

DEVELOPING PROOF-OF-CONCEPT FOR THE I2S DEVELOPMENT DRIVE: Compiling Dialogue Methods

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1. Rationale for the I2S Development Drive

In the book [Disciplining Interdisciplinarity](#),¹ Gabriele Bammer argues that building the new discipline of Integration and Implementation Sciences (I2S)² requires gathering together and assessing not only the concepts and methods applicable to integrative applied research³, but also case examples of how these theories and techniques have been applied to different real-world problems. The challenge is to find, collate and evaluate relevant concepts, methods and case examples from thousands of research projects. Because much of the germane material is undocumented, reviewing the literature will cover only a portion of the terrain. Further, such reviews will be resource intensive because pertinent materials are widely scattered in the published and grey literatures and are often not described in a way that makes their relevance to I2S immediately apparent. Getting access to undocumented information involves different demands, especially in locating people with the sought-after information, and determining ways to elicit their contributions. Because existing networks tend to be small and restricted, identifying key researchers is unlikely to be straightforward. Further, given that these researchers will already have heavy demands on their time, establishing ways to make their involvement in developing I2S manageable and rewarding will require creativity and resources.

The task of compilation is therefore formidable. It also requires evaluation of the concepts, methods and case examples to decide on their relative merits. Without a well-established I2S discipline, there is currently no extensive college of peers to draw on for undertaking such assessments. The process of compilation will, however, also identify those with experience in the concepts or methods of interest. The most skilled can then be enlisted in evaluation processes.

The urgency of many of the world's most challenging problems means that we cannot afford to wait for this new discipline to evolve in the normal academic way, which could take decades. Establishing I2S can be boosted by mounting a new Big-Science-type project, akin to the effort that decoded the human genome, producing an explosion of new understanding of diseases and their cures. Such an effort, referred to here as the I2S Development Drive, would be charged with identifying relevant research projects and groups, obtaining and collecting a range of concepts, methods and case examples from available literatures and research team members, as well as developing a process for evaluating them in order to produce foundational texts for the I2S discipline.

2. Proof-of-concept study: Compiling Dialogue Methods

At this early stage, when there is considerable uncertainty about how best to proceed with the task of finding relevant materials, the approach we used was to leap in and see what happens. In other words, gain some experience and then use that to develop a more systematic approach. We did this by gathering together dialogue methods for knowledge synthesis.

¹ Bammer, G. (2013). *Disciplining Interdisciplinarity: Integration and Implementation Sciences for Researching Complex Real-World Problems*. ANU E-Press.

² *Integration and Implementation Sciences or I2S* is the discipline that underpins integrative applied research and which develops and applies concepts and methods for knowledge synthesis, understanding and managing diverse unknowns and providing integrated research support for policy and practice change.

³ *Integrative applied research* is a research style that deals with complex real-world problems by bringing together disciplinary and stakeholder knowledge and explicitly dealing with remaining unknowns, in order to use that integrated research to support policy and practice change.

Step 1

We essentially used a two-step procedure. Step 1 concentrated on published literature and led to the book [Research Integration Using Dialogue Methods](#),⁴ which described 14 dialogue methods. We looked for examples of how these techniques had been applied in four areas: the environment, public health, security and technological innovation. It is worth noting that finding case examples was challenging. Most came from public health (seven examples), followed by the environment (five examples), technological innovation (three examples) and security (two examples). For ten of the methods, we found only one example of application in any of these topic areas. The Delphi technique alone had examples in each of the four areas. For strategic assumption surfacing and testing and principled negotiation we could not find any examples of their use for knowledge synthesis. Only half of the cases were illustrative of integrative applied research; the others were more straightforward and did not involve a broad array of disciplines and stakeholders.

Step 2

In Step 2 we tested how to engage a broader range of relevant researchers to expand the collection of dialogue options and case examples. We started by developing a [discussion forum](#), which was divided into four areas

1. *Methods* – Descriptions of dialogue methods for synthesis of disciplinary and stakeholder knowledge which are not mentioned in the book
2. *Cases* – Examples of how the methods described in the book or other methods have been applied
3. *Discussion of classification and differentiation of the methods*
4. *Other material and ideas.*

Initially the discussion forum was open for 12 months from January to December 2010. We placed a [call for contributions](#) on the I2S website (i2s.anu.edu.au) and approached contributors ad hoc, with no particularly sustained effort. Unsurprisingly the number of contributions was small. We then hired a dedicated (part-time) worker (Lyn Stephens) in November 2010 and extended the project to December 2011.

Stephens identified pertinent researchers by starting with those cited in [Research Integration Using Dialogue Methods](#). They, in turn, referred us to others. We also identified, but did not use, a web tool for systematic searching.⁵

In the period November 2010 – May 2011, 54 authors were identified from ten of the methods listed in [Research Integration Using Dialogue Methods](#) and contact details were found for 47 of them. The researchers contacted referred a further 34 researchers to the project making a total of 81 potential contributors. Approaches were made to 42 potential contributors, who were either cited authors (N=33) or researchers referred by them (N=9). Of the 42 researchers contacted, the following outcomes were obtained:

- 'Agreed' - 21 (50%) agreed to a short phone conversation or email communication about the project to identify subsequent relevant work of theirs or colleagues whose work they would recommend
- 'Refused' - 8 (19%) advised that they did not wish to participate
- 'No response to date' - 13 (31%) did not respond to at least three emails over several months and a follow up phone call or voicemail message inviting further contact. (Further investigation showed that at least 4 of these were likely to have been community sector workers, who were included in publications cited in [Research Integration Using Dialogue Methods](#), rather than academic researchers.)

⁴ McDonald, D., Bammer, G., Deane P. 2009 *Research Integration Using Dialogue Methods*, ANU E-Press; http://epress.anu.edu.au/dialogue_methods_citation

⁵ [E-research tool](#) (<http://voson.anu.edu.au/>) developed by the Virtual Observatory for the Study of Online Networks (VOSON) Project

The primary reasons for refusal were:

- No longer working with the dialogue method (N=4)
- Too busy (N=2)
- Not the right person (ie never worked with dialogue method and were included as paper author for some other reason) (N=1)
- No reason given (N=1)

Soliciting responses

In order to post material to the [forum](#) contributors had to first establish an account. That made their initial contribution a two-stage process, but after they had established an account, which took a day or so to activate, they would have been able to add subsequent contributions immediately.

In the first phase of Step 2 (January – December 2010) when contributions were solicited in an ad-hoc manner, there were eight postings, two to each of the categories (methods, cases, discussion of classification, other). Five were made directly by contributors (one made two contributions), two were made on behalf of the contributors by Bammer and one, by McDonald, summarized a book. All of the contributors were known to Bammer, who persuaded them to make entries or who made entries on their behalf.

In the second phase of Step 2 (November 2010-December 2011), Stephens invited all those who agreed to participate (N=21) to open a forum account, but only two did so and only one posted material. All of the other posts were made on behalf of contributors by Stephens. Stephens interacted with researchers as follows: initially she sent an email which introduced the project and invited further contact via phone or email. Subsequently, some contributors agreed to a phone conversation and others responded by email only. Their contributions comprised:

- suggested references to material which could be relevant for a second edition⁶ of *Research Integration using Dialogue Methods*. This included references to case studies and other articles, books or book chapters, manuals or tools, project websites, and unpublished material.
- referrals to other researchers whose work could be relevant for a second edition.

We had originally hoped to attract detailed posts, which would include descriptions of methods or cases or detailed discussion. We soon scaled back our expectations to ask for the following: 'At this stage we are not looking for lengthy contributions. Instead it is useful to think of the current process as an audit of what was missed in the book. We are very happy for you to refer to publications and other websites, where more information can be found.'

Analysis of responses

The first phase of Step 2 (January – December 2010) saw the following contributions:

- two new methods (one web publication, one referral to another's work) and a summary of a book of methods
- two cases (both web publications)
- three points of discussion (one published in peer-reviewed literature and an unpublished report, one web-publication, one new contribution).

Details can be found in the first entries in each category in the [forum](#).

In the second phase of Step 2 (November 2010-December 2011), contributions comprised four possible new methods, along with associated case studies (one published in peer-reviewed literature, two book chapters, one web-publication), and there were four case studies about dialogue processes that did not follow a strict method (two published in peer-reviewed literature, one web-publication, one unpublished).

⁶ For ease of explanation, we framed our study as a hunt for materials for a second edition of [Research Integration Using Dialogue Methods](#). Our original goal was to achieve this, as well as testing proof-of-concept of the I2S Development Drive.

In addition there were additional case studies for the following methods:

- Citizens' jury: one published in peer-reviewed literature, one thesis, one web-publication
- Consensus conference: two published in peer-reviewed literature, one web-publication, one unpublished
- Consensus development panel: one published in peer-reviewed literature
- Delphi technique: three published in peer-reviewed literature, one book chapter, one unpublished, one in progress
- Nominal group technique: one published in peer-reviewed literature, one thesis
- Scenario planning: one conference proceedings, one web-publication, one in progress
- Appreciative enquiry: one published in peer-reviewed literature, one book chapter, two unpublished

Three of these (one published in peer-reviewed literature, one web-publication and one thesis) described new approaches to using the method. There were also six manuals and associated materials (one book, three published in peer-reviewed literature, one web-publication, one unpublished). Details can be found in Attachment 1.

3. Conclusions

3.1 This project suggests that there is value in producing a first-pass compilation as the starting point. This can be tailored to the time and money available and has the benefit of producing a concrete outcome relatively rapidly.

3.2 The next step after producing a first-pass compilation may not be to solicit contributions as we did, but to undertake further, more extensive, literature reviews. It is noteworthy that many of the contributions that we elicited had been published in the peer-reviewed literature. (It is also worth pointing out that we did not include all the cases we found in our original literature review in [Research Integration Using Dialogue Methods](#); in hindsight, it would have been sensible to put all the cases we found in an on-line data base, rather than discarding the ones we did not use.) Further proof-of-concept testing is warranted to determine the best return for effort (ie further literature reviews versus personal contact).

3.3 Using the first-pass compilation as the starting point for attracting further contributions was relatively successful. Nevertheless, more work needs to be done on issues related to finding contributors, especially linking the success of the recruitment method with the quality and importance of the work identified. A particular aspect is to compare snowball sampling with more systematic web-based sampling for identifying important lines of research that were missed in the first-pass literature compilation.

3.4 Not surprisingly, busy researchers are not likely to contribute to web-based forums. Budgeting for interview-based data collection will probably be more productive. This also requires further investigation.

3.5 This small study provides confidence in the value of proceeding with investigations into the feasibility of the I2S Development Drive. Furthermore, it is worth exploring proof-of-concept approaches that will themselves yield valuable resources, as we achieved with our book of dialogue methods.

20 December 2012

Attachment 1 - Details of references provided

Method	Material
Citizens' jury	<p>Case studies: Kashefi, E. and Keene, C. (2008). 'Citizens' juries in Burnley: From deliberation to intervention'. <i>Participatory Learning and Action</i>, 58, 1: 33-38.</p> <p>Kashefi, E. (2006). <i>Citizens' juries: From deliberation to intervention</i>. PhD Thesis, Lancaster University, Lancaster, UK.</p> <p>Mort, M., Convery, I., Bailey, C., Baxter, J. (2004). <i>The health and social consequences of the 2001 Foot & Mouth epidemic in North Cumbria</i>, Institute for Health Research, Lancaster University. Retrieved December 12, 2012, from http://www.esds.ac.uk/doc/5407%5Cmrdoc%5Cpdf%5C5407finalreport.pdf (PDF 2.7MB).</p> <ul style="list-style-type: none"> • Project website is at: http://www.footandmouthstudy.org.uk/ (retrieved December 12, 2012). • New approach using citizens' juries and diary writing based on the mass observation movement. <p>Associated material: Aldred, J. (2001). Citizens' juries: Discussion, deliberation and rationality, <i>Risk, Decision and Policy</i>, 6, 2: 71-90.</p> <p>Aldred, J. (2002). It's good to talk: Deliberative institutions for environmental policy. <i>Philosophy & Geography</i>, 5, 2: 133-152.</p>
Consensus conference	<p>Case studies: Devita, M. A., Bellomo, R., Hillman, K., Kellum, J., Rotondi, A., Teres, D., Auerbach, A., Chen, W. J., Duncan, K., Kenward, G., Bell, M., Buist, M., Chen, J., Bion, J., Kirby, A., Lighthall, G., Ovrevit, J., Braithwaite, R. S., Gosbee, J., Milbrandt, E., Peberdy, M., Savitz, L., Young, L., Harvey, M., Galhotra, S. (2006). Findings of the First Consensus Conference on Medical Emergency Team. <i>Critical Care Medicine</i>, 34, 9: 2463-78</p> <p>Hamlet, P., Cobb, D. and Guston, D. H. (2008). National Citizens' Technology Forum: Nanotechnologies and human enhancement. The Centre for Nanotechnology in Society, Arizona State University. Retrieved December 11, 2012, from http://cns.asu.edu/files/NCTFSummaryReportFinalFormat08.pdf (PDF 180KB).</p> <p>Reisenburg, D. (1987). Consensus conference. <i>Journal of the American Medical Association</i>, 258, 19: 2738.</p> <ul style="list-style-type: none"> • Refers to two consensus conference case studies, one on the management of clinically localized prostate cancer and the second on the effect of consensus conference recommendations on how physicians practice. <p>Manuals: Nielsen, A., Hansen, J., Skorupinski, B., Ingensiep, H-W., Baranzke, H., Lassen, J., Sandoe, P. (2006). <i>Consensus conference manual</i>, Agricultural Economics Research Institute (LEI), The Hague, The Netherlands. Retrieved December 12, 2012, from http://www.ethicaltools.info/content/ET4%20Manual%20CC%20(Binnenwerk%2040p).pdf (PDF 405KB).</p> <p>Hartnett, T. (2011). <i>Consensus oriented decision-making: The CODM model for facilitating groups to widespread agreement</i>, New Society Publishers, Gabriola Island, Canada.</p> <p>Associated material: Wallace, H.(2001). The issue of framing and consensus conferences. <i>Participatory Learning and Action Notes</i>, 40: 61-63. Retrieved December 12, 2012, from http://pubs.iied.org/pdfs/G01295.pdf (PDF 16KB).</p> <p>Case study not yet available: Cureton, D. (not published yet). A case study using a modified consensus conference method on why black students are underperforming - University of Wolverhampton.</p>
Consensus development panel	<p>Case study: Basson, R., Berman, J., Burnett, A., Derogatis, L., Ferguson, D., Fourcroy, J., Goldstein, I., Graziottin, A., Heiman, J., Laan, E., Leiblum, S., Padma-Nathan, H., Rosen, R., Segraves, K., Segraves, R. T., Shabsigh, R., Sipski, M., Wagner, G., and Whipple, B. (2000). Report of the International Consensus Development Conference on Female Sexual Dysfunction: Definitions and classifications, <i>The Journal of Urology</i>, 163, 3: 888-893.</p>
Delphi technique	<p>Case studies: Nielsen, C. and Thangadurai, M. (2007). Janus and the Delphi Oracle: Entering the new world of international business research. <i>Journal of International Management</i>, 13, 2: 147-163.</p> <ul style="list-style-type: none"> • A new approach using online communications.

	<p>Rollier, B. and Nielson C. (2004). Approaches for internationalizing the Business School curriculum: International Business curriculum approaches. In C. Wankel and R. DeFillippi (eds.), <i>The cutting edge of international management education</i>. Information Age Publishing: Greenwich, USA: 63-88.</p> <p>Venter, A. and Barkhuizen, N. (2005). Rethinking undergraduate curricula: A Delphi study of human resource management and industrial and organisational psychology. <i>South African Journal of Industrial Psychology</i>, 31, 3: 46-53.</p> <p>Wright, T. S. A. (2007). Developing research priorities with a cohort of higher education for sustainability experts. <i>International Journal of Sustainability in Higher Education</i>, 8, 1: 34- 43.</p> <p>Case studies not yet available: Neilson, C. (not published yet). A project using Delphi for strategic planning at a university.</p> <p>Neilson, C. (not published yet). A project using Delphi for consulting with women in a range of developing countries on their needs.</p>
Nominal group technique	<p>Case studies: Fuller, I. (2006). What is the value of fieldwork? Answers from New Zealand using two contrasting undergraduate physical field trips. <i>New Zealand Geographer</i>, 62, 3: 215-220.</p> <p>Lannin, L. (2011). <i>Staff and student conceptions of citizenship education: A case study of the University of Gloucestershire</i>. MA Thesis, University of Gloucestershire, Gloucestershire, UK.</p> <ul style="list-style-type: none"> • New approach using nominal group technique and focus group.
Scenario planning	<p>Case studies: Penker, M., Williams, R. and Hiess, H. (2010). Outcome versus process-oriented scenario planning - A comparison of two scenario approaches for Europe and Austria. In A. Beauclair, <i>Regional responses and global shifts: Actors, institutions and organisations</i>, 2010 Annual International Conference of the Regional Studies Association, Pécs, Hungary: 147.</p> <p>Williams, R., Penker, M and Hiess, H. (2009). <i>Critical evaluation of scenarios for spatial planning and regional development</i>, paper presented to the 49th European Congress of the European Regional Science Association: Territorial Cohesion of Europe and Integrative Planning, Lodz, Poland, 25-29 August.</p>
Appreciative inquiry	<p>Case studies: Brown, C., Van Vuuren, L. J. and Crous, F. (2010). <i>Utilising Appreciative Inquiry (AI) to create a vision for ethics in the profession of industrial psychology in South Africa</i>, paper presented to the 2012 World Appreciative Inquiry Conference, Ghent, Belgium, April 25-28.</p> <p>Crous, F. (2008). From action research to appreciative inquiry: A paradigm shift in organisation and change. In C. Van Tonder and G. Roodt (eds.), <i>Organisation development: Theory and practice</i>, Van Schaik: Hatfield, South Africa: 88-106.</p> <p>Reed J., Richardson E., Marais S. and Moyle W. (2008). Older people maintaining wellbeing: An international appreciative inquiry study. <i>International Journal of Older People Nursing</i>, 3, 1: 68-75.</p> <p>Associated material on method: Reed J. (2007). <i>Appreciative inquiry: Research for change</i>. Sage: California, USA.</p> <p>Case studies not yet available: Langa, L. (Submitted for publication). <i>Optimal work experience: An embodied perspective</i>. MPhil Thesis, University of Johannesburg, South Africa.</p>
Dialogue processes which do not follow a strict method	<p>Case studies: Davies, S., Macnaghten, P., and Kearnes, M., (eds.). (2009). <i>Reconfiguring responsibility: Lessons for public policy</i> (Part 1 of the report on <i>Deepening debate on nanotechnology</i>). Durham University: Durham, UK. Retrieved December 11, 2012, from http://www.geography.dur.ac.uk/Projects/Portals/88/Publications/Reconfiguring%20Responsibility%20September%202009.pdf (PDF 2MB).</p> <p>Fisher, E. (2007). Ethnographic invention: Probing the capacity of laboratory decisions. <i>NanoEthics</i>, 1, 2: 155-165.</p> <p><i>Understanding and acting in Loweswater: A community approach to catchment management - 2007 to 2010</i>. (n.d).</p>

	<p>Retrieved December 11, 2012, from http://www.lancs.ac.uk/fass/projects/loweswater/aims.htm.</p> <ul style="list-style-type: none"> • Suggested by Claire Waterton, Lancaster University. <p>Melvin, C. L., Ranney, L. M., Carey, T. and Evans, W. D. (2008). Disseminating findings from a drug class review: Using best practices to inform prescription of antiepileptic drugs for bipolar disorder. <i>Journal of Psychiatric Practice</i>, 14, Supplement 1: 44-56.</p> <p>Associated material:</p> <p>Davies, S. R., Kearnes, M. and Macnaghten, P. (2010). Nanotechnology and public engagement: A new kind of (social) science? In K. L. Kjolberg and F. Wickson (eds.), <i>Nano meets macro - Social perspectives on nanoscale sciences and technologies</i>, Pan Stanford, Singapore: 473-498.</p> <ul style="list-style-type: none"> • S. Davies also provided a publications list.
Possible new method: Protee method	<p>Case study:</p> <p><i>Taxonomy at a crossroads: Science, publics and policy in biodiversity – 2006 to 2009</i>. (n.d). Retrieved December 11, 2012, from http://www.lancs.ac.uk/fass/projects/taxonomy/activities/index.htm.</p> <ul style="list-style-type: none"> • Suggested by Claire Waterton, Lancaster University.
Possible new method: Embedded humanist	<p>Case study:</p> <p>Fisher, E. and Mahajan, R. L. (2010). Embedding the humanities in engineering: Art, dialogue and a laboratory'. In M. E. Gordon (ed.), <i>Trading zones and interactional expertise: Creating new kinds of collaboration</i>, MIT Press, Cambridge, USA: 209-230.</p>
Possible new method: Midstream modulation	<p>Case study:</p> <p>Fisher, E., Mahajan, R. L. and Mitcham, C. (2006). Midstream modulation of technology: Governance from within. <i>Bulletin of Science, Technology & Society</i>, 26, 6: 485-496.</p>
Possible new method: Contingent valuation surveys	<p>Case study:</p> <p>Aldred, J. (2005). Consumer valuation and citizen deliberation: Towards a comparison. In M. Getzner, C. Spash and S. Stagl (eds.), <i>Alternatives for environmental valuation</i>, Routledge, London, UK: 187-208.</p>