



# Research Skill Development Framework

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

## Extent of Students' Autonomy

What characterises the difference between 'search' and 'research'? More searching and more data generation is just a 'bigsearch'! Research is **when students...**

		Level 1 (Prescribed Research)	Level 2 (Bounded Research)	Level 3 (Scaffolded Research)	Level 4 (Student-initiated Research)	Level 5 (Open Research)
<b>F</b> <b>a</b> <b>c</b> <b>e</b> <b>t</b>  <b>O</b> <b>f</b>  <b>R</b> <b>e</b> <b>s</b> <b>e</b> <b>a</b> <b>r</b> <b>c</b> <b>h</b>	<b>a. Embark &amp; Clarify</b> Respond to or initiate research and clarify or determine what knowledge is required, heeding ethical/cultural and social/team considerations.	Curious Respond to questions/tasks arising explicitly from a closed inquiry. Use a provided structured approach to clarify questions, terms, requirements and expectations.	Respond to questions/tasks required by and implicit in a closed inquiry. Choose from several provided structures to clarify questions, terms, requirements and expectations.	Respond to questions/tasks generated from a closed inquiry. Choose from a range of provided structures or approaches to clarify questions, terms, requirements and expectations.	*Generate questions/aims/hypotheses framed within structured guidelines*.	*Generate questions/aims/hypotheses based on experience, expertise and literature*.
	<b>b. Find &amp; Generate</b> Find and generate needed information/data using appropriate methodology.	Determined 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 from self-selected sources, choosing an appropriate methodology based on structured guidelines.	Collect and record self-determined information/data from self-selected sources, choosing or devising an appropriate methodology with self-structured guidelines.
	<b>c. Evaluate &amp; Reflect</b> Determine and critique the degree of credibility of selected sources, information and of data generated and reflect on the research processes used.	Discerning Evaluate information/data and reflects on inquiry process using simple prescribed criteria.	Evaluate information/data and reflect on the inquiry process using given criteria.	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 structured guidelines. 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.
	<b>d. Organise &amp; Manage</b> Organise information and data to reveal patterns and themes, and manage teams and research processes.	Harmonising Organise information/data using prescribed structure. Manage linear process provided.	Organise information/data using a choice of given structures. Manage a process which has alternative pathways.	Organise information/data using recommended structures. Manage self-determined processes with multiple possible pathways.	Organise information/data using student-determined structures, and manage the processes, within the parameters set by the guidelines.	Organise information/data using student-determined structures and management of processes.
	<b>e. Analyse &amp; Synthesise</b> Analyse information/data critically and synthesise new knowledge to produce coherent individual/team understandings.	Creative Analyse and synthesise information/data to reproduce existing knowledge in prescribed formats. *Ask emergent questions of clarification/curiosity*.	Analyse and synthesise information/data to reorganize existing knowledge in standard formats. *Ask relevant, researchable questions emerging from the research*.	Analyse and synthesise information/data to construct emergent knowledge. *Ask rigorous, researchable questions based on new understandings*.	Analyse and create information/data to fill knowledge gaps stated by others.	Analyse and create information/data to fill student-identified gaps or extend knowledge.
	<b>f. Communicate &amp; Apply ethically</b> Write, present and perform the processes, understandings and applications of the research, and respond to feedback, accounting for ethical, social and cultural (ESC) issues.	Constructive 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 ESC 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 ESC issues.	Use discipline-specific language and genres to demonstrate scholarly understanding for a specified audience. Apply the knowledge developed to diverse contexts. Specify ESC issues in initiating, conducting and communicating.	Use discipline-specific language and genres to address gaps of a self-selected audience. Apply innovatively the knowledge developed to a different context. Probe and specify ESC 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 ESC issues that emerge broadly.
... spiral through the facets, adding degrees of rigour and discernment as they delve.		Research Skill Development (RSD), a conceptual framework for Primary school to PhD, developed by John Willison and Kerry O'Regan ©, October, 2006/February, 2013, with much trialling by Eleanor Peirce and Mario Ricci. Facets based on: ANZIII (2004) Standards & Bloom's et al (1956) Taxonomy. * 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 and references available at <a href="http://www.rsd.edu.au">http://www.rsd.edu.au</a> . For information: john.willison@adelaide.edu.au				



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# Researcher Skill Development Framework

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

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

		Prescribed Research Highly structured directions and modelling from supervisor prompt the research.	Bounded Research Boundaries set by and limited directions from supervisor channel research.	Scaffolded Research Scaffolds placed by supervisor shape the independent research.	Researcher-initiated Researchers initiate and supervisors guide.	Open Research Research is within self-determined guidelines that are in accord with discipline or context.	Adopted Research Research informs others' agendas.	Enlarging Research Research enlarges the field of inquiry.
<b>Facet of Research</b>	<b>b. Embark &amp; Clarify</b> Respond to or initiate research and clarify or determine what knowledge is required, heeding ethical/cultural and social/team considerations.	Curious Respond to questions/tasks arising explicitly from a closed inquiry. Use a provided approach to clarify questions and expectations.	Determined Respond to questions/tasks implicit in a closed inquiry. Choose from several provided structures to clarify questions and requirements.	Discerning Respond to questions/tasks generated from a closed inquiry. Choose from a range of provided structures or approaches to clarify salient elements.	Creative <i>*Generate questions/aims/hypotheses framed within structured guidelines*.</i>	Constructive <i>*Generate questions/aims/hypotheses based on experience, expertise and literature*.</i>	Harmonising Identify previously unstated gaps in literature and articulate research directions in response to them.	Constructive Articulate research directions that expand the field and followed by it.
	<b>b. Find &amp; Generate</b> Find and generate needed information/data using appropriate methodology.	Determined Collect and record required information or data using a prescribed methodology from a prescribed source in which the information/data is clearly evident.	Determined Collect and record required information/data using a prescribed methodology from prescribed source/s in which the information/ data is not clearly evident.	Discerning Collect and record required information/data from self-selected sources using one of several prescribed methodologies.	Creative Collect and record self-determined information/data, choosing an appropriate methodology based on structured guidelines.	Constructive Collect and record self-determined information/data, choosing or devising an appropriate methodology.	Harmonising Synthesise others' methods to formulate novel methods/methodologies or apply existing methods to novel applications.	Constructive Generate new methods/methodologies that are used widely.
	<b>c. Evaluate &amp; Reflect</b> Determine and critique the degree of credibility of selected sources, information and of data generated and reflect on the research processes used.	Discerning Evaluate information/data and reflects on inquiry process using simple prescribed criteria.	Discerning Evaluate information/data and reflect on the inquiry process using given criteria.	Discerning Evaluate information/data and inquiry process using criteria related to the aims of the inquiry. Reflect insightfully to improve own processes used.	Creative Evaluate information/data and the inquiry process using self-determined criteria developed within structured guidelines. Refines others' processes.	Constructive Evaluate information/data and inquiry process using self-generated criteria based on experience, expertise and the literature. Renews others' processes.	Harmonising Generate substantial research outcomes, so that ideas, practices or interpretations are cited/implemented by others.	Constructive Generate substantial research outcomes, so that ideas, practices or interpretations become foundational in field or discipline.
	<b>d. Organise &amp; Manage</b> Organise information and data to reveal patterns and themes, and manage teams and research processes.	Harmonising Organise information/data using prescribed structure. Manage linear process provided.	Harmonising Organise information/data using a choice of given structures. Manage a process which has alternative pathways.	Discerning Organise information/data using recommended structures. Manage self-determined processes with multiple possible pathways.	Creative Organise information/data using self-determined structures, and manage the processes, within supervisor's parameters.	Constructive Organise information/data using student-determined structures and management of processes.	Harmonising Form a research team or a team of community-based practitioners.	Constructive Form and develop research networks/communities.
	<b>e. Analyse &amp; Synthesise</b> Analyse information/data critically and synthesise new knowledge to produce coherent individual/team understandings.	Creative Analyse and synthesise information/data to reproduce existing knowledge in prescribed formats. <i>*Ask emergent questions.</i>	Creative Analyse and synthesise information/data to reorganize existing knowledge in standard formats. <i>*Ask relevant, researchable questions.</i>	Creative Analyse and synthesise information/data to construct emergent knowledge. <i>*Ask rigorous, researchable questions.</i>	Constructive Analyse and create information/data to fill knowledge gaps stated by others.	Constructive Analyse and create information/data to fill student-identified gaps or extend knowledge.	Harmonising Synthesise others' concepts or interpretations to frame novel outcomes. May also address substantial concerns of a community.	Constructive Develop new concepts or interpretations that expand the field or discipline. May also address substantial concerns across communities.
	<b>f. Communicate &amp; Apply ethically</b> Write, present and perform the processes, understandings and applications of the research, and respond to feedback, accounting for ethical, social and cultural (ESC) issues.	Constructive Use prescribed genre to demonstrate understanding. Apply to a similar context the knowledge developed. Follow prompts on ESC issues.	Constructive 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 ESC issues.	Constructive Use discipline-specific language and genres to demonstrate scholarly understanding for a specified audience. Apply the findings to diverse contexts. Specify ESC issues in initiating, conducting, communicating.	Constructive Use discipline-specific language and genres to address gaps of a self-selected audience. Apply innovatively the knowledge developed to a different context. Probe and specify ESC issues in each relevant context.	Constructive 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 ESC issues that emerge broadly.	Harmonising Change the conversation within the discipline/field through publicly- available communication of knowledge/understanding. Articulate and promote ESC issues.	Constructive Change the direction of the conversation across disciplines/ fields. Articulates and promote ESC issues previously unstated.