that are referenced		10 - consciously apply practices that protect intellectual property
12		Apply appropriate referencing techniques accurately & consistently		

evaluation – Inquiry, CCT, ICT

Yr	Science	History	Geography	CCT	ICT
2					Explain the usefulness of located data or information
4					Explain why located data or information was selected
5			Evaluate sources for their usefulness		
6					Assess the suitability of data or information using a range of appropriate given criteria
7		Draw conclusions about the usefulness of sources	Evaluate sources for their reliability & usefulness		
8				Critically analyse information & evidence according to criteria such as validity & relevance	Assess the suitability of data or information using appropriate own criteria
9	Critically analyse the validity of information in secondary sources	Evaluate the reliability & usefulness of primary & secondary sources	Evaluate sources for their reliability, bias & usefulness		
10				Critically analyse independently sourced information to determine bias & reliability	Develop & use criteria systematically to evaluate the quality, suitability & credibility of located data or information & sources
12	Evaluate processes, claims & conclusions by considering the quality of available evidence	Evaluate the reliability, usefulness & contestability of sources	Evaluates the reliability, validity & usefulness		

evaluation criteria

Yr	Science	History	Geography	CCT	ICT
2					usefulness
4					why selected
5			usefulness		
6					suitability - a range of appropriate given criteria
7		usefulness	reliability & usefulness		
8				criteria such as validity & relevance	suitability - using appropriate own criteria
9	validity - secondary sources	reliability & usefulness - primary & secondary sources	reliability, bias & usefulness		
10				bias & reliability	develop & use criteria - quality, suitability & credibility
12	quality of available evidence	reliability, usefulness & contestability	reliability, validity & usefulness	NA	NA

Questions?

http://pixabay.com/en/owl-eagle-animal-bird-eyes-14918/

References

- Harste, J. (2001). What inquiry is and isn't. In S. Boran & B. Comber (Eds.), *Critiquing whole language and classroom inquiry* (pp. 1-17). Urbana: National Council of Teachers of English.
- Lupton, M (2012) Inquiry learning & information literacy http://inquirylearningblog.wordpress.com/
- Wiggins, G., & McTighe, J. (2005). *Understanding by design* (2nd ed.). Alexandria VA: Association for Supervision and Curriculum Development.
- Scardamalia, M., & Bereiter, C. (2010). A brief history of knowledge building. *Canadian Journal of Learning and Technology, 36*(1), 1-16.
- Watkins, C., & Mortimore, P. (1999). Pedagogy: What do we know? In P. Mortimore (Ed.), *Understanding pedagogy and its impact on learning*. London: Paul Chapman Publishing.