



Research Skill Development Framework

A conceptual framework for the explicit, coherent, incremental and cyclic development of the skills associated with researching, problem solving, critical thinking and clinical reasoning.

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What characterises the move from 'search' to 'research'?
Gathering more information and generating more data is merely a bigger search! Research is when
students...

Extent of Students' Autonomy

		Prescribed Research- Level 1	Bounded Research- Level 2	Scaffolded Research- Level 3	Self-actuated Research- Level 4	Open Research- Level 5
Facets of Research	a. Embark & Clarify Respond to or initiate research and clarify or determine what knowledge is required, heeding ethical, cultural, social and team (ECST) considerations.	Highly structured directions and modelling from educator prompt research, in which students...	Boundaries set by and limited directions from educator channel research, in which students...	Scaffolds placed by educator shape independent research, in which students...	Students initiate the research and this is guided by the educator to...	Students determined guidelines for the research that are in accord with discipline or context to ...
	b. Find & Generate Find and generate needed information/data using appropriate methodology.	Respond to questions/tasks arising explicitly from a closed inquiry. Use a provided structured approach to clarify questions, terms, requirements, expectations and ECST issues.	Respond to questions/tasks required by and implicit in a closed inquiry. Choose from several provided structures to clarify questions, terms, requirements, expectations and ECST issues.	Respond to questions/tasks generated from a closed inquiry. Choose from a range of provided structures or approaches to clarify questions, terms, requirements, expectations and ECST issues.	<i>*Generate questions/aims/ hypotheses framed within structured guidelines*.</i> Anticipate and prepare for ECST issues.	<i>*Generate questions/aims/ hypotheses based on experience, expertise and literature*.</i> Delve into and prepare for ECST issues.
	c. Evaluate & Reflect Determine and critique the degree of credibility of selected sources, information and data generated. Metacognitively reflect on the research processes used.	Collect and record required information or data using a prescribed methodology from a prescribed source in which the information/data is clearly evident.	Collect and record required information/data using a given methodology from pre-determined source/s in which the information/data is not clearly evident.	Collect and record required information/data from self-selected sources using one of several provided methodologies.	Collect and record self-determined information/ data from self-selected sources, choosing an appropriate methodology based on parameters set.	Collect and record self-determined information/data from self-selected sources, choosing or devising an appropriate methodology with self-structured guidelines.
	d. Organise & Manage Organise information and data to reveal patterns and themes, and manage teams and research processes.	Evaluate sources/information/data using simple prescribed criteria to specify credibility and to reflect on the research process.	Evaluate sources/information/data using a choice of provided criteria to specify credibility and to reflect on the research process.	Evaluate information/data and inquiry process using criteria related to the aims of the inquiry. Reflect insightfully to improve own processes used.	Evaluate information/data and the inquiry process comprehensively using self-determined criteria developed within parameters given. Reflect insightfully to refine others' processes.	Evaluate information/data and inquiry process rigorously using self-generated criteria based on experience, expertise and the literature. Reflect insightfully to renew others' processes.
	e. Analyse & Synthesise Analyse information/data critically and synthesise new knowledge to produce coherent individual/team understandings.	Organise information/data using prescribed structure. Manage linear process provided (with pre-specified team roles).	Organise information/data using a choice of given structures. Manage a process which has alternative possible pathways (and specify team roles).	Organise information/data using recommended structures. Manage self-determined processes (including team function) with multiple possible pathways.	Organise information/data using self-determined structures, and manage the processes (including team function) within the parameters set.	Organise information/data using self-determined structures and management of processes (including team function).
	f. Communicate & Apply Write, present and perform the processes, understandings and applications of the research, and respond to feedback, accounting for ethical, cultural, social and team (ECST) issues.	Interpret given information/data and synthesise knowledge into prescribed formats. <i>*Ask emergent questions of clarification/curiosity*.</i>	Interpret several sources of information/ data and synthesise to integrate knowledge into standard formats. <i>*Ask relevant, researchable questions emerging from the research*.</i>	Analyse trends in information/data and synthesise to fully integrate component parts in structures appropriate to task. <i>*Ask rigorous, researchable questions based on new understandings*.</i>	Analyses information/data and synthesises to fully integrate components, consistent with parameters set. Fill knowledge gaps that are stated by others.	Analyse and synthesise information/data to generalise or abstract knowledge that addresses self-or-group-identified gaps in understanding.
		Use mainly lay language and prescribed genre to demonstrate understanding for lecturer/ teacher as audience. Apply to a similar context the knowledge developed. Follow prompts on ECST issues.	Use some discipline-specific language and prescribed genre to demonstrate understanding from a stated perspective and for a specified audience. Apply to different contexts the knowledge developed. Specify ECST issues.	Use discipline-specific language and genres to demonstrate scholarly understanding for a specified audience. Apply the knowledge developed to diverse contexts. Specify ECST issues in initiating, conducting and communicating.	Use appropriate language and genres to address gaps of a self-selected audience. Apply innovatively the knowledge developed to a different context. Probe and specify ECST issues in each relevant context.	Use appropriate language and genre to extend the knowledge of a range of audiences. Apply innovatively the knowledge developed to multiple contexts. Probe and specify ECST issues that emerge broadly.

...spiral through these facets, adding degrees of rigour and discernment. The move from problem solving to problem optimisation and from thinking to thinking critically likewise require adding rigour to these facets.

Research Skill Development (RSD), a conceptual framework for Primary School to PhD, developed by © John Willison and Kerry O'Regan, October 2006/October 2013, with much trialling by Eleanor Peirce and Mario Ricci. Facets based on: ANZIIL (2004) Standards & Bloom's et al. (1956) Taxonomy. Extent of Synthesis informed by SOLO taxonomy (Biggs & Collis, 1982). * Framing researchable questions often requires a high degree of guidance and modelling for students and, initially, may need to be scaffolded as an outcome of the researching process (Facet E, Levels 1-3). After development, more students are able to initiate research (Facet A, Levels 4 & 5)*. The perpendicular font reflects the drivers and emotions of research. Framework, resources, learning modules, videos and references available at www.rsd.edu.au. Information: john.willison@adelaide.edu.au



Researcher Skill Development Framework

A conceptual framework for the explicit, coherent, incremental and cyclic development of the skills associated with researching. © John Willison & Kerry O'Regan, August 2008/October 2013

← supervisor initiated → ← researcher initiated → ← discipline building →

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Researchers...

Facets of Research

		Prescribed Research Level 1	Bounded Research Level 2	Scaffolded Research Level 3	Self-actuated Research Level 4	Open Research Level 5	Adopted Research Level 6	Enlarging Research Level 7	
a. Embark & Clarify Respond to or initiate research and clarify or determine what knowledge is required, heeding ethical, cultural, social and team (ECST) considerations.		Highly structured directions and modelling from supervisor prompt the researcher(s) to...	Boundaries set by and limited directions from supervisor channel the researcher(s) to ...	Scaffolds placed by supervisor enable the researcher(s) to independently...	Researcher(s) initiate and supervisor guides.	Researcher(s) determine guidelines that are in accord with discipline or context.	Researcher(s) inform others' agendas	Researcher(s) enlarge the field of inquiry.	
Curious Determined Discerning Harmonising Creative Constructive	b. Find & Generate Find and generate needed information/data using appropriate methodology.	Respond to questions/ tasks arising explicitly from a closed inquiry. Use a provided approach to clarify questions, expectations and ECST issues.	Respond to questions/ tasks implicit in a closed inquiry. Choose from several provided structures to clarify questions, expectations and ECST issues.	Respond to questions /tasks generated from a closed inquiry. Choose from a range of provided structures or approaches to clarify salient elements including ECST issues.	Generate questions/aims/ hypotheses framed within structured guidelines. Anticipate and prepare for ECST issues.	Generate questions/aims/ hypotheses based on experience, expertise and literature. Delve into and prepare for ECST issues.	Identify previously unstated gaps in literature and articulate research directions and ECST issues in response to them.	Articulate research directions that expand or direct the field and anticipate the corresponding ECST issues.	
	c. Evaluate & Reflect Determine and critique the degree of credibility of selected sources, information and of data generated. Metacognitively reflect on processes used.	Collect and record required information or data using a prescribed methodology from a prescribed source in which the information/data is clearly evident.	Collect and record required information/data using a prescribed methodology from prescribed source/s in which the information/ data is not clearly evident.	Collect and record required information/data from self-selected sources using one of several prescribed methodologies.	Collect and record self-determined information/ data, choosing an appropriate methodology based on structured guidelines.	Collect and record self-determined information/ data and the inquiry process using self-determined criteria developed within structured guidelines. Refines others' processes.	Collect and record self-determined information/ data, choosing or devising an appropriate methodology.	Synthesise others' methods to formulate novel methods/ methodologies or apply existing methods to novel applications.	Generate new methods/methodologies that are used widely.
	d. Organise & Manage Organise information and data to reveal patterns and themes, and manage teams and research processes.	Evaluate sources/ information/data using simple prescribed criteria to specify credibility and to reflect on the research process.	Evaluate sources/ information/data using a choice of provided criteria to specify credibility and to reflect on the research process.	Evaluate information/data and inquiry process using criteria related to the aims of the inquiry. Reflect insightfully to improve own processes used.	Evaluate information/data and the inquiry process using self-determined criteria developed within structured guidelines. Refines others' processes.	Evaluate information/data and the inquiry process using self-generated criteria based on experience, expertise and the literature. Renews others' processes.	Generate substantial research outcomes, so that ideas, practices or interpretations are cited/implemented by others.	Generate substantial research outcomes, so that ideas, practices or interpretations become foundational in field or discipline.	
	e. Analyse & Synthesise Analyse information/data critically and synthesise new knowledge to produce coherent individual/team understandings.	Organise information/data using prescribed structure. Manage linear process provided (with pre-specified team roles).	Organise information/data using a choice of given structures. Manage a process which has alternative pathways (and specify team roles).	Organise information/data using recommended structures. Manage self-determined processes (including team function) with multiple pathways.	Organise information/data using self-or-team-determined structures, and manage the processes, within supervisor's parameters.	Organise information/data using self-or-team-determined structures and management of processes.	Form a research team or a team of community-based practitioners.	Form and develop research networks/communities.	
	f. Communicate & Apply Write, present and perform the processes, understandings and applications of the research, and respond to feedback, accounting for ethical, cultural, social and team (ECST) issues.	Interpret given information/data and synthesize knowledge into prescribed formats. <i>Ask emergent question.</i>	Interpret several sources of information/ data and synthesise to integrate knowledge into standard formats. <i>Ask relevant, researchable questions.</i>	Analyse trends in information/data and synthesises to fully integrate components specified. <i>Ask rigorous, researchable questions.</i>	Analyses information/data and synthesizes to fully integrate components, consistent with parameters set. Fill knowledge gaps that are stated by others.	Analyse and create information/data to fill student-identified gaps or extend knowledge.	Synthesise others' concepts or interpretations to frame novel outcomes. May also address substantial concerns of a community.	Develop new concepts or interpretations that expand the field or discipline. May also address substantial concerns across communities.	
		Use prescribed genre to demonstrate understanding. Apply to a similar context the knowledge developed. Follow prompts on ECST issues.	Use discipline-specific language and prescribed genre to demonstrate understanding from a stated perspective and for a specified audience. Apply to different contexts the knowledge developed. Clarify ECST issues.	Use discipline-specific language and genres to demonstrate scholarly understanding for a specified audience. Apply the findings to diverse contexts. Specify ECST issues that emerge.	Use appropriate language and genre to address gaps of a self-selected audience. Apply innovatively the knowledge developed to a different context. Probe and specify ECST issues in each relevant context.	Use appropriate language and genre to extend the knowledge of a range of audiences. Apply innovatively the knowledge developed to multiple contexts. Probe and specify ECST issues that emerge broadly.	Change the conversation within the discipline/field through publicly- available communication of knowledge/understanding. Articulate and promote relevant ECST issues.	Change the direction of the conversation across disciplines/ fields. Articulate and promote ECST issues that were previously unstated.	

