Developing Capacity for Argument in Support of IA Goals and Decisions

Glenn Brown*
Royal Roads University

This paper provides the background to the above-titled presentation at the 2021 conference of the International Association for Impact Assessment.

Abstract

Impact Assessment (IA) documents contain much reasoning which represents argument: reasons assembled to support a conclusion about an unsettled matter. But since few technical professionals are aware that they prepare arguments, and have no training in the subject, potentially powerful aids to clearer communication and decision making are missed. Since training materials are not easily available, they had to be created. Tools for strong argument are linked with methods for presenting them clearly in writing, and the two skill sets are packaged together in a program called Organized Reasoning. Principles from contemporary instructional psychology guide the design of the capacity development program. Delivery is by interactive workshops, now online, which share knowledge and practice with a core set of skills. Written materials guide self-directed implementation. Follow-up courses and materials are coming.

Background and Goals

Impact Assessment typically involves very substantial written documentation. There is much discussion about the length of the documents and potential inefficiencies in the process. Also discussed is the idea that documents are often not clearly written. They are often seen as hard-to-follow, even by professionals, and difficult to understand by decision makers and stakeholders. In response there have been suggestions for training in technical writing for staff, application of principles of 'Plain Language' and suggestions to force brevity by page limits or shorter times for producing documents.

But such suggestions miss a key perspective. There is truth to comments about unwieldy and poorly written documents, but the notion that better writing alone 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 usually 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. Working differently, building data and analysis into careful and logically strong arguments, gives authors something clear to say. Then other tools, specifically for sharing written arguments, can be used to present the now-clearer argument in shorter and more easily understood text. This document describes a particular way to package tools that create and communicate arguments, and a set of training steps to share them, to enhance the professional capacity of assessment practitioners.

Recognizing that Most Technical Work in Assessment 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 for an audience' (cf. Schiappa & Nordin 2014). Arguments are tools to resolve problems of incomplete information or understanding about 1) facts, 2) values or 3) recommendations. (Those are the three kinds of arguments). Arguments address unsettled circumstances by assembling evidence and sharing the reasoning that leads to a conclusion.

The IA process addresses unresolved matters. Each major part of an assessment analysis can be shown as a series of logical steps, called an extended argument, in which conclusions from one step are used as input to later reasoning about the topic at hand. For example, baseline studies and impact predictions are fact arguments. Significance determinations are evaluation arguments. Suggestions for mitigation, restoration and management are recommendation arguments. They all seek to convince the reader that the data are sound, the procedures appropriate and the conclusions reliable.

There are specific steps for how to build each of the three kinds of argument. There are many other guidelines which apply to features of all arguments. However, professionals do not realize all the complex steps of creating and sharing arguments and often miss them. By analysing significance arguments in assessment reports from a review agency, Hicks (2011) found that, while the data were sound and most of the conclusions were not contentious, readers could not easily follow how the authors got from data to the conclusions. In fact, of 198 required significance judgements, only 43 identified reasons to support the significance conclusion. (The others were missed entirely or offered only a stated conclusion: a conclusion without supporting reasons is not an argument.) None of the 43 arguments that were offered had the properties of 'strong argument'. So, despite sound technical competence, none of the 198 arguments were presented as strong arguments. No wonder people have a hard time following IA reports. But there are ways to help practitioners organize and present their information more clearly.
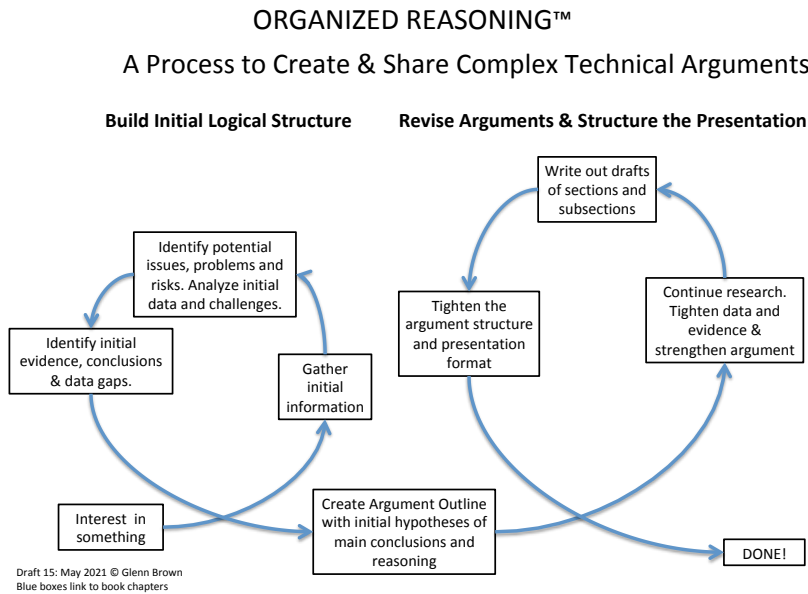
The Design of 'Organized Reasoning'

Argument has been studied in a systematic way since Ancient Greece. Aristotle wrote the first books to guide public presentation (Rhetoric) and the careful reasoning needed to underpin it (Logic) to meet the needs of public debates in the new democracy. There have been many advances over the intervening years. In the 20th century new ideas came from work in cognitive psychology, composition, formal debate, legal scholarship and a field of philosophy called informal logic. Unfortunately, these disparate fields, all with good ideas, do not 'speak to each other'. Good ideas from one field are often not known to the other fields. There is no central synthesis of the best ideas. More to the point, there is no resource to show technical professionals, who have large quantities of information and complex steps of analysis, how to build arguments from their data.
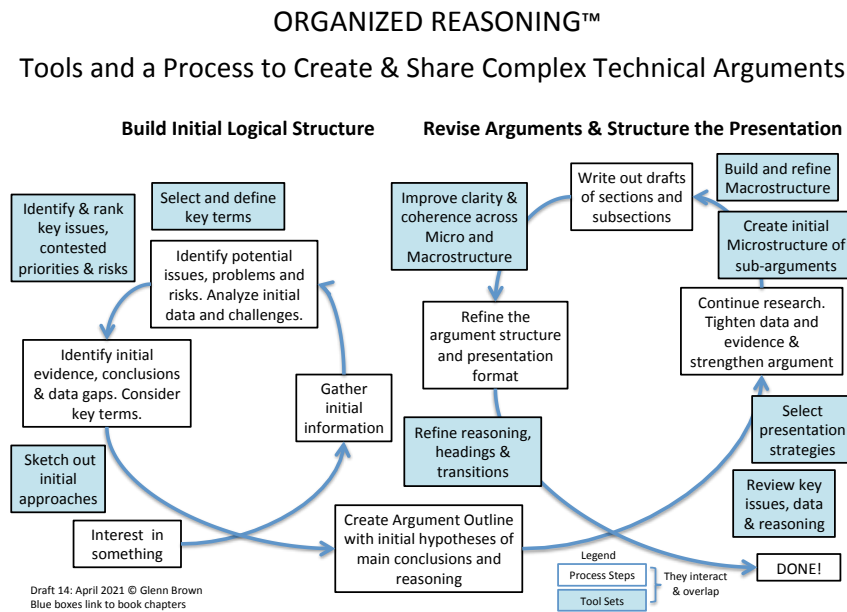
Hence, I researched and assembled a set of tested and useful approaches, from different sources, specifically for professionals. I call the package 'Organized Reasoning'. It consists of two 'toolkits.' One, called 'Logical Structure', guides building data into careful, internally consistent, extended arguments. Those steps give people something clear to say. The second, 'Structured Presentation' provides tools to present arguments in written text. They help people write their arguments clearly.

The separate tools and ideas are too numerous to share here, but the process 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, modified and made clear to an audience in the second loop. The second loop represents the Structured Presentation steps. It is larger because the composition and revision processes are more deliberative and time consuming.

ORGANIZED REASONING™

A Process to Create & Share Complex Technical Arguments

Build Initial Logical Structure   **Revise Arguments & Structure the Presentation**

Write out drafts of sections and subsections

Identify potential issues, problems and risks. Analyze initial data and challenges.

Identify initial evidence, conclusions & data gaps.

Gather initial information

Tighten the argument structure and presentation format

Continue research. Tighten data and evidence & strengthen argument

Interest in something

Create Argument Outline with initial hypotheses of main conclusions and reasoning

DONE!

Draft 15: May 2021 © Glenn Brown
Blue boxes link to book chapters

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

ORGANIZED REASONING™

Tools and a Process to Create & Share Complex Technical Arguments

Build Initial Logical Structure   **Revise Arguments & Structure the Presentation**

Identify & rank key issues, contested priorities & risks

Select and define key terms

Identify potential issues, problems and risks. Analyze initial data and challenges.

Improve clarity & coherence across Micro and Macrostructure

Write out drafts of sections and subsections

Build and refine Macrostructure

Create initial Microstructure of sub-arguments

Identify initial evidence, conclusions & data gaps. Consider key terms.

Gather initial information

Refine the argument structure and presentation format

Continue research. Tighten data and evidence & strengthen argument

Sketch out initial approaches

Refine reasoning, headings & transitions

Select presentation strategies

Review key issues, data & reasoning

Interest in something

Create Argument Outline with initial hypotheses of main conclusions and reasoning

Legend
Process Steps
Tool Sets

They interact & overlap

DONE!

Draft 14: April 2021 © Glenn Brown
Blue boxes link to book chapters

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 set of tools called Organized Reasoning has been tested and refined, but is still a work in progress. Over 13 years I presented and adjusted the elements in a graduate level course at

Royal Roads University. To share ideas with working practitioners, I adapted the materials into a standard tool of professional development—the training workshop.

The tools of argument apply equally well to any complex technical field with much data to assemble, analyze and present. However, because of my experience with environmental management, 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 build new abilities in an audience. Unfortunately, the most widespread models for technically oriented education, the universities, are mostly embedded in old practices of lecturing as a method to pass on factual content. Much practical professional training builds on key principles, well known to cognitive psychologists, that recommend a variety of different means to the different goal of building skills (e.g. Bransford et al. 2000; Clark 2008). 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, which is necessary but not sufficient, but to develop abilities: inter-related skills to identify goals, select from a repertoire of tools while knowing the features of each, and use them to accomplish specific things. That is the set of targets that constitute building expertise, which apply to capacity development.

• Lecturing is not sufficient to develop capacity with skills, but it has a place. OR workshops put lecture into 20 to 25-minute chunks, followed by small-group break outs for questions (4-8 minutes) or longer group activities (15-40 minutes). Workshops have no more than 15 participants to permit extensive personal feedback.

• Understanding is greater if ideas are not just presented in a logical order, but when they have an overarching conceptual framework (double loop diagram; two toolkits) into which knowledge and skills are embedded.

• Knowledge and skills are best transferred to a given context (IA) if initially presented with specific links to that context (all presentations and activities use IA-relevant examples).

• Even being shown facts and skills is insufficient to develop mastery with abilities. People learn to some extent without special guidance. But there are separate skills that help 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.) Technical professionals are not usually aware of those learning skills. Thus, I provide a separate guide, to building and using a Learning Portfolio, with tools that support self-directed goal setting and monitoring of one's improving practice.

• Instruction given in a short period of time is practical, but it can be difficult to support the feedback and reflection needed to refine skills. The workshop's four initial sessions are followed several months later by a review session. It recaps key points and permits sharing of experiences. I found this session not only reinforces the ideas and skills, but its best result might be the refreshed enthusiasm among participants.

• Learning is enhanced by social interactions and continued learning opportunities. It takes time to generate enough interested people to maintain a peer support network. After more than thirty workshops, EIANZ and I have begun a 'Community of Practice' to provide ongoing peer conversations and mutual support.

• Motivation is greater with quick benefits. OR tools can be used on the job immediately.

Steps for Building Capacity with Organized Reasoning.

Over seven years I have given more than 80 short Organized Reasoning courses / workshops organized by IAIA, its local affiliate in Western and Northern Canada, the Environment Institute of Australia and New Zealand (EIANZ) and the Hong Kong Institute for Environmental Impact Assessment, as well as in-house courses for staff of many government agencies and companies. They have been presented in eight countries to people from 27 countries. Originally, they were two days long, given in person. They are now presented live online in four sessions of three hours each, spread over two weeks, and a later follow-up. Their future is likely online.

The workshops are designed to provide knowledge, skills, and sufficient practice so that people can implement new approaches immediately. Feedback shows this usually happens. (See video (Ehrlich 2016) for the story of one institution's results following a workshop.) Indeed, one of the key advantages of the online training is that implementation begins even earlier than before. During the two-day workshops, we discussed how one could implement ideas in the near future. With sessions now distributed over two weeks, by the time we reach the final sessions, some people are sharing how things are already working at the office. Not everyone starts that quickly, but the stories are motivating for everyone.

Most people do not use all tools at once, and expand their skills at a personal pace, sometimes slowly. Also, mastery improves with practice. Further, people benefit from different support materials and with social support. Therefore, various supportive tools to follow and complement the introductory workshops are available or in development. Written materials include handouts provided at the workshops, self-guided review notes, a guide to creating a Learning Portfolio, as well as a planned book (in progress). Different training approaches include the main introductory workshops, advanced topic workshops, customized coaching and feedback to organizations which request them, and the Community of Practice mentioned above.

Current status. Workshops continue to be requested and the online presentation format will remain. 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 institutional guidelines and templates. More alternatives, of written materials, means of live and recorded presentations, and website-based resources, are being developed and tested.

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

References Cited

Clark, R. 2008. *Building expertise: Cognitive methods for training and performance improvement*. Third edition. San Francisco, CA: Pfeiffer.

Bransford, J., Brown, A. & Cocking, R. 2000. *How people learn: Brain, mind, experience and school*. Expanded edition. Washington DC, National Academy Press.

Ehrlich, A. 2016. Video of a presentation describing application of Organized Reasoning to an assessment of the expansion of a diamond mine. Viewable under menu items 'Information Access' then 'IAIA conference materials', at www.glennbrown.ca.

Hicks, T. 2011. *Exploring the use of argument in impact assessment: A case for impact significance arguments*. Unpublished MA thesis. Victoria, Canada: Royal Roads University.

Schiappa, E. & Nordin, P. 2014. *Argumentation: Keeping faith with reason*. Saddle River NJ: Pearson Education Ltd.

Follow Up

More details about Organized Reasoning are at the website www.glennbrown.ca .

*Glenn Brown
Vancouver, Canada
Royal Roads University
Email: glenn.brown@telus.net