

Developing Capacity for Argument in Support of IA Goals and Decisions

Glenn Brown

This **draft** paper describes the main ideas of the above titled recorded presentation at IAIA 2021.

Background and Goals

Impact Assessment typically involves substantial written documentation. The main focus is usually the documentation of the project and assessment, often called the impact assessment or impact statement. There is much discussion about the length of the process and the documents, and potential inefficiencies in the process. Also often discussed, is that the idea that documents are often not clearly written. They are often seen as are hard to follow even by professionals and difficult to understand by decision makers and stakeholders. In response there are often suggestions for technical writing training for staff, application of principles of ‘Plain English’ and suggestions to force brevity by requiring a shorter time for producing the documents. (References to the literature will be expanded in the final draft.)

But these suggestions miss a key perspective. There is some truth to comments about unwieldy documentation, but the notion that better writing would address the challenge is grossly insufficient. One cannot write clearly until one has something clear to say. Missing in discussions is the awareness that what professionals are actually assembling are a series of arguments. When that realization is made, the many guidelines for creating and writing arguments, developed over 2500 years, become available to the assessment practitioner. Building data and analysis into a careful and logically strong argument gives the author something clear to say. Then other tools for sharing written arguments can present clearer text in shorter and more easily understood form. This presentation shares a particular way to package tools that create and communicate arguments, and a set of steps to share those ideas, to enhance the professional capacity of assessment practitioners.

Recognizing that most technical work in the assessment process is ‘argument’

Central to this discussion is the term ‘argument.’ A simple definition, consistent with use in philosophy, law, debate and other fields, is: ‘reasons thoughtfully organized to support a conclusion’. More formally: “An argument is a set of statements in which a claim is made, support is offered for it, and there is an attempt to influence someone.” (Inch and Warnock 2016). Arguments are tools to resolve something that is unsettled, by assembling evidence that leads to the resolution of a problem, and sharing the reasoning with an audience.

If people knew everything in advance, there would be no need for the impact assessment process. The process addresses unresolved matters. The enterprise is (to simplify) about finding relevant information about multiple topics, figuring out how a new project might influence those features, and what could be done about it. Each of those steps requires building argument. Together they make a series of arguments, called an extended argument, in which initial conclusions from one step are used as input to later reasoning. The end of the sequence of argument is to reach final conclusions about significance, mitigation and so forth. In argument terms, the goal is to

convince the reader that the data are sound, the procedures appropriate and the conclusions well justified. One wants to influence the reader, through fair, transparent and clear reasoning, to accept the conclusions offered by the author. That is, to present clear and strong technical arguments which are understood as such by the reader.

However, professionals do not realize all the complex steps of identifying and building arguments and often miss them. In an analysis of significance arguments of a review agency, my graduate student Tim Hicks (2011) found that, while the data were sound and most of the conclusions were not contentious, readers could not easily follow how the author got from data to the conclusions. In fact, of 198 required significance arguments, only 43 identified reasons to support the conclusion. (The others missed steps: a conclusion without supporting reasons is not an argument.) And none of the 43 arguments that were offered had the properties of ‘strong argument’. That’s zero strong arguments among the 198 the assessors were required to make. No wonder other professionals and the public have a hard time following assessment documents. But there are ways to help practitioners organize and present their information more clearly.

The Design of ‘Organized Reasoning’

Argument has been studied in a systematic way since Ancient Greece. In their new democracy, they made laws and defended criminal cases orally and in public. Aristotle wrote the first books to guide public presentation (Rhetoric) and the careful reasoning needed to underpin it (Logic) to meet the needs of those public debates. There have been many advances over the intervening years. In the 20th century new ideas came from cognitive psychology, composition, forensics (formal debate), legal scholarship and a subfield of philosophy called informal logic. Unfortunately, these disparate fields, all with good ideas, do not ‘speak to each other’. The good ideas from one field are often not known to the other fields. There is no central synthesis to draw upon. There is no obvious way to apply these thoughts to the particular demands of technical professionals, with large quantities of data and predictable, but complex, steps of reasoning.

Hence, I created a synthesis of a subset of tested and useful approaches, from different sources, to compile a practical set tools for technical professionals. I call the package ‘Organized Reasoning’. It consists of two ‘toolkits’ of ideas. One, called Logical Structure, helps people build data into careful, consistent, extended arguments. That gives people something clear to say. The second toolkit, Structured Presentation’ assembles ideas in ways that specifically highlight and share arguments in written text.

Although the separate tools and ideas are too numerous to share here, the process of to apply them can be visualized in two double-loop diagrams, below. The smaller left loop identifies the early steps of initial design, data compilation and reasoning. They lead to the box that connects the two loops: the Argument Outline. The outline explicitly documents early ideas--hypotheses which will be addressed, tested, modified and made clear to an audience in the second loop. Representing the Structured Presentation steps, the second loop is larger because the composition and revision processes are more deliberative and time consuming.

ORGANIZED REASONING™
A Process to Create & Share Complex Technical Arguments

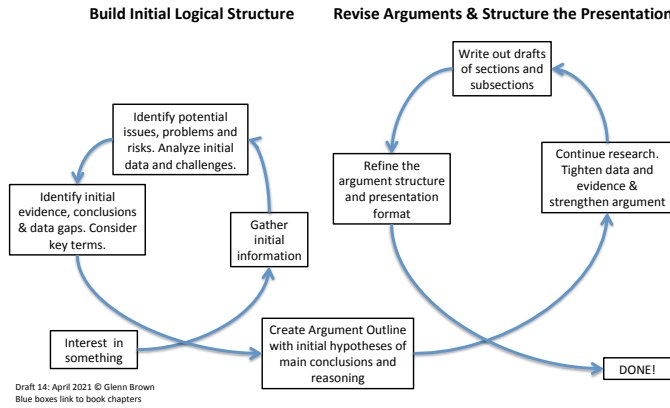


Figure 1: A diagram of the process joining the various steps and tools of Organized Reasoning.

ORGANIZED REASONING™
Tools and a Process to Create & Share Complex Technical Arguments

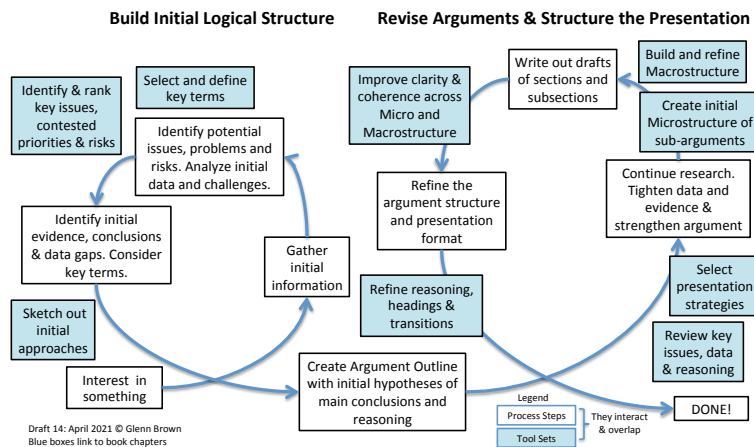


Figure 2: The blue boxes represent tools that support the process of Organized Reasoning

Developing Capacity with Organized Reasoning

The component elements are very well tested—some for 2500 years, and others for decades. The particular package of those tools called Organized Reasoning needs to be shared with practitioners in a practical way so it can be adopted, used and polished in practice. Over 13 years I presented and refined the elements in a graduate level course called *Analytical Thinking and Communications*, in a Masters program in Environment and Management at Royal Roads University. Feedback showed the ideas were popular, and were understandable and usable, both in the classroom and later on the job. To share ideas with working practitioners, I built the materials into a standard tool of professional development—the training workshop.



Figure 3: Organized Reasoning workshops involve small groups with practical activities

The tools would apply equally well to any complex technical field with much data to assemble, analyze and present. However, because of my experience with environmental work and impact assessment, I applied them explicitly to impact assessment.

A central challenge of capacity building is how to make it work! More specifically, to address the challenge of how to transfer new abilities to the audience. Unfortunately, the most widespread models for technically oriented education, the universities, are still embedded in 18th century practices of lecturing as a method of passing on factual content. Much practical professional training accepts key principles, well known to cognitive psychologists (e.g. Bransford et al. 2000; Ambrose et al. 2010) that recommend different means to different goals. Because such details matter for capacity development, I identify some of the main ideas underlying the design of OR workshops. Older concepts are mentioned first, to show the need for doing things differently, with more appropriate ones second.

Instructional design features to support capacity development

- The goal is not just to develop factual knowledge but to develop abilities to do things.
- Lecturing is not sufficient to develop capacity with technical skills, but it has a place. OR workshops put lecture into 20 to 25-minute chunks, followed by small group break outs for questions (4-6 minutes) or longer group activities (15-40 minutes). Workshops have about 15 participants to permit extensive personal feedback.
- Understanding is greater if ideas have an overarching conceptual framework (double loop diagram; two toolkits) into which knowledge and skills are embodied.
- Knowledge and skills are best transferred to a given context (IA) if presented with specific links to that context (all questions, cases and activities use IA related examples).
- Learning facts does not permit transfer of skills. There are separate skills needed for people to become the ‘metacognitive, self-regulating learners’ that are best able to learn and apply new skills. (‘Metacognitive’ means able to think about one’s own thinking.) I provide a separate

guide to building a Learning Portfolio, with tools that support goal setting and monitoring improving practice.

- Learning is enhanced by carefully designed social interactions, and continued learning opportunities. EIANZ and I have begun a ‘Community of Practice’ to provide ongoing peer interactions in a low-stakes social environment.

Building Capacity for Organized Reasoning.

In seven years I have given more than 80 short Organized Reasoning courses / workshops for IAIA, its local affiliate in Western and Northern Canada, the Environment Institute of Australia and New Zealand (EIANZ) and for the staff of multiple companies and government agencies. They’ve been presented in eight countries to people from 27 countries. Originally they were given live over one day, then expanded to two days, and are now presented online in four sessions of three hours each.

The workshops are designed to provide the knowledge, skills, and sufficient practice so that people can implement new approaches immediately. (See video (Ehrlich 2016) for the story of one institution’s results following a single workshop.) However, mastery improves with practice. Further, people benefit from different support materials and social support. Therefore, various supportive tools are available or in development. Written materials include the handouts provided at the workshops, as well as a book and workbook in progress. Mechanisms for learning include the main introductory workshops, advanced topic workshops, customized coaching and feedback on specific tasks, various ongoing peer interactions within different organizations, and the publicly available processes from EIANZ mentioned above.

Current status. Workshops continue to be requested. Individuals and organizations implement tools after the training, although there is often a ratcheting, stop/start nature to that process. Multiple companies and government agencies have adopted the skills in-house. There are moves to build the idea of organized argument into various guidelines and templates. As a step in that process, I recommend starting with the explicit mention of descriptive phrases in internal discussions and informal guidelines. That is, people need to increase the explicit use of essential phrases of argument such as: ‘show your reasoning’, ‘justify your conclusions’ ‘indicate the steps in your reasoning’ or ‘explain how your data support your conclusions and recommendations’. Sharing the language of argument helps to facilitate its use.

The ideas of argument are neither new nor revolutionary. They are just not well known or widely used. They are useful tools to do what impact assessments are supposed to do: to help decision makers and the public understand is happening and help them decide what to do. Argument makes more explicit the steps that have always underlain such intellectual efforts.

References Cited

More details on all aspects of Organized Reasoning are at the website www.glennbrown.ca.

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