Between Thought and Expression:

artefacts for a new practice

By Mike Powell

For the last few years I have, with a number of colleagues, been trying to build upon and fully write up the work we did in the IKM Emergent Programme (http://ikmemergent.net). Part of this involves completing a book '*Challenging Ignorance: what we do not know about development and change'*, written with Sarah Cummings, for which publication is planned in late 2017. The book distinguishes between development as an emergent social process and development support which refers to the deliberate efforts of many types of organisation to influence and support what happens. It then focuses on how we can better mobilise knowledges of many types to support development. It tries to do this with awareness of the changing practice and political economy of knowledge within our own societies.

It was intended that one chapter of the book be about the artefacts used in development support to create, use and communicate knowledge. It turned out to be a river which quickly burst its banks, raising many issues which demanded more detailed consideration than the space and style of the book allowed. So, what is shared here is an unfinished draft of large parts of what is now planned as a separate piece of work, which will be published under my name. It has not yet been fully re-organised into its final shape and some of the references and the syntax still signal the collective effort to date. I plan to return to this later in the year after completing the first book but, if it serves to stimulate conversations and collaborations around the issues it raises in the meantime, so much the better. As with nearly all other IKM Emergent Material, this is made available on a Creative Commons, Attribution-Non-commercial-Share Alike 3.0. License.

Because this may be published on a variety of platforms, page numbers have not been included. It is suggested that references, if any, are made using the section and paragraph numbering provided. This of course only applies to this version of the text and will be different in future versions

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'They've got all these rules for everything. How to live. How to paint. How to make music. It's just not true anymore. They don't work all those rules'

Paul McCartney, interviewed in 'The Beatles' Magical Mystery Tour', BBC World Service, 13th October 2012.

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1. The Context

1. One of the key arguments of our book 'Challenging Ignorance' was that we all, and especially those of us who work in the development support sector, live in a world of multiple knowledges, expressed in a multitude of forms. Another was that we do not currently have the necessary knowledge to achieve our goals of a more prosperous but socially and environmentally sustainable world. We need to create this knowledge through what will often be collaborative, exploratory and emergent processes: that is, we will not know exactly what we are looking for or the form it will take at the outset. Our appreciation of existing knowledges and our creation of new will be strengthened by our capacity to find and use existing, relevant material. Simultaneously, most of us will also be operating in work environments in which we will need to research, analyse and plan; to accompany and record what happens; to report and reflect on what has happened; to explain and advocate to others; to discuss with others. In all these processes documents, images, objects or performances are created with the deliberate intention of communicating either actively, or through creating some record which can be subsequently retrieved and used.

2. Different materials and forms can use, appeal to and engage with different forms of knowledge and different intelligences[1]. To describe them, we use the term 'information artefact'. The word 'artefact' is defined in the Oxford English Dictionary as '*a product of human art or workmanship'*. This by no means covers every possible information or communications process – facial expressions, body language or impromptu speech outside of any staged event for example – but it does allow us to analyse and reflect on a wide range of deliberately constructed means of

[1] Note: reference to Challenging Ignorance

communication. To define our use of the word further, an artefact is a definite thing. It may, like a computer file or a stage performance, not be constantly present but it is, at least to an extent, capable of being recovered and reproduced. It may relate to the most humdrum part of our existence – a memorandum about office parking arrangements for example – or to the most exalted. In any example, it is something that has been produced for us to use or to consider as it is. It might be added that all tools are artefacts but that the reverse is not the case.

3. Information artefacts are ubiquitous. Some may stand out but many fade into the backdrop of our daily life. We may notice what they do or what they say but most of us spend very little time thinking about the artefacts themselves; how we do or do not choose to shape the artefacts we use; how they shape our understanding of the world around us. There are exceptions, Marshall McLuhan's writing about television or John Berger's about Images for example, but these tend to prove the rule[2]. As with all our main areas of attention in this work, information artefacts are deeply rooted in culture and in contemporary political economy. They offer routes to both knowledges and misunderstandings. They also represent an area of rapid change, with both intended and unanticipated impact on our lives. And yet our understanding of them, above all with any cross-cultural perspective, constitutes another area of ignorance. Ruben Pater introduces 'The Politics of Design: a (not so) global manual for visual communication'[3] with a recognition first that design '*cannot be disconnected from the values and assumptions in which it was created, from the ideologies behind it*'. He stresses that such assumptions are culturally rooted, that '*assumptions of objectivity and universality in design are closely tied to the modernist design principles as they are taught in*

[2] Note: References
[3] Rubens Pater, 2016, 'The Politics of Design: a (not so) global manual for visual communication' BIS, Amsterdam

Western design education'. He then goes on to offer a book *'not without bias; at best it offers a multitude of perspectives',* before calling on readers to supply additional examples of the challenges of cross cultural visual communication as part of an ongoing collective endeavour. This book is our contribution to such a process. Like him, we attempt to inform our thinking with what we have encountered outside our own cultural comfort zones, but make no claim that this represents other than a very hesitant and incomplete start to any fully transcultural understanding of the subject.

4. Shared understanding, between organisations providing resources and other organisations or communities applying those resources in order to change lives, is essential if development support interventions are to have any chance of success. Part of this 'understanding' needs to come through clarification and negotiation of goals but another part comes from the successful, two-way, communication of meaning. In this context, the role of information artefacts as containers of meaning is crucial. Equally important is the understanding that people speak and listen using a range of artefacts in a variety of ways not only in different societies but within them too. Different choices may be based on age, gender, income, education, or levels of scientific or technological embeddedness. Furthermore, the balance of choices in any place is constantly shifting. Artefacts need to be understood in relation to the social and material conditions necessary for their creation and use. New ICT impact this landscape everywhere, but not always at the same pace or in the same way. As argued earlier (CI, 1.x.y)[4], our experience in our Northern settings represent just another locality in which such processes are playing out. Thus, information artefacts, however we may strive to design them to be universal, are never neutral. It makes no sense to assume that even a well-educated audience will perceive the same meaning in a log frame analysis

[4] Note: References labelled CI refer to the o9ther book

(a pervasive planning tool in the development sector) or even a clearly written academic paper, as will be perceived by others accustomed to their daily use. By the same token, meanings embedded in a dance or a story, may be misconstrued or missed entirely by an audience not brought up within the language of that medium.

5. All of us create, use and appreciate all sorts of artefacts for communication all the time. Our capacity to do so is reliant on our ability to encapsulate or to interpret the intended meaning in the artefact. Often, this is unproblematic as such meaning is understood through the shared culture of the society in which both the creator and the audience are located. However, there are many circumstances – cross boundary or cross disciplinary communications for example - in which this shared understanding cannot be assumed or where the same artefacts can have widely different meaning[5]. A further complication, albeit also a source of great richness, is that 'meaning' exists on different levels. Artefacts can be imbued with functional, aesthetic, or symbolic meaning and may also have imaginary potential. For example, artefacts such as African masks or the often decorated cup (chalice) which is used in the Christian service of Holy Communion, have a profound symbolic meaning to some which goes far beyond how their apparent physical function is understood by others.

6. Changing demographics, social relations, informational needs and technologies mean that which artefacts are used, the form they take and how they are interpreted change over time. Currently, and in this age of

[5] Insert: For example, identical products are often advertised very differently to different audiences in different markets. This involves well paid people seeking to understand and respond to audience perceptions in different settings, skilled work which usually takes place behind the scenes. A more public demonstration of this process can sometimes be seen in how audiences in one environment respond to media produced in another. Thus Mike observed an audience in Quetta, Pakistan, treat the James Bond film 'Goldfinger', categorised by its makers as an action thriller, as an hilarious but absurd comedy. Likewise, 'Mad Dogs and Englishman', a basic 'fly on the wall' documentary about a mid-70s rock tour of the US, was interpreted by an audience in Ootacamund, Southern India, as a fictional piece of fantasy.

ever expanding ICT for the foreseeable future, the scale of this change is immense. The options now available and their greater accessibility to more people are amazing. Our argument, however, is that, given the range of communications choices now available to people, nothing like enough critical attention is given to the nature of the tools we use or the artefacts that we produce or use to receive ideas and information. Sometimes, particularly in more specialised working areas, people do receive some training as new artefacts are introduced into their lives. More commonly, we are expected to adapt to them. We find ourselves using new tools to make new artefacts, which we may think are similar to those we have used before but which may have subtle changes or dependencies embedded within them.

7. This lack of awareness has implications and poses risk at the level of individual pieces of work. As importantly, there are the cumulative effects of these changes on our entire working culture. First, as we discussed earlier with reference to the Responsible Research and Innovation methodology (CI 2.3.x) it is rare for there to be significant input from social or public interests into the processes of choosing what new tools or artefacts are developed. Instead, in common with technology development more generally (CI 1.5), most such innovation is led by assessments of potential sales and, inevitably, concentrates on artefacts perceived to be of value to and relating to the context of use of the most profitable markets. It is not that market led initiatives are wrong in themselves but, if little attention and few resources are given to investigating other needs and opportunities, they can dominate the ensuing landscape and constrain the space for alternative approaches which prioritise social, developmental or scientific goals[6].

[6] Insert: Story of Facebook Basics in India

8. It is not just the changes in the artefacts themselves which are at issue but, again as discussed in relation to new technology more generally (CI,1.5.7), the changes that the new artefacts then impose on the realities in which we work. One obvious aspect of this is the explosion of volume in information. Digital technologies have stimulated, particularly in the well-connected global North, an explosion in the number of documents or comments produced and retained. More recently, a growing capacity to structure and interrogate the raw data upon which much research is based is generating ever greater quantities of stored data. Even in the more rarefied atmosphere of peer reviewed academic papers, changes in the political economy of publishing and the adoption of quantitative measures to assess the 'performance' of academics have contributed to a growing informational pollution. This expansion applies both to material in the public domain – websites, video, books, articles, blogs etc. – but also to our own workspaces. A memo which used to be copied to two or three people may now be e-mailed to many. This reality has many implications for our practice but the over-riding one is that it becomes impossible to be aware of all potentially relevant sources of information to our work. This imposes a need to become selective in what is taken in and of keeping and accessing that which we might need. This, in turn, demands choices of approach to selection, often using specialist new artefacts in the process, which may themselves be problematic, for instance by reinforcing bias (2.3.y). Second, by offering many more and many different communication options, they create problems of assessment – of reliability, of comparison and of meaning (CI,2.x.y). The essential reality of this change is that we are now always working in a state of incomplete knowledge. We need to accommodate ourselves to the inevitable uncertainty such a state implies.

9. New technologies have always had a displacement effect on those they have superseded. Think of the impact of the railways on the use of canals or of the internal combustion engine on the need for horses. An

obvious example relating to ICT is the impact of on-line sales on the physical and social life of city centres. However, the impact of changes in tools we use as aids to our intelligence, tools which we might think we control, can be considerably more subtle. Despres, for example, describes the introduction of an information system in a business providing doctors for specialist health units. A phone based system in which specialist teams matched 'their' doctors with 'their' services was replaced by a computer based one in which staff would go through a standardised set of questions. In an ethnographic study of the impact of new systems, Despres identified an (unintended) narrowing of the possible responses to clients and a (not explicitly acknowledged) increase in centralised control. This did not simply undermine the tacit knowledge and autonomy of expert staff but also changed the job for new entrants.

'My observation is that (the) IS functioned as a powerful taxonomic device for employees – particularly new employees. While veterans regularly drew on a knowledge of times past, newcomers generally fixed their points of reference within the information environments they were placed in'. He argued that rather than *'representing human knowledge and reproducing human reason……Placing sentient human beings in front of an encyclopaedic database conditions their worldview, their thinking, their conceptual structures'*.[7]

10. Sherry Turkle has used similar ethnographic approaches to study first gender differences in our relationships with ICT and, more recently, the impact of computer based simulation on a number of academic disciplines at the Massachusetts Institute of Technology. Her book 'Simulation and its Discontents'[8] traces the changes in architecture, medicine and physics as computers became increasingly central to study

[7] Note: Charles Jean-Noel Despres, 'Information, technology and culture: an ethnography of information technology and modernist business organization', Technovation 16:1, 1996

[8] Note: Sherry Turkle, 2009, 'Simulation and its Discontents', MIT Press

and practice. These seemed to have been far more conscious and deliberate processes than those in Despres' example, but they still led to the normalisation of new realities with less than fully understood implications for the nature of their work. Thus, for example, architects have gained an unprecedented capacity to design in continuous interaction with both visual and engineering simulations of their work. However, in the process they no longer draw freehand, they may spend less time in buildings actually observing and touching the materials they want to use and less time talking to and learning from others on site who may have may have tacit knowledge of their properties. They are also, in Boston, making use of one of the most sophisticated IT infrastructures in the world. What, as we asked earlier (CI, 2.2.z), does this mean for professional training and practice elsewhere in the world or for the capacity of those trained in such privileged locations to function effectively in other settings? Likewise, changes in worldview, or in the conceptual structures through which people make sense of life around them, affect the capacity to engage with or to find shared meaning with those who have not experienced such changes. Thus, even the most well-meaning or radical amongst us may find that subtle and seemingly unconnected changes in their own daily norms have distanced them further from those with whom they wish to act in solidarity[9].

11. Which leads us back to development support. So far, what we have described applies to the use of new communications technologies and artefacts in almost any setting. However, we believe that these issues are of particular importance in the world of development support. Here, is a domain which operates in many different conceptual and technological contexts where, as we discussed in 1.8 (CI), effective cross boundary

[9] Insert: We would argue that this unwitting incorporation of the norms of a continuously evolving modernity into relationships with other peoples has been a common hindrance to building effective alternatives in North/South relationships throughout the last three hundred years.

communication is an absolute imperative. In our experience, however, questions of how the development sector communicates internally and with its key stakeholders; what artefacts it uses and invests in; and how these contribute to or constrain its core purpose are very seldom asked. At neither practical, technological nor strategic level can the use the development support sector makes of information artefacts be seen as developmental.

12. In practical terms, the use of information artefacts within most development organisations verges on the dysfunctional. Many of the management tools used in the sector, such as the Logical Framework[10], reinforce top down and bureaucratic responses and actively inhibit the participation of precisely those people on whose active engagement the sector most depends. The curation and hence the use (and especially the re-use) of expensively assembled information is generally very poor[11]. Relevant academic research, particularly that generated by universities located in the South, is not noticed; consultancy reports gather dust, only their summaries having been read; historic records of thought and action are lost in the system; digital information is filed haphazardly in content management systems, shared drives or even on laptops with little thought to its long term use. The impact of all of which is exacerbated by a generally high turnover of staff.

13. Organisations which want to 'listen to the poor' often have few means of doing so – certainly in the languages or forms in which the poor

[10] Insert: Brief description, quote Tina Wallace on its complete untranslatability

[11] Note: We accept this is an assertion. However, it is one based on the experience that both of us have gained working directly on information management in the sector and participating actively in relevant professional bodies over more than twenty years. The assertion applies, albeit in slightly different ways, to every organisation we have come across working at international level in the sector including government ministries in both Europe and Africa, UN agencies and multilateral agencies, research institutes and International NGOs. We will explore some of the details of these problems in section 2.y below. Many were also addressed at length in Mike's previous book, 'Information Management in Development Organisations'.

might want to express themselves. Information which results from the use of participative methodologies by development organisations is seldom documented, accessed and used by the organisation in any context other than the immediate one in which it was produced[12]. Nor, as with almost all development research, is it usually made available even to the actual participants who volunteer their time in order to produce it, still less to other locally based organisations that might be able to make use of it[13].

14. There is very limited use of wider cultural references – local intellectual output, local media, fiction, drama or digital story telling - with which to contextualize information received through bureaucratic channels (CI,1.8.y).

15. Technologically, every development support organisation has had to re-organise the way it works in response to the opportunities and expectations created by computerised information systems and the internet. Similarly, organisations try to work with the very different communications patterns stimulated by social media. They should also be thinking now about how to plan for and respond to the opportunities and threats offered by current and future trends, such as big data, open data and the semantic web. We have estimated that, collectively, the development support sector spends around 3 billion US dollars a year on ICT for its own use, quite apart from what it spends on IT for Development programmes[14]. As we discuss later (3.x.y), very little of this spend is driven by careful analysis of the specialised management and communication needs of development support. It is largely technically led and driven by evolving norms and practice in other sectors. It provides endless fixes to individual, localized problems. Despite the availability of FLOSS (Free, Libre

[12] How wide are the ripples 1&2
[13] Pamfork paper
[14] Note: See Mike Powell, Tim Davies and Keisha Taylor, 'ICT For or Against Development? An Introduction to the Ongoing Case of Web 3.0', IKM Working Paper 16, March 2012 , pages 6-12 http://wiki.ikmemergent.net/files/1204-IKM-Working_Paper_16-WEB3-Mar_2012-2.pdf (accessed December 2015)

and Open Source Software) and modular approaches to programming, there is incredibly little cross sector sharing and co-operation in what is done, even between richer organisations and those 'partners' in the global South which these organisations are supposedly supporting[15].

16. The conceptual challenges of using ICT across very different contexts have hardly been noticed let alone addressed. Computer based management information systems, with their requirements for exact and structured data, can impose unhelpful and obtrusive patterns on communication between organisations and those whose lives they aim to support[16]. Often the data inputted into such systems is culled from disparate and non-standardised reports with little quality control as to its accuracy. Information systems in local offices are seldom aligned to or consistent with those in headquarters. Thus, leaving aside the appropriateness of the approach, the resultant data – both internal and external (3.1.z, below) is often of suspect quality.

17. Then there is the uncritical acceptance of the promotional value of ICT. One example of this is the adoption by nearly all international NGOs of what might be called the corporate marketing model for their websites. These exist primarily to raise money or, to the extent they have an

[15] One notable exception is 'D Groups' (https://dgroups.org/), a partnership which offers a platform and tools to support networking and information exchange for those active in development support. It is funded, somewhat precariously, by a number of development organisations. In general, there is far less funding for such collaborative work in the sector than there was some years ago as the recent history of EADI Information Management Working Group, of which the authors have long been active members, demonstrates.

[16] Insert: For example one organisation Mike worked for used to have a four page form for taking details about a grant receiving organisation and what it planned to do which was used for processing relatively small grants. Apart from a few obvious details such as name and address, most of these pages consisted of open questions followed by blank spaces in which the NGO worker was supposed to write the answers. This document was replaced by a form with over 50 boxes for entering specified data. There were no open questions. All the spaces anticipated only a limited range of answers. The interview process which had formerly been an open conversation became a pre-structured and extractive exercise in which differences of understanding were fudged (in order to complete the form) rather than explored. Thus even the realisation of the intended benefit of the new system – better data about its own work for the NGO concerned – was undermined.

educational purpose, to highlight the voice of the institution as the interpreter and authority of choice on development issues. They thus act as gatekeepers to knowledge and to relationships: links to the websites of Southern partners are rare, as are references to material from other sources. The vision of a development knowledge commons or ecology is not just absent but actively undermined by such choices. Potentially relevant knowledge, hidden behind glossy facades, without the necessary identifiers, descriptions and links (format and metadata), becomes even less accessible to those in the South who might be able to use it.

18. Artefacts are not simple tools. They place economic and technical demands on their users and, from the village well to the factory to the internet, often stimulate new forms of social organisation and interaction around them. New technologies and new uses of existing tools offer new possibilities for gathering, handling and using information. They offer new methods of analysis and communication. They can make it easier for people, including the populations intended to benefit from development interventions, to express themselves and for such expression to be accessible. They can enable new approaches to creating spaces for productive interaction and for supporting research. Artefacts can engage multiple intelligences and speak to us in multiple languages[17] – of space, aesthetics and cognition - as well as in words. They do not just represent knowledge and development: used creatively, the best ones stimulate it.

19. Over the last forty years, many aspects of economic and social life have been transformed not just by new ICT but also by the patterns of behaviour and communications that they have enabled. These changes have not followed the simple model of innovations in developed countries being simply replicated elsewhere. Innovation has taken place

[17] Note: Challenging Ignorance reference

everywhere. The development support sector has not seized the strategic opportunities inherent in these changes. On the key questions of the appropriateness of the artefacts used for encompassing all the knowledges that are required; for the transparency of and accountability for what is taken into account and what is not; for building the relationships which need to be forged, there is an almost complete silence. Regarded as a whole, the sector has tagged along behind, paying over the odds for hand me down solutions, rooted in Northern work environments, from other people's problems. For us the multiple information challenges it faces – its need to communicate well and in all directions across every conceivable boundary – represent an incredible opportunity to experiment, to invest and to learn. The development support sector should not be the poor relation: it could and should be the avant-garde.

2. Understanding Artefacts

2.1 Inspirations

1. Sylvia Tamale, a Ugandan feminist and legal scholar, introduces her reader '*African Sexualities'*, by declaring that the book will try to address the multiple complexities of its subject '*through the lenses of history, feminism, law, sociology, anthropology, spirituality, poetry, fiction, life stories, rhetoric, song, art and public health* '(p.1)[18]. Such richness of approach, however, is seldom reflected in the monochrome palettes of development support or development studies.

2. As authors, how to get beyond the monochrome and do justice to the richness of some of the work achieved has been the subject of much hand-wringing, iteration, and not a few false starts. Whilst we have found a number of highly valuable contributions about this or that aspect of a particular artefact, finding work which critically explores artefacts as a whole, still less their application and use in an inter-cultural setting has been far harder. We are lacking in a framework for addressing these issues in which we can have full confidence, and are aware this is a problem we may share with our readers. It may not help to overdo the analysis at this early stage. We therefore propose to spend a little time just appreciating the diversity and imagination of a number of artefacts we have come across. We will then try and identify some factors which affect their value, both in themselves and in their use for development support. In doing so, we temporarily leave behind the more mundane purposes of artefacts in our daily work to illustrate some of the more creative ways they can contribute to how we understand and communicate our work and to the creation of space for collaborative ways of working. The scope for using

[18] Note: Sylvia Tamale (editor),2011, 'African Sexualities: a reader', Pambazuka Press

artefacts for research, interaction and communication is virtually infinite, so our selection is in no way comprehensive. IKM Emergent used a range of artefacts from traditional refereed articles, working papers and summaries, through multimedia presentations, digital stories, installations, visualisations, topic maps[19]. Some of these are presented here or elsewhere in the book (Box 1, below) but we are also happy to showcase other work. Although much of our discussion looks at the forms artefacts can take and the purposes they can serve, the examples illustrate how many in fact involve a combination of forms, can have more than one purpose and often develop through a number of iterations. They also demonstrate how artefacts can be used to support collaboration but also how collaboration can lead to the production of an artefact. In such circumstances, the focus of attention may be on the final product but it can be just as much on the quality of the collaboration and the trust and co-operation that is established amongst the participants as they work together towards some shared goal. Such a process of collectively exploring new possibilities can – through the empowerment of participants and the building of relationships as well as the work itself - be of developmental value in its own right.

Promoting Engagement

3. One reason for producing artefacts is to promote or explain something that is being done in a particular setting. At its crudest, this may involve putting up poster or having some form of display. A more ambitious and imaginative approach is to promote the engagement of other stakeholders with the process to which the artefact relates. This can involve their direct participation in it or, where this is not feasible, to

[19] Note: See http://wiki.ikmemergent.net/index.php/Documents#Material_Generated_from_the_Programme.27s_Activities_and_Projects for some examples. The original Topic Map (http://wiki.ikmemergent.net/index.php/Category:IKM) was generated using some no longer maintained open source software and, at time of writing, is not working.

promote a wider conversation around the work. One set of examples comes from the international engagement work of the Wellcome Trust. This trust funds medical research across the world and has also, following the interests of its founder, always shown an interest in cultural artefacts related to health across a variety of societies. Medical research, particularly of a type which is pursuing longer term agendas rather than offering any immediate health benefits, can be experienced as intrusive or culturally problematic by the communities in which it is conducted. Aiming to build good relations with local communities and their interest in and engagement with the research, the Trust funded a series of 'Art in Global Health' residencies, involving local artists in five countries in which the Foundation has major biomedical research programmes. The aim was to offer an artistic interpretation of the programmes in the context of the societies in which they were taking place, thus reflecting on '*cross cultural exchange and encounter whilst also reminding us of our common ground and humanity*'. The art works produced were all exhibited locally as well as in the Wellcome Collection in London. Both in the process of their creation and in their exhibition, they attempted to offer a channel for critical and exploratory interaction between the scientists and the host cultures[20] in which their research took place. As the curator wrote in her introduction to the London exhibition

'How do diseases spread? How do ideas spread? Where do datasets and mindsets meet – and what role does trust play in all of this? Artists are perfectly placed to elucidate some of the frictions, negotiations and

[20] Insert: This refers to the human cultures of the countries in which the research was located. Of course, much bio-medical research is literally grown within in vitro cultures in laboratories. If a speck of dust is seen when the resulting growths are viewed under a microscope, scientists would label this extraneous matter as an 'artefact', a word we use with a completely different meaning. These difficulties in translation were illustrated by a search we did in 2011 of a British Library database for journal articles about 'knowledge' and 'culture'. 61 of the 63 results referred to 'in vitro' – that is to say laboratory produced – cultures in their abstracts, a result which illustrates, IOHO, our critique of the lack of attention given to the cultural contexts of knowledges.

ambiguities that shape this corner of the world'[21]

The work produced by the residencies was not intended to illustrate the scientific work being done or to engage in health education, but to comment on it from a different perspective. The extent to which the scientists found it of value varied. This depended on the extent to which they had been engaged in the processes of its creation and also on whether they as individuals were interested in art and open to its languages. A reflection on the programme by its commissioner within the Wellcome Trust argued that whilst the residencies had stimulated a lot of interest and ideas about the potential of this sort of collaboration, *'it cannot be assumed that programmes or artists are at a point where true interdisciplinarity could be achieved'*[22].

4. The Dharavi Biennale[23] offered a different vision of how artistic practice can be mobilised around development work. The Society for Nutrition, Education & Health Action (SNEHA)[24] is a Mumbai based NGO which works on a range of health issues, particularly maternal and young people's health, in Dharavi, an area of informal dwellings in the city with an estimated population of 300,000. It gradually built on the idea of involving local residents in art projects, providing, with support from the Wellcome Trust, various forms of physical and mentoring support in the process.

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[21] Danielle Olsen in 'Foreign Bodies: Common Ground', Exhibition Catalogue, Wellcome Collection, 2013. See also James Muriuki and Miriam Kyambi, 'Layers', published by the authors, Nairobi, 2012, for an account of the work done in Kenya. See also https://wellcomecollection.org/what-we-do/art-global-health (accessed 19/01/2017)

[22] Note: Sian Aggett, Art and Global Health: Insights and Considerations for Future Artist Residencies in Health Research Programmes', 2013 – https://www.academia.edu/13909476/Art_and_Global_Health_Insights_and_Considerations_for_Future_Artist_Residencies_in_Health_Research_Programmes (accessed, Nov 2015)

[23] Note: The project is very well illustrated and documented on its website - http://www.dharavibiennale.com (accessed 29/04/2016)

[24] Note: The work of this organisation is fully explained at http://snehamumbai.org (accessed 29/04/2016)

Over two years, 23 'art boxes' were completed around the four themes of art, health, recycling and community. Some works addressed conventional medical issues such as infection and diet, others explored public health issues including sexual violence and pollution. The process led to an exhibition in the neighbourhood which attracted some 9,000 visitors, both local residents and national and international visitors who would normally avoid the area. As with any multi-actor process, there were different reasons why people became involved. Among the many observed outcomes were a closening of the relationship between the health team and the community it aims to serve; greater awareness of a range of health issues and ways of dealing with them supported by their presentation in locally understood idiom; greater awareness both of waste and of what can be done with recycled objects; developing self-confidence and belief in their own agency amongst most of the participants as well as some opportunities for those trying to earn their living as artists; a challenge to negative assumptions about the area and a demonstration of the knowledge, skills and motivation present within it; and some very interesting art. The multi-faceted nature of the project was well encompassed in what we would describe a 'simultaneous' evaluation which assessed what had happened from a number of different perspectives at the same time[25].

Supporting collaboration and co-creation

5. Commitment to an end product can also encourage and give structure to processes of collaborative research. The Vozes de Campo project, explored more fully in 2.2.?(Other book), aimed to contribute to the development of a new and more appropriate pedagogy in rural areas in Northern Brazil. A key component of the overall project was the accompaniment of a group of community based teachers over the period

[25] Note: See http://www.dharavibiennale.com/evaluation-1/ (accesses 03/08/2016

of their more formal training at the University of Para. The purpose of this accompaniment was both to offer support, as they went through a difficult and somewhat alien process, and to explore and develop the type of reflective group practice that would, it was hoped, be part of their pedagogic approach back in their communities. In this context, a formal agreement amongst the group to collaborate on a book helped both to structure and secure long term commitment to the process. The result was the book 'Harvest in Times of Drought'[26]. It served both as a tool for documenting the development of a group of people and their pedagogic ideas and as a means of communicating their approach to national and international audiences.

6. A very different example of an intended artefact helping to structure a collaborative process evolved out of IKM Emergent's interest in what happened to the material produced in the course of using participatory methodologies. Many development support organisations, particularly Non-Governmental Organisations, use such methodologies to engage with the communities with whom they work, but what do they do with what they learn? Hannah Beardon and Kate Newman were asked to find out. They accordingly got in touch with contacts in a number of international NGOs based in the UK and held a workshop to pose the question. The workshop provided a sort of answer to the question – that is that not much was done with such material – without providing much in the way of productive insight to participants. People were individually frustrated at such lack of use but had not had much opportunity to think about what could be done about it. It would have been easy to stop there but, instead, Hannah, Kate and most of the workshop participants saw an opportunity to take the process further. Individuals agreed to write up

[26] Note: The book (bi-lingual Portuguese – English) is available at http://www.cultura21.net/wp-content/uploads/2011/11/Harvest-in-Times-of-Drought-Colheita-em-Tempos-de-Seca.pdf (accessed 29/04/2016)

their own experiences, looking at both the value of the participatory processes with which they engaged and also at how their greater potential might be recognised. In this case, the aim of writing for a publication, which remains a valuable resource on such processes for the sector[27], helped to structure, and to some extent justify[28], further exploration of what was agreed to be an important if problematic issue. The process included a further workshop which set each individual contribution in the context of the wider artefact and developed the discussion on what could be done better. Attention turned to the increased importance of responsible individual agency within organisations that try to manage communication with ever wider ranges of stakeholders whilst also asserting their ethical values. This discussion in turn contributed to the IKM Emergent's more general reflections on personal responsibilities in this field and to those parts of Challenging Ignorance (1.x.y), which discuss the meaning of professionalism within ever more networked and fluid organisational settings.

7. Artefacts can also be a focus of and provide structure for predominantly on-line collaboration. The Pattern Language Project grew out of the interest that American academic and activist Doug Schuler had in whether an artefact called a 'pattern language', developed by Christopher

[27] Insert: The report on the first stage of the process was IKM Working Paper no 7, 'How wide are the Ripples?' by Hannah Beardon and Kate Newman, October 2009 - http://wiki.ikmemergent.net/index.php/File:IKMEmergent_Working_Paper_7_-_How_wide_are_the_ripples-final.pdf%E2%80%8E
A parallel exercise, the lessons of which will be discussed further in 2.3.x, was conducted with NGO staff in Kenya by members of PAMFORK and published at the same time as IKM WP No. 6 'Learning from, promoting and using participation: The case of international development organizations in Kenya' by Stephen Kirimi and Eliud Wakwabubi, - http://wiki.ikmemergent.net/index.php/File:IKM-WorkingPaper-6-PAMFORK-final.pdf
The edited collection of papers was jointly published with IIED as issue 63 of PLA Notes - http://pubs.iied.org/14606IIED.html

[28] Note: By this we mean that some combination of creating a document which could be shared for internal learning and that, when published, would draw some attention to an agency's work and, for the individual, a publication with their name on it made it easier to justify spending time on such work than would be the case if the person was simply participating in discussions

Alexander in relation to architecture, could be modified and developed to serve the development of public interest information architectures and other forms of social development more generally. A pattern language consists of a number of individual patterns, each of which describes a common problem in the field of work being addressed and its context, discusses the issues involved and ends by proposing a solution. Most pattern languages attempt to address problems at more than one level – Alexander's was divided into chapters about towns, buildings and actual construction methods. The idea is to have a flexible and modular approach to sharing expertise in a particular area of work. People facing a problem then select the permutation of patterns which appear most relevant to their situation. Apart from its original use in relation to the built environment and in this project, it is also used in software development. It is a model of knowledge sharing which could certainly be applied to development support. What was of equal interest in the Pattern Language Project, however, was that its development created an open collaborative space for knowledge co-creation. The language itself and over 150 separate patterns were developed over some seven years by individuals based in all five continents, most of whom never met each other. Guided by Doug Schuler, this on-line community first discussed the concept, then drafted a number of patterns and then went through a process of selecting and editing them prior to finally designing and producing a book[29].

[29] Note: Douglas Schuler, Liberating Voices: a pattern language for communication revolution', MIT Press 2008. The book was very ambitious in its scope, attempting a pattern language for positive social development in modern society in general. Arguably the book that inspired it, Christopher Alexander et al, 'A Pattern Language', Oxford University Press, New York, 1977 by concentrating just on the built environment, produced patterns which were more focused and easily applicable. Paradoxically the method behind the artefact is very well and concisely illustrated by subsequent work which sought to describe an anti-pattern language - that is those features of how the world works which inhibit progress. See Schuler, D., and Wagaman, J. (in press). The Surprising Power, Vitality, and Potentiality of Examining the "Dark Side:" The Collaborative Production of the Restraining Voices Anti-Pattern Language in an Educational Setting. In H. Neis (Ed.), *Fall 2013 International PUARL Conference: Battle For the Life and Beauty of the Earth.* Portland, OR: PUARL Press. The 'anti-patterns' are also illustrated in pattern cards, a kind of

Tools for collective analysis

8. Maps are artefacts that can work in many ways and on different levels (2.y.z). Participatory Map making with local communities offers an illustration of several of these features as it can combine memory, assessment and debate of contemporary issues and the collective development of ideas for the future. The process of such mapping can be exploratory, looking at an environment or a set of relationships from a different perspective and identifying problems or opportunities. It can aim to generate a collective discussion and, ideally, agreement on issues of potential conflict such as land ownership or, as importantly, rights of various types of land use such as grazing and collection of firewood. Other important spaces, such as those with communal or spiritual significance can be identified and earmarked for protection. The process involves all participating stakeholders in setting out their claims to ownership or use of land. Being open, such claims can either be accepted by other participants or challenged. In that way the process at the least identifies areas of potential conflict and, at the best, provides a forum for their discussion and resolution. It also, from the point of view of a possibly external agent, such as a local government official, a development support agency or a researcher, offers a form of triangulation[30]. By the end of the process, evidence is not just the assertion of a single individual or interest group but has been reviewed and accepted or challenged by other stakeholders. The resultant map and the vitally important accompanying documentation, sometimes provided by means of participatory video making, offers an agreed basis for future development initiatives within the space.

summary used for the analysis of which patterns fit which problem, in http://publicsphereproject.org/sites/default/files/anti-patterns.ALL_.reducedres_0.pdf (accessed Nov 2015)

[30] Note: This point is made clearly by Robert Chambers, 2015, 'Inclusive Rigour for Complexity', Journal of Development Effectiveness, 7:3

Ogiek elders in Nessuit, Kenya discuss issues related to their traditional territory using the 3D model as a visual and tangible reference. (Source CTA)

It offers a record of value not just to the various users or inhabitants of the space in question but as an assertion of their rights to the usage of the land in the face of external pressures. This can be of particular importance in rural areas with multiple use, such as by both farmers and pastoralists, based on historical but undocumented custom, and in slum and peri-urban areas in which development has taken place in the absence of any clear legal title[31].

[31] Insert: There are many on-line and printed resources about such processes: The most recent is the CTA publication 'The Power of Maps: Bringing the third dimension to the negotiation table', CTA Wageningen, 2016 https://publications.cta.int/media/publications/downloads/1943_PDF.pdf (accessed March 2017)
PLA 54: Mapping for change: practice, technologies and communication - http://pubs.iied.org/14507IIED.html (accessed Nov 2015) - contains a range of articles and notes on various aspects of participatory mapping whilst http://pgis.cta.int/en/ is a key website with many links to other resources. Finally http://www.participatorymethods.org/ is a compendium of participatory resources covering the cumulative experience of the Participation Research at the Institute of Development Studies, Sussex, over many years.- (all sites accessed Nov 2015)

A different approach to generating information about a particular space is illustrated by the Map Kibera project. This trains and supports teams of local people to map, film and otherwise record issues of local interest in several of the largest slum areas of Nairobi. The resulting web based artefact is therefore produced by intermediaries rather than as a result of the participation of the whole population – something which in a place the size of Kibera would not be feasible, but the artefact is intended as a community resource and the project tries to remain

9. Another reason for promoting discussion is to assess how well an artefact, which is still in development, is achieving its aims of promoting thought, discussion and understanding about a difficult issue. Kailash Baariya and colleagues in the Anandi organisation[32] made a video about the social damage caused by stigmatising some women as witches in rural Gujarat, in India. The video, was not intended as stand-alone piece but as an artefact, intended to introduce and enable a community discussion about a highly sensitive issue. Even the video itself was the result of an iterative process. Before it was finally shot, several versions of the script had been performed as plays and then discussed by audiences who were typical of the intended audiences of the video. Interestingly, the discussions showed a capacity to critically analyse the production, providing as much feedback about the dramatic structure and impact of the play as about the issues it was attempting to portray. A variation of this process is shown by the iteration of 'Chiedza's Song'[33], a film about adolescents growing up HIV positive in Zimbabwe. The film was initiated by HIV specialist Dr. Rashida Ferrand and developed with 'Together as One'- a Harare-based youth group that aims to create awareness about HIV and adolescent health issues among communities through drama. One iteration of the film includes a recording of an audience discussion that followed its showing in Harare and including this footage in subsequent

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accountable to the communities it aims to serve through regular meetings with a variety of community groups. See http://www.mapkibera.org/work/methods/ (accessed November 2015). Some of the issues involved in 'representing' communities in such a way and the similarities and differences between contemporary 'open source' approaches and more traditional participatory methodologies are explored in IKM Working Paper 17, Participatory technologies and participatory methodologies: ways forward for innovative thinking and practice by Evangelia Berdou, March 2012 - http://wiki.ikmemergent.net/files/13-IKM_Working_Paper_16_Berdou.pdf

[32] Note: See http://anandi-india.org/ . Kailash Baariya recounted this story at a workshop on digital story telling organised by IT4Change, in conjunction with IKM Emergent, in Banagalore, June 2008 - http://wiki.ikmemergent.net/files/DST_Consultation_Report_-_2008.pdf

[33] Note: Mike saw this film in English at a workshop. There is a trailer about it at https://vimeo.com/145268200 (accessed 29/04/2016) and Vimeo also hosts a longer version in Shona.

showings of the film. This was made yet more interesting by the participation of some of the actors in the discussion.

As memory or monument

10. Artefacts can also become part of processes of collective memory, remembrance and seeking to move on towards reconciliation and better futures. War memorials and statues of public figures are common examples of one form of this use across Europe. Prior to their involvement in the Vozes de Campo project, Dan Baron and Manoela da Souza had worked with a number of landless or recently settled communities organised within the Movimento Sem Terra in Brazil. One such piece of work, in 1999, involved a community in Eldorado de Carajas that, in 1996, had been the site of a massacre in which 19 people had been killed by the Policia Militar in a violent (and unsuccessful) attempt to resist the community's claim to land on which to farm. The process of first discussing and then planning and erecting an appropriate memorial involved some 800 members of the community. It did so in a way which sought to be open to all the many emotions which the event had provoked. The result was a sculpture, 'the Castanheiras', consisting of 19 eight-metre high burnt trunks of Brazil nut trees, recycled from local areas of illegally burned forest, erected to form an outline map of Brazil. Inside the trees there is space for political meetings and theatre and a small, more intimate space around a tree stub which commemorates the dead. Nearby, nineteen young Brazil nut trees, have been planted and they will hopefully flourish as the inert trunks of the sculpture slowly decay. The monument is first and foremost a collective expression of the community's will to recognise and, in some senses, come to terms with such a terrible event.

The Castanheiras Remember, Eldorado de Carajas, Brazil, 1999, Transformance Institute Archive

Its scale and the (international) attention it has received asserts the community's claim to their land and is a lasting reminder of the horror and the criminality of the massacre. The use of 19 burnt Brazil nut trees, which are an important and sustainable source of income for small-scale farmers in the region, symbolises both the people killed and the violence done to nature by the forces they were opposing. Last but not least, it seems to us from the pictures we have seen, to be a truly magical work of art[34].

11. If 'the Castanheiras' is essentially an artefact made by the members of a particular community as an act of post-trauma passage and memory of

[34] Note: There is some mention of this work, and a photo, in the introductory chapter of Vozes do Campo/ Dan Baron 'Colheita em Tempos de Seca/ Harvest in Times of Drought: cultivating pedagogies of life for sustainable communities', Institute of Transformance, Maraba, Brazil, 2011 - http://www.cultura21.net/wp-content/uploads/2011/11/Harvest-in-Times-of-Drought-Colheita-em-Tempos-de-Seca.pdf - (accessed Nov 2015) This is a dual language book with full text available in both Portuguese and English. A detailed account of the work at Eldorado de Carajas, and other related projects is given in Dan Baron, 'Alfabetizacão Cultural: a luta íntima por uma nova humanidade', Ifarrabio,Sao Paolo, 2004. This is in Portuguese.

a horror that affected them, artefacts have also long been used, in all parts of the world, to provide a symbolic focus for major public events. These events often have an important purpose, be it religious, as in the many Easter processions in the Christian faith, or as an outlet for social expression and opportunities to speak truth to power, as in the carnivals in Brazil and the Caribbean. A key element in the psychological impact of such events is that they are special. They are apart from day to day life. A striking example of the use of an artefact to create a purposeful special event was 'the Temple', organised by the UK based arts charity Artichoke in the city of Derry, Northern Ireland in March 2015. Two years earlier Artichoke had organised a light festival as part of Derry's programme as 'European City of Culture', a title awarded in large part in recognition of the potential of culture to promote reconciliation in places, like Northern Ireland, which had been the site of prolonged armed conflict. The light festival received great acclaim but, from the point of view of the organisers, it had not achieved all that they had hoped. A giant mural mixing work from children on either side of the communal divide had been completed, but the children from the different communities had sent in their contributions separately rather than working on it together. A set of dramatic fire sculptures, produced by the pioneering French cultural troupe, Cie Carabosse[35], had entertained people but had been included in the festival without a full awareness of the history of the local use of fires at public events, namely the burning of effigies representing 'the enemy' in highly sectarian spectacles. Rather than simply regretting these limitations, Artichoke set out to tackle them more profoundly. They commissioned a (neutral) American artist David Best, a central figure in the 'Burning Man' festival in Nevada. In a project which trained unemployed local youth and made extensive use of volunteers, Best constructed a giant Asian-looking temple out of plywood on a large hill overlooking the city.

[35] Note: http://ciecarabosse.fr/en/ (accessed Nov. 2015)

Pictures from http://templederry-londonderry.com/

On its completion, it was open to the public for a week during which over 60,000 people drawn from both communities in the city (which has a total population of 105,000) visited the monument, many writing messages of peace, memory or remembrance on the walls. Then, in front of a gathering of 15,000 people, the temple was symbolically burnt. Of course, no one would claim that such a process will by itself heal very deep rooted political, economic and social divisions. However, it did mark a mass coming together of people to attempt a very different narrative in a dramatic form that will last forever in the memory of those who witnessed

it[36]. Thus, what had perhaps been more the spectacle of Derry/ Londonderry 2013, was developed into a shared space for an engaging public event laden with meaning two years later.

Spaces Between

12. We talked much earlier (Challenging Ignorance 1.4.29-31) about the informational spaces and knowledgescapes within which we all live our lives and referred to Jane Rendell's observation that much of the language of contemporary thought is expressed in spatial terms. Herself a lecturer in architecture, Rendell has developed this to conceive of the idea that if a genuine dialogue is to develop between the one and the other, it cannot do so in a space controlled by either but needs 'a space between'[37]. She applies this to inter-disciplinary collaboration and also to the space between 'ways of operating', that is between theory and praxis. In our view, this concept makes sense for any cross boundary communication but, as she says, '*how exactly is the 'between' constituted*' is a fundamental question. One part of the answer to this question lies in how work is organised, managed and paid for. Another relates to the actual processes of its creation and here the creation and use of artefacts have a potentially major role. The examples we have given illustrate the possibilities of creating new spaces, spaces 'in between', in which new 'developmental' processes can be negotiated and taken forward (see also 2.4.41 below) . They illustrate that whilst there are many forms of space that can be created for purposeful human interaction and many reasons for doing so, the actual creation of such space is often complex, difficult and drawn out. Most of these examples describe iterative processes: iterative in their

[36] Note: See http://www.artichoke.uk.com/events/temple/ (accessed Nov. 2015) for a brief outline of what was achieved and for a link to a video of the occasion

[37] Note: These quotes come from Jane Rendell, 'Travelling the Distance: encountering the other' in David Blamey (ed). 2002, Here, There, Everywhere: dialogues on location and mobility' Open Editions, London. She develops the idea further in Jane Rendell, 2006, '*Art and Architecture: A Place Between*' IB Tauris, London, particularly the final chapter.

development and also, often, iterative in the use of the artefacts produced.

13. In this section, we have sought to provide examples which demonstrate both the active engagement of participants and an end product of lasting value in itself. For all their creativity and whilst the precise nature of that end product may often have been in doubt, we would suggest few of our examples ended up anywhere wildly different than what had been imagined. This is fine and probably represents appropriate practice for the vast majority of challenges. However, as we have mentioned in relation to many aspects of development, we need to be aware that the changes that we are trying to support and the new practices and relationships that we need to build may take us far beyond what we can actually imagine. We need to discover what possibilities exist and experiment with them. As theatre director Peter Brook said, referring to his actors' work on Orghast, an experimental play performed by a 20 strong cast of twelve nationalities working from a text written in an invented language, '*the work they were doing would take them in a thousand directions, but it was all towards a definition which couldn't be formulated in advance*. *If it could, the work wouldn't be worth attempting'* (p.28)[38]. There must, we suggest, also be at least some space in development support and in its overlaps with cultural expression which allows such explorations and is tolerant of the inevitable failures that occur in the process.

2.2 Critical Assessment

1. The previous section gives a glimpse of the power of artefacts when they are used creatively and in collaboration. We also need to remind ourselves that our choice of artefacts in our daily working lives – reports,

[38] Note: A.C.H.Smith, 1972, 'Orghast at Persepolis: an account of the experiment in theatre directed by Peter Brook and written by Ted Hughes', Eyre Methuen, London

spreadsheets, websites – and how we use them are central to our capacity to work effectively too. Our argument is that, given their importance and given the rapid ICT fuelled expansion of options, a more questioning and a more informed approach to the use of artefacts in all settings is required. What does this involve? The question is almost as multifaceted as the use of artefacts themselves. In this section, we draw attention to some issues which need to be thought about when trying to assess the value of artefacts that might be used in development support work. We also consider how a capacity for a more informed and critical discussion about the relative merits of different artefacts might be developed. We do so fully aware that what we offer here is just an introduction to the necessary process of rethinking the use of artefacts in working on and communicating development support with the aim of making them more effective. Our list of topics is nowhere near comprehensive. Our hope is that this process will be an open and collaborative one, through which we all learn from each other.

2. The range of possible artefacts we could use may be very wide but we would suggest that their practical value in daily working life could be assessed against a fairly limited set of objectives:

- Achieving a more effective and less stressed information environment in which to work
- Supporting better and more mutually understood relationships with stakeholders in which local voices and local knowledges are properly represented
- Having greater awareness of the local realities in which development support takes place
- Contributing to a development knowledge ecology which functions as a knowledge common, structured to be accessible to all potential users
- Developing the emergent possibilities of the field to unlock potential and to stimulate and track new ideas

3. Besides their contribution to such general objectives, most artefacts are used with one or more specific purposes in mind. Even if these may be speculative, it is important to be clear about what is intended, to think about the function of an artefact before deciding on its form. Common purposes for artefacts used in the development support sector are the conveying of messages, the representation or description of realities and work being done to change them, the stimulation of new ideas and, often related, of interactions between people.

4. The first question to be posed about any artefact is whether it fulfils its purpose. Fitness for purpose is the definition of 'quality' provided by the international standards used to describe goods or services in circulation. This definition of quality avoids making absolute judgements about what is best in favour of verifying that something will do what it is supposed to do. Such definitions encourage process designers to think of the proportionality of what is done. This relates the time and money spent producing an artefact it to the value and function of whatever process it is part of. It makes little sense, for example, to spend 10 pounds on assessing whether spending 2.50 pounds has provided value for money.

5. There is functional purpose, there is intent and there can be error. Many artefacts – think advertisements - are produced with the intent of making us think or do things. Often – think propaganda or fraud – this intent can be malign. We are also all capable of misreading information presented to us, of getting the 'wrong end of the stick'. Just as importantly, especially in the cross boundary world of development support, is the possibility of failing to successfully communicate what we want to say, of generating misinformation or confusion by mistake. These potential problems exist in all forms of communication but we are perhaps more alert to them in forms with which we are familiar such as face to face

speech, newspapers, television or overt advertising. Part of our education in the use of new artefacts needs to include developing our capacities to assess them critically and to identify error or deceit.

6. This might apply in particular to many forms of visualisation. It is very easy to pay so much attention to the effect of the image that equally important issues such as how clearly it represents the information it purports to show or the accuracy of the underlying data upon which it is based can get overlooked. Mike remembers being part of an assessment of humanitarian information in West Africa in the late 1990s. At the time, standard spreadsheets were beginning to offer basic visualisations of the data they contained. The team was thus presented some coloured pie charts showing the impact of different rates of disarmament amongst the various armies and militia involved in the Liberian civil war on the balance of power in the country[39]. Save the Children Fund's liaison officer, Robin Schofield, was candid about the highly provisional nature of the information he was displaying. He also observed, however, that since he had displayed it in visual form, he faced far fewer questions, even from experienced journalists, about his sources and the accuracy of his information.

7. This reminds us to think about what might be termed the packaging in which information is presented. At one level, we might like to think that this was irrelevant and that what is important is the actual information or idea that we are being presented with. More probably our response is affected by how it looks. The design of a book, the 'professionalism' of a report, the layout of a photo or graphic and, as we shall discuss below, the style of a verbal presentation all influence how receptive we are to the content. Here, our judgement is likely to be filtered by our cultural

[39] Note: SCF (UK) Liberia weekly situation report for the week ending Sunday 02 Feb 1997

preferences and expectations. Undoubtedly, some channels of communication and their artefacts are excluded from professional or academic consideration. This may be because of assumptions or bias about their origin or their form[40]. It can also derive from an inability to reliably interpret material which is presented in an unfamiliar form.

8. Faced with the ever increasing volume of information and a multitude of new channels for its communication, everyone has to make choices about what balance of material is best for their purposes. We would, however, argue that anyone interested in cross boundary communication, such as that necessary for development support, should seek to be as open as possible, be aware of their potential bias and not use as excuses for exclusion the ingrained habits of far narrower fields of research and action. A more positive way of phrasing this would be to say that we need help from every means at our disposal – touch, sight, sound, smell, movement, feeling – to learn about the environments in which we are working.

9. One general principle, which can be applied to artefacts as diverse as old masters' drawings and office memoranda, is the value of economy of style. For example, messages need to be as clear as possible but also contain – or at least refer to – all relevant information. There is also, as we will discuss in 2.x.y, the potential to avoid duplication - linking to one source rather than repeating the same information as it turns up in different documents (artefacts) in the course of a project. Brevity is understandably much valued in busy offices but there is a difference between economy and brevity. If there is insufficient depth of

[40] Note: This is particularly common in the development support sector amongst staff who see their work as an expression of technical expertise rather than as a service to other people for which they should be accountable. IDS bulletin no x.y tells a story of experts ignoring community led research in Uganda on this basis (more fully referenced x.y.z Other Book)

understanding of whatever is being discussed, the resulting work is unlikely to be efficient or of lasting value. The 700 pages James Joyce devotes to a single day's wandering around Dublin in his novel 'Ulysses' may seem extreme, but many people have found them profoundly worthwhile. Even at that length, the book can be said to have an economy of style.

10. Linked to 'economy of style' are issues of depth and quality. Is the artefact intended to give a general idea of its subject or a detailed representation? Are any new ideas presented intended to stimulate interest and debate or being proposed as actual solutions? The answers should determine the form the image or document takes, its level of detail and the references it makes[41].

11. Artefacts are related to the time of their creation. This may be obvious when we think of the example of the common use of the term in archaeology, but it also applies to the documents, e-mails and web sites we use in our daily work. There are two facets here. First, the development support sector, in general, pays very little attention to history, even to the history of development projects in the same places and with the same people that it is currently working. This, as we argue in x.y.z, is a real weakness but one which the re-use of well-curated artefacts can help address. Second, artefacts produced to address a current challenge can rapidly lose their currency. As we argued (CI, 2.3.x), research should be planned in ways which are alert to the rate at which the realities that are being studied are changing. Otherwise, detailed studies of complex situations may have lost their relevance by the time they are published, whilst relying on even the most perfectly conducted pharmaceutical randomised control trial conducted ten years ago might now prove fatal.

[41] Note: We discuss below (2.x.y) how new technologies offer new, albeit so far little explored possibilities for creating artefacts in multiple layers, making links between overview in detail between a series on connected documents

The problem here may not be the artefact itself but the awareness of or the information (the metadata about) how it can be effectively used.

12. It is also important to recognise that the meaning embedded in artefacts can change over time. In Challenging Ignorance (1.2.x) we gave the example of Ivan Illich's analysis of the text of a 12the Century book, 'The Didascalicon'[42]. The text of this book has a strong meaning to the contemporary reader, but not, he argues, the same meaning that the original readers would have received. At a time when interpretations of historic documents, be they religious texts or items such as the US Constitution, fuel current political debates, this is an important point and one that needs to be applied to study of both words and images.

13. Artefacts are also related to the circumstances of their production and use. This is of particular importance where artefacts created in one context become known and used in others. Some working artefacts achieve iconic status. This may or may not be to anyone's advantage. We first heard of our colleague, M.J.R. David, when the Kotmale Community Radio Station in Sri Lanka, of which he was director, was cited around the world as a pioneering example of how new ICT could be used in development. The problem, as he subsequently explained, was that little of this comment was based on any actual connection with the radio station's work. His work became the canvas on which others painted what they wanted to see. Still less did this wave of global comment concern itself with whether the project was adequately funded. Another example concerns a video made by unemployed youth in Sheffield, U.K., which, thanks to the role of a local member of parliament, was used as an aid to discussion by a full cabinet meeting of the UK government. Whilst both examples may suggest the possibility of additional impact, this could not have been predicted. The

[42] Note: Ivan Illich, 1993, 'In the Vineyard of the Text, a commentary to Hugh's Didascalicon', University of Chicago Press

real value of both needs to be assessed in terms of their meaning to their creators and to their local audiences. Both examples also remind us of the potential for misunderstanding as they are interpreted by other people working in very different contexts.

14. The conception and production of particular artefacts may be casual or be the result of hard work and astonishing skills. On the surface, artefacts may appear similar but in fact possess profoundly different possibilities. Like the example of the village discussions of the play about stigmatising women as witches (1.2.9), it is necessary to be able to assess the medium, that is the artefact, as well as the message. This requires critical skills for an informed understanding of what is put in front of us, of being aware of how different artefacts, through their form, design and delivery can influence our response. The key word is 'informed'. Whilst there is a large industry in training people to use specific new tools, particularly software, support for or provision of structured learning around the issues we are raising in this chapter is, as far as we are aware, almost non-existent[43]. Writing about the proliferation of the use of visualisation within universities, James Elkin[44] wrote

'It turns out that images are being made and discussed in dozens of fields, throughout the university and well beyond the humanities. Some fields,

[43] Insert: There are a number of small development support agencies which specialise in new ways of handling and presenting data. Likewise, quite a number of universities boast 'digital labs' purporting to offer cutting edge means of displaying and communicating information and ideas. Closer examination of the teams behind such projects show that most appear to be based on a narrow set of disciplinary skills. There is some academic literature in which people explain the new approaches they are exploring, much less where their value is critically assessed either in comparative terms between new initiatives or within the wider context of how knowledge can best be presented. Like Elkins, we have failed to find any provision of basic modules introducing students or professional staff to the array of new tools for communication or analysis, affecting their areas of work.

[44] James Elkin *'Visual practices across the university: a report*' in Oliver Grau (editor), *'Imagery in the 21st century*', MIT Press 2013. See also, James Elkin (ed), 'Visual Practices Across the University', Wilhelm Fink Verlag, Munich, 2007, especially the introduction. James Elkin is Professor of Art History at the University of Chicago but his case study was conducted at the University of Cork in Ireland.

such as biochemistry and astronomy, could be called image obsessed; others think and work through images. So far, the field of visual studies has mainly taken an interest in fine art and mass media, leaving these other images - which are really the vast majority of all images produced in universities - relatively unstudied. (p149)

15. Similar things could be said about many other new artefacts that relate to communication – the many forms of text, use of video, the fascination with data and how it can be represented and analysed. Elkin's recommendation was that the university should require all first year students to undertake a module in which they could learn about and learn to assess critically the many approaches to visualisation which existed in their university. In the introduction to his book he makes a number of points which resonate with us, not just as we struggle with the subject of this chapter but also with the wider question of approaches to ignorance. As a professor of art history editing a collection of images produced in a multitude of disciplines, he is one of the few contributors to the book whose job involves writing about images. However, he resists the temptation to leap. Instead he recognises that his own discipline (and, in a related if not identical fashion, 'media' studies) do not, at least in the Anglophone academy[45], look at images in their own terms but in terms of their contribution to art. If the wider implications of the image are studied at all, it is generally in a social context, using concepts grounded in the humanities. However, the majority of images in his book are produced by scientists. He therefore recognises that trying to understand new visual realities through the norms of his discipline, in which images tend to be labelled according to broad conceptual categories, would truncate the exploration of the new as well as be counterproductive to any truly inter-

[45] Note: Elkins notes the different tradition of 'Bildwissenschaft' in Germany and Nordic countries in which a far wider range of images are studied in regard to their function rather than to their aesthetics

disciplinary endeavour[46]. For these reasons, he encouraged each of his contributors to write about their use of visualisation in its particulate sense or as, we might say, in the entirety of its own context. There is no rush to understand or to conceptualise. Instead he proposes that we - collectively – look at what is and then think about it. We like it.

16. For us, the need for an approach to visualisation which aims to be educational and critical as well as creative, as suggested by Elkins, is essential. However, given our own priorities, we would suggest extending such a process in several ways. First, we think it would be timely for such an education to cover a wider range of artefacts, alive to all the permutations of visual, word-based and virtual. Second, any such process in our sector needs to be resolutely multi-inter and intra-cultural, seeking always to understand localised meanings of artefacts, their creation and their use. Finally, we note that Elkins is explicitly writing about these issues in a university setting. Looking at them from the broader perspective of people growing up in a fast changing and diverse world, we would like to see such education start much earlier, at least in secondary school and possibly even evolve continuously from play based learning at nursery age[47].

2.3 Art, Aesthetics and Culture

1. We all use artefacts to make other artefacts. Our capacity to do so forms part of the 'material conditions of production' which are part of the context within which all artefacts should be considered. Communicating

[46] Note: The need to know when and how to transcend disciplinary boundaries is a core skill of cross-boundary knowledge production, which we explore at some length in x.y Other Book. Disciplines, by their nature both structure and constrain approaches to any issue. This work by James Elkin is a rare example of an expert in one discipline having the awareness and skill to avoid this trap and invite others to collaborate in a new framing process.

[47] Note: The arts based pedagogy of the Vozes de Campo project (see 2.x.y and previous work on Cultural Alphabetisation by Dan Cohen suggest possible approaches to this process

our knowledge is usually dependent on using artefacts produced by others using their own specialist knowledge. For example, the text of this book was produced on a word processor, which is itself an artefact generated by a range of highly specialist knowledges. For some tasks, such as producing plain text, the means to say what you want to say are well established. It is simply necessary to buy or borrow the artefacts required. For others, there may be a tension between what you want to say and the means available for doing so. Out of this tension can come experimentation and the need to work directly with specialists to produce new artefacts. In this context, the development of contemporary communications artefacts is particularly connected with artists, designers and various types of ICT professional.

2. As with any inter-disciplinary endeavour, the process of using specialist knowledge from another area for your own particular purpose requires good communication and, often, negotiation too. As the examples given above illustrate, artefacts can be designed to be integral and enabling components of some process of enquiry or interaction. They can also contribute as standalone objects which people can use, such as with software, or to which they can relate, such as works of art. It helps to be clear as to what is intended.

3. The reason for stressing this point is that some disciplines have very embedded ways of working and of esteeming success. These may not always be understood by others or be what is required in a collaboration. We discussed some of the challenges of communication between ICT professionals and their user base above (CI, 1.5.8.). Here, we reflect on the roles of artists in producing artefacts related to development support. In doing so, we are not arguing that any role is more important or better than any other, merely that it is best to be clear of what is expected.

4. Artists, of course, are expected to produce art but, as with

knowledge, understandings of what art is change over time. The 20th century saw, at least in the West, major shifts from art as a representation of reality to art as an interpretation of it; to art as the expression of an idea or of a perceived essence in what was being observed. These shifts are continuing. Central to the context of this chapter is the idea of art bringing new perception and new spaces for thought and creativity to processes not traditionally seen as having any relation to art. Early in its life, IKM Emergent had a workshop about the challenges of rendering connections between multiple knowledges. It was hosted by the Graduate School of Creative Arts and Media (Gradcam) in Dublin. Gradcam was set up in 2008 by a number of Irish design and arts colleges to engage both with higher education and with non-academic communities in Ireland. Its vision was to explore the role of art as an input into other research processes, rather than, necessarily, to produce pieces of 'art'[48]. As such it seems to presage the similar re-interpretation of what art can consist of made by the judges of the most prestigious national arts prize in the UK, the Turner Prize, in 2015. This was awarded to Assemble, a collective of architects who develop physical spaces with disadvantaged communities but who do not even define themselves as artists[49]. The idea here is of art as an approach to enquiry, to problem solving, or to collaborative work[50]. This new understanding of art can apply to all forms of artistic expression, not just the fine arts.

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[48] Note: Personal communication with Mick Wilson, Gradcam's first Dean, March 2008

[49] Note: Interview with members of collective, Guardian, 8th December 2015, http://www.theguardian.com/artanddesign/2015/dec/08/assemble-turner-prize-architects-are-we-artists, accessed 30/03/2016

[50] Insert: The book 'Playing for Time: making art as if the world mattered', (Oberon Books, London, 2015) provides a wealth of very practical examples of art being used as part of a process of social change from the environmental movement in the UK. As the book's creator and editor, Lucy Neal puts it,
'*I decided to stand by the story of art - the enchanter of life and alchemist of change. Not an art I was a spectator at or consumed, but an art in which I was a participating collaborator, a storyteller and celebrant. An art that inspired the reinvention and reimagining of our world at a time of great uncertainty; an art that could be practiced by everyone, inseparable from daily life.'* p.4

5. Others, it should be said, strongly resist this new direction. For example, Alana Jelinek surveys the many ambiguities of the contemporary art scene and the varied levels of complicity and accommodation with dominant neo-liberal approaches to value within it, adopted by even supposedly radical participants. She argues that if art is to reconnect with its core purpose, it needs to reassert itself as a distinct discipline. If art is used to work in other spheres, such as anthropology, then it should be judged as anthropology and not as art[51]. Faced with broadly similar contexts in our respective spheres of work, this argument clearly takes a different direction than that taken by us in response. That is as may be and, essentially, is a question for those whose focus is on art to resolve. For us, the point is that there are important contributions which artists can make to processes of development and of research in which, however their output is described, what is required is their input as artists. These include their capacity to:

- capture 'an essence', to offer insight to be revelatory,
- be disruptive, subverting static and unproductive dynamics and suggesting different directions
- be imaginatory, participating in speculative design or the creation of possible future scenarios,
- build empathy, enabling the comprehension of different knowledges by creating degrees of closeness to the experiences of others

6. However, being an artist is not just about expressing artistic sensibilities. It can also involve the use of techniques and understandings of space, movement and communication honed over centuries and rigorously taught. Often it is these skills, of illustration or display rather than exploration or interpretation, which is required by those working in

[51] Note: Alana Jelinek, 2013, 'This is not art: activism and other 'not art'', I.B.Tauris, London

other sectors. Here we are thinking of:

- Design, of objects and images but also, increasingly, of processes[52]
- Representation and mapping of ideas, knowledge and space, understanding how to place elements in relation to each other in ways which offer clarity and meaning
- Visual and Spatial Literacy, helping others to understand what they are doing as they try to communicate in multiple ways.

Other tasks, such as facilitating human interaction or the creation of boundary objects around which people from different spaces can meet and commence a dialogue, may require both 'artistic' and 'technical' input. It is true that within the discipline of 'Art', there are hierarchies between the two, although, interestingly, the hierarchy of status is often not the same as that of income. From the perspective of a person wanting some artistic input to their own work, such hierarchies are not significant. What matters is to be clear about what is wanted and to find the people with the right skills and approach to achieve it.

7. Again, what we have written above can apply to any process of involving artists in other projects. And again, as with so many aspects of its work, the development sector needs to go further if it is to succeed in transfer what works in one setting into its own peculiar environments. That there are connections between art, artefacts and the cultures which produce and use them seems pretty self-evident. Differences in shop

[52] Insert: There are grounds for caution about the design of process. One designer we met in the course of IKM told us of a project he was involved in which was designing 'public acceptance' of nuclear power. We do not believe he was 'designing' public understanding or acceptance in any meaningful sense, although he may have been designing a promotional campaign which might have been successful in its own terms. We have misgivings about nuclear energy but were probably more concerned about the integrity of his conflation of two different processes than we were about his overall goal. On the other hand, there are examples where the interaction between communities and external experts can be designed in a way that maximises both the productivity and the transparency of the process. One example appears to be the Better Living Challenge, a project to improve the situation of informal settlements in the Western Cape, South Africa, http://betterlivingchallenge.co.za/ (accessed 17th April 2017).

fronts, hoardings, advertisements, dress and personal adornment can be obvious to the most casual tourist. Substantial tomes examine the art and artefacts of other civilisations. Opening a conference on 'Visualisation in the Age of Computerisation' at Oxford University in March 2011, Professor Steve Woolger argued that in order to understand visualisations, it was necessary to historicise – that is to understand the historical contingency of the image, gerundise – to look at the doing and being of the process of their creation, and ethnographise – to grasp their cultural specificity. We agree, but also note that neither the professor nor the conference itself was able to come up with significant examples of cultural specificity outside largely academic and almost exclusively Western practice[53]. Similarly, one of the few books to really examine the cultural interpretations of colour in art, John Gage's highly regarded 'Colour and Culture: practice and meaning from antiquity to abstraction' does not, with the exception of a few pages on Islam, extend its great breadth of vision outside of Europe and North America.

8. People in general are, of course, entitled to choose where to direct their focus. The development support sector does not have this luxury. It has to, and claims competence to, work in multi-cultural, multi-lingual cross boundary environments. Yet, in a parallel with James Elkin's observations on understanding the practice of visualisation in the university, the actual hard work of exploring the many ways how people use the same and different artefacts to communicate day by day within different cultures has hardly begun[54]. This and what we discuss below may

[53] Note: Response to question at event. See also http://www.sbs.ox.ac.uk/school/events-0/visualisation-age-computerisation (accessed 11th April 2016)

[54] Insert: Even where such work exists, it is often oriented around the new technology or, in the case of participatory work, a new methodology and how these can be applied. It seldom starts with the perceived needs of the users. We are aware of few exceptions to this assertion which make the following all the more remarkable

Volker Hoffman, 2002, 'Picture Supported Communication in Africa' CTA/ Margraf.

seem very esoteric and removed from what people expect as money is given to support development. However, without such knowledge it is hard to have faith in our understanding of the other cultures within which we are working (on which we base all our decisions) or in our capacity to explain our own proposals clearly to them.

9. A basic example of this was provided at a workshop hosted by the Centre for Technical Assistance, an EU sponsored institute which specialises in information for rural development, at its headquarters in the Netherlands in 2004. As the very multi-national audience settled down after lunch, Dr. Volker Hoffmann emerged with a simple poster of a cow with a few words in Arabic on it. Everyone expected to hear a story of how to use cheap and appropriate materials to communicate important messages to poor farmers. Instead, amidst loud laughter from the entire audience, we heard a detailed expose of how a series of minor errors in the drawing and the misconceptions they had generated accumulated to the

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Verlag is virtually unique in giving detailed consideration to cultural and cognitive issues when discussing communication with 'illiterate' communities.

David Werner and Bill Bower, 1982, 'Helping Health Workers Learn', The Hesperian Foundation, California, is an early example of considering local political and social dynamics as part of a participatory approach to health education. Although the book is aimed at the educators, it is written in the context of peoples' health needs and the usually highly unequal communication between them and health professionals.

Jo Tacchi and Don Slater, 2003, 'Ethnographic Action Research: A User's Handbook', UNESCO, New Delhi, India. Available online via search box at http://en.unesco.org/ (accessed 09/08/2016)

Daniel Miller and Don Slater, 2000, 'The Internet: an ethnographic approach' offered a pioneering study of local uses of ICT in Trinidad. From 1998 - UNRISD,

Nishant Shah and Fieke Jansen (eds) 2011, 'Digital (alter)natives with a cause?', is a series of four short books offering a range of comparative essays on many aspects of contemporary uses of new media and their implications across the globe. The books came out of a collaboration between and were published by The Centre for Internet and Society, Bangalore and the Dutch NGO, Hivos.

We already referenced the work of Gwyneth Sutherlin on crowdsourcing information in emergencies and of Evangelia Berdou on community mapping in Nairobi (1.5.6 and 1.5.7, Other Book, respectively).

point where the group of Egyptian farmers wondered if they were being asked to send money to help a sick German cow[55].

10. This talk, apart from being an excellent example of the (often problematic and hard to translate) use of humour in serious communication, illustrated the point, made more theoretically in his book, that there is nothing inherently simple about 'simple' communication. In this case, the errors were of actual representation, of a failure to understand the local knowledge which the picture was trying to challenge and of failing to test audience perceptions all in what for development support is an endlessly repeated context of working in a hurry under pressure to show (to senior managers and funders) that something is being done.

11. Part of the effect of images rests on perceptions of 'aesthetics', the study of beauty. Whilst all cultures that we are aware of have concepts of beauty, the word itself and the majority of opportunities for its formal study fall within the Greco-European tradition. Once again, the norms and rules created by a discipline rooted in a European context do not necessarily translate into other settings. Once again also, perspectives which may generally be associated with some rarefied domain, in this case 'fine art', in fact affect day to day communication. Telradio[56], a platform for digital story telling developed in Sri Lanka during IKM Emergent, was criticised by some European audiences for its aesthetics. It was, they thought, too loud, busy and confusing, comments which could of course be made of the streets of Colombo compared to some sleepy European street

[55] Note: This is recounted from memory but Dr. Hoffman has written this up in V. Hoffmann et al, 2009, 'Rural Extension Vol. 2: Examples and Background Material', Margraf Verlag/ CTA

[56] Note: No longer live, see http://web.archive.org/web/20110809041007/http://www.telradio.org/ (accessed 26/04/2016) for a screen shot

scene on a Sunday afternoon. The problem is two-way. It means that web pages designed in the Western style (taught on the assumption that this is the universal norm) may not be that effective in communicating with non-Western audiences. Similarly, Western audiences may not give proper attention to material presented according to what they may regard as 'less professional' aesthetics because of the mistaken view that the aesthetics they have themselves so painstakingly acquired are universal rather than merely provincially European.

12. Colour offers other examples of mismatch and miscommunication. Colours are not only perceived and described differently in different cultures but often have significantly different symbolic meanings in different places. Beyond this, a more specific interpretation of the importance of colour in artefacts of development support can be identified: one that relates to the power and aesthetics of the cultures competing for influence on the process. Western aesthetics have, since the time of Aristotle[57], valued clarity of form over colour. David Batchelor[58] argues that colour has been the subject of consistent and all-embracing prejudice in Western culture, particularly, we would add, the culture of its elites. Colour is seen to threaten the purity of the culture, being the other, the foreign body, '*usually the feminine, the primitive, the infantile, the vulgar, the queer or the pathologica*l' or it is relegated to the superficial, the cosmetic. *'It is dangerous or it is trivial or it is both*' (p22).

13. Later, Bachelor talks of art as the precarious experiment between the preservation of 'art' and its dissolution, *'working in the productive space between these absolutist alternative*s' (p 102). This in turn is seen as part of a cyclical process of corruption and renewal, a process reflected by

[57] Note: Aristotle, 'Poetics', VI, http://www.gutenberg.org/files/1974/1974-h/1974-h.htm (accessed 26/04/2016
[58] Note: David Batchelor,2000, 'Chromophobia', Reaktion Books, London

Russian author and linguist Mikhail Bakhtin who, in '*Rabelais and his World*', celebrates carnival, in Batchelor's words, as '*the usurping of the official by the unofficial, a corruption of the refined by the vulgar. And it was laughter, all the loud riotous laughter that went with seeing the powerful and the pompous get their come-uppance'* (p 104).

14. All of this matters on a number of levels. First, these differences of perception, if unacknowledged, create subtle barriers to understanding between different knowledges, barriers which can impede effective work. Second, we and many others have witnessed throughout our careers the confusions and complexities of life at the margins being censored and subsumed into the calm, monochrome and erroneous certainties of expert reports. Why does the space for professional discourse exclude the loud and the colourful expressions of those whose lives are most affected by the process? Why shouldn't the artefacts used for debate be familiar to them? What is wrong, in a sector allegedly devoted to seeking to rebuild the world for the poor and the meek, with seeing the 'powerful and the pompous' get their come-uppance? Finally, failing to recognise that our own knowledge – in this case aesthetics - is structured in a way which actively excludes other ways of seeing makes us complicit in our own ignorance. As Ngugi wa Thiong'o puts it, referring to the Eurocentrism behind the development of curricula in East African universities, '*any theater or film director will tell you that the organization of space, be it the stage, the museum, the screen or the canvas, conveys meaning'* (p. 36)[59]. If the development support sector does not allow material from other knowledges into the space it creates in which to work, it is re-inforcing its own ignorance. It will be creating spaces in which it is unable to see, let alone understand or use, other knowledges.

[59] Note: Ngugi wa Thiong'o,2012,'Globalectics: theory and the politics of knowing', Columbia University Press, New York

15 Does this sound far-fetched? Let us not forget, such ignorance has been constructed and transcended before.

'*Around 19O7, a few people in Paris, interested in contemporary art movements, he began talking of negro sculpture. Painters who were trying to produce certain new effects on canvas…… suddenly found that similar effects had been achieved with remarkable success in primitive African art. They declared that the small wooden figures, carved centuries ago by unknown artists of the jungle, were superior in many ways to the finished products of the academies. These figures were not merely childish attempts to make an entirely different kind of statue. Where they seemed to be misshapen, badly proportioned, they were really fashioned with consummate skill to achieve the effects that Europeans had not been able to see or appreciate. Instead of being the beginnings of art, valuable only as historical relics, they were perhaps a stage in advance of European evolution, and valuable as ideals.* (p.1)[60].

Is it not at least possible that similar leaps forward in comprehension could happen again, in either direction, if we learnt in ways which were open to them?

2.4 Components

1. Reminding ourselves that the artefacts we use can range from the sublime to the highly practical, we shall consider some of the common components used in their creation. Particularly in their professional lives, most educated Westerners use text and numbers to express their knowledges, although an increasing number use visualisations, often on screens. We have discussed at length (CI, x.y.z) the importance of languages and how different languages can help us think in different ways. This argument can extend to concepts of visual and spatial languages. We talk of multiple knowledges but can also talk of the multiple intelligences

[60] Note: Paul Guillaume and Thomas Munro, 1926, 'Primitive Negro Sculpture', Jonathan Cape, London

we use in our working lives. The challenge is to know how to harness them all first in pursuit of a deeper understanding of our realities and then in the process of changing them

Words

2. Words are written down. Words are spoken. In some cultures, the two forms are seen as significantly different, in others not. Discussing the syllabus of the Literature faculty of the University of Nairobi, Ngugi wa Thiong'o notes that Swahili has a single word for what in English are described as either 'literature' or 'oral literature'[61]. The use of words involves all the challenges we explored when discussing language (CI, 1.2.x). Here we concentrate more on the forms they can take as they are shaped into artefacts.

3. One argument that has been commonly made, and is clearly relevant to our focus on development support, has been around the supposed connections between written language and greater social and economic development. Historically, this appears true for all major European, Middle Eastern and Asian civilisations, which accounted for most Western knowledge about the distant past until fairly recently. More recently, archaeology, in the absence of written records, has taught us much about a number of complex and sophisticated civilizations in Africa and the Americas that made do without what we would call written records. Research into the quality of oral records, including detailed memory of family and property transactions, has shown that, especially in the absence of major social disruption, these can be far more reliable than had previously been assumed. Written records have the advantage of being an alternative source of memory at times of massive disruption. For example, the existence of libraries in the Arab world allowed for the safe

[61] Note: Reference

keeping of much of the Graeco-Roman lexicon during and its re-import into Europe after the Dark Ages. However, this does not mean that the written word is an essential precondition of social and economic development. Development and development support can, at least to a far greater degree than has previously been attempted, be accommodated within an oral culture. For that reason, as well as for the continuing importance of oral communication in contemporary working practice, we believe the use of words as the base of artefacts needs to be considered in both their written and oral forms.

4. Words, in both forms, are used for many purposes. If we are talking about the context of work, then the most common are for basic communication, to keep records, to explain what is being or has been done, to present and receive argument, to aid analysis, to tell stories. The range of purposes and the means of achieving them is almost endless and beyond the scope of what we are attempting here. Our point is the value of making an informed and deliberate choice about which form of artefact is likely to be most appropriate for the purpose of the work. The choice should take into account both the context of production and use and the potential for innovation (especially of ICT) to develop and improve on existing norms. Our experience both in academic settings and in extensive consultancy work in the development support sector is that this is seldom done. A set of well-established norms – peer reviewed papers, annual reports, consultancy reports, strategic plans, trip or mission reports – are taken off the shelf and used with little thought of adaptation or innovation. In this, various academic or head office expectations may be met, which says something about the foci of accountability in the sector. The question of how what is written can best be structured for both its immediate and future contribution to the practice of development support is seldom posed, even in relation to individual artefacts, still less in the way everything that an organisation receives or produces can be used together.

There is scope for more purposeful and creative thought about the function of documents, how and in what context they are expected to be used, and how they are connected to their sources of information and to other relevant material.

5. We, for example, are writing a pair of books, which are supposed to work on their own and as a combined piece of work. As the books are, at least in part, about artefacts of communication they are, almost by default, offering themselves as physical examples of the arguments put forward in the text. In the introduction (Other Book 1.1.x), we set out what we hoped to achieve and some of the choices we made about their format and look. We made these choices partly on the basis of what we believed might work for what we want to say but also in the context of big changes to the book trade, in how books are made, how they are bought and sold and whether books printed on paper have any future, faced with numerous screen based alternatives. Our choices reflect, in ways we are probably unable to explain fully, a combination of supposedly rational calculation with our own cultural preferences. We are not alone in this, writers, designers and publishers of all sizes are struggling with the same issues[62]. Our, far from unique, belief is that books will have a great future the more they build on their special qualities – being tactile, their potential

[62] Insert: Part of this process involved deciding to publish the book ourselves in order to retain full control of design and production issues. In this we are following in the footsteps of one of the pioneers of the study of visualisation, Edward Tufte, who set up the Graphics Press to ensure his books' appearance reinforced rather than detracted from the text. One trend in the efforts of publishers to maintain print versions of their material is essentially to further industrialise the process, seeking to mass produce similar products, to consolidate products and markets and to maximise the advantages of scale. We have gone with the alternative, which aims to create value from more distinct and crafted products. This perhaps reflects the divides between supermarkets and organic food outlets. We explain our choice here to illustrate our argument that similar issues need to be considered during the production of any document, even those not intended for publication. Collectively, the choices made will shape the resulting knowledge ecology. These issues are well discussed in Susan Hawthorne, 2014, 'Bibliodiversity: a manifesto for independent publishing', Spinifex, Melbourne which considers the issues in terms of content and control and in Aldred, D. & Waeckerie, E., 2015, 'Code-X: paper, ink,pixel and screen',bookRoom press, University of Creative Arts, Farnham, in terms of the book as a physical artefact.

for beauty, their offer of what book designer Rathna Ramanathan[63] has called an 'inner space' in which readers can safely explore other worlds.

6. At the risk of being repetitive, it is perhaps worth noting that fundamental changes in what we do with a written script are far from new. Leaving aside the actual evolution of the book form from the scrolls that preceded it[64], we can note Ivan Illich's analysis of Hugh's 'Didascalicon', an early 12th century text, in which he traces the change in medieval Europe from text as an artefact which was intended to be read aloud, a kind of crude audio file, to text which was intended to be digested silently by an individual reader[65]. This change, Illich argues, was more fundamental to the development of reading as a widespread activity than even the invention of the printing press which it preceded.

7. Not all experiments with written script are so profound but others can still change the experience of reading it and emphasise a different approach. In 'A Claim to Land by the River: a household in Senegal 1720-1994'[66], Adrian Adams and Jaabe So give space to a number of voices which recur throughout the text. This emphasises that there is a range of perspectives on the issues being discussed, both those relating to local development in which they, as officers of a peasant federation, wish to give voice to their members and to historical questions. Any history of a place is better for reflecting the many experiences of living there. In a different vein, Kum-Kum Bhavani and colleagues create a structure for their book in which interdisciplinary academic input on various topics is followed by 'Visions' sections which outline the reflections of activists and writers as

[63] Note: See http://www.m9design.com/ (accessed February 2017)
[64] See https://www.youtube.com/watch?v=pQHX-SjgQvQ (accessed February 2017) for a humorous but entirely valid take on this process
[65] Ivan Illich, 1993, 'In the Vineyard of the Text, a commentary to Hugh's Didascalicon', University of Chicago Press
[66] Note: Adrian Adams &and Jaabe So, 1996, 'A Claim to Land by the River: a household in Senegal 1720-1994', Clarendon Press, Oxford. Reviewed in Development in Practice by this author

well as researchers on where such thinking may take us. Like the work on African Sexualities (2.1.1, above), the book tries to practice what it preaches in seeking '*scholarship that breaks out of the impasse of development studies, and as a ground for resistance to globalization-from-above development and organizing for social transformation'* (p.20)[67]. The point we are trying to make here is that using written text need not involve the replication on auto pilot of some established norm. It is helpful to think about what the document is intending to do and why and to construct it accordingly. The examples given here are both from books which have taken a creative approach to their subjects but a similar thought process of how to make a document most effective for its purpose may be even more significant for the mundane documents of daily work. In particular, ICT can be used to separate out and identify fact, argument, discussion and decision, making possible shorter documents with less duplication but linked to all relevant sources and data.

8. The domination of the written record in Western government and work environments has in no way stopped the practice of words being read aloud or recited. In the context of development support, this is particularly important given that much of the sector's work takes place in cultures which, however high the current levels of literacy, have been deeply rooted in the spoken word. At the same time, what is said in presentations, at meetings and conferences, on television and radio remains of great importance in all cultures and forms a major part of the public discourse within and about development support.

9. One feature of oral literature, that is of prepared words designed to be spoken to an audience, is its relationship with 'performance'. 'Performance' can be described as the set of skills, tacit or explicit, used to

[67] Note: Kum-Kum Bhavani, John Foran and Priya Kurian (eds), 2003, 'Feminist Futures: re-imagining women, culture and development', Zed Press

shape and emphasise a piece of work, in this context spoken words but in others, music drama and dance. The purpose is to achieve a desired impression on the audience

but, as recent research has showed, the response of the audience contributes to the performance as it continues and shapes the perceptions of both the performer and the audience of what they have witnessed[68]. Obviously, the idea of performance is often associated with dramatic speech or movement but, in working life, it often is far more subtle. People may simply want to appear calm or competent or reassuring.

10. One example of this is the role of human performance in live presentations of evidence. Vital evidence is given in person in courts of law precisely so that juries and judges can use the surrounding signals of expression and body language to assess its credibility. The same applies to professional presentations. Something that sounds hesitant and nervous is unlikely to be received or remembered as well as a presentation which is either colourful or emotionally engaging. Gapminder[69] is a piece of software which is excellent at visually and dynamically presenting what happens as data change over time. It is available for free download and use by anybody. It was also used by Dr. Hans Rosling, its developer, for his own presentations about development and health. It is good software but part of its fame must lie in Dr. Rosling's skill as a performer. Him using his software and us using it was like the difference between the Rolling Stones and the Downliners Sect[70].

11. We do not think the points we are making here to be either

[68] Note: Cambridge references

[69] Note: See http://www.gapminder.org/ (accessed 31/03/2016). There are links to videos of some of Dr. Rosling's presentations off the site. Dr Rosling died in February 2017

[70] Note: You haven't heard of the Downliners Sect? That is sad for you, but it is also our point. They were contemporaries of the Rolling Stones in the early R&B scene in London, very well regarded musically but, it would seem, lacking the same performance skills (or management).

profound or controversial. Such activity is noticed and individuals are often identified as coming across well or badly in presentations or in meetings. Good facilitation is also usually appreciated. What is striking is how this is regarded as a question of individual competence rather than as something is of importance to the development support organisations for which these individuals work and which can, at least to some extent, be studied and learnt. This is particularly surprising in the context of trans-cultural communication in which these agencies work. Tone, gesture, movement, humour can all offer different meanings in different cultural contexts. How do such organisations know how well their European or North American staff are communicating with colleagues in Africa, Asia or Latin America? They don't. They pay attention to what has been said but never to how it was said.

12. For all the importance of oral communication in development discourse, the great majority of the artefacts used for administration, management, evaluation and training in the sector are based on written text, usually in the language of the Head Office. The sector then has to find a way for this body of work to interact with the often oral cultures of the societies which it exists to help. In many of these societies, this is not simply an issue of literacy but one where any literacy that exists is in what is the second language of those that use it. People who are less valued in such societies, the poor, often women as well, are less likely to be fluent let alone literate in a second language (CI, 1.2.y). Historically, the sector has employed literate local staff in order to service these various organisational needs, even though this often creates an imbalance, in terms of age, gender and class in the interaction between the development support organisation and the people with whom it is trying to work 'in partnership'. To the extent that the sector has made an effort to explore how ICT can help bridge this gap, most attention has gone on mechanisms for SMS messaging to target audiences. Some of this has been interactive, allowing

farmers to ask for current market prices for their produce for example, but most concern the creation of new channels for the one-way dissemination of information that the development support agency has decided people need in order to change their behaviour in some way. There are some examples of hand held devices being used to facilitate the local level management and communications of project work which, although still based on text, do provide a simple way for more complex issues to be flagged up and investigated[71]. Theoretically, the technology exists to not only record and translate local languages but also to organise audio files in ways in which headings, dates and keywords can enable the retrieval of specific records, similar to text based filing systems. I spoke to a representative of Nexidia, a company pioneering such software in 2003. At that time, the cost of customising it to a specific African language was around US $200,000, or not very much considering the tens of millions spent annually by the development sector in areas where there is a dominant local language. Such technology would allow the involvement of elders and women in the direct oversight, recording and evaluation of local project work, of bringing such work closer to the people it is supposed to benefit. However, we are only aware of a single example of the potential of voice recognition software being used to support the use of local languages in communicating about development issues[72]. The company I spoke to had not at that time been approached by any development support organisation. It is sadly ironic that their customer most interested in

[71] Note: PLA reference

[72] Insert: This involved creating pathways for the management and transmission of audio files containing information about market prices between mobile telephony and established community radio channels. It has been fully written up, with reference to both social and technical processes, by Nana Baah Gyan, 2016, 'The Web, Speech Technologies and Rural development in West Africa: an ICT4D approach' http://w4ra.org/2016/02/29/the-web-speech-technologies-and-rural-development-in-west-africa-phd-thesis-by-nana-baah-gyan/ (accessed March 2017). A shorter piece by Stephan Boyera about some of the technical challenges involved can be found at https://www.stephb.org/2013/03/demystifying-voice-technologies-for-development/ (accessed March 2017). This work relates to earlier proposals published by the W3 Consortium in 2009, https://www.w3.org/TR/mw4d-roadmap/ (accessed 28/14/17)

applying this technology to African languages was the US Department of Homeland Security.

13. The oral culture of the countries in which most development support takes place is far wider and deeper than what is required for the workings of the development support sector. Local language radio has long been the primary source of mass communication, especially in rural areas. The demise of state monopolies in many countries has greatly expanded the range of what is broadcast. Much local radio is interactive in nature, especially since the growth of mobile telephony has made calling in easier. Many include various forms of public information, about farming, health and other development issues as part of their programming. In general, few international development support agencies seek to engage within the spaces thus created.

14. In addition, most oral cultures have, or have had, socially recognised roles in which certain people use established communications forms – artefacts – in order to provide one or a combination of 'services', including general historic record, family history, contemporary social and political comment, humour, poetry, song, and, sometimes, spiritual guidance. We may mention, among others, Griots (West Africa), Gurus (India), Marabouts (North Africa), Repentistas (North East Brazil) [73] or, historically, Troubadours (Europe). Whilst such roles may have originated in predominantly rural societies, most still exist, sometimes in adapted or evolved forms in modern cities. Some have moved from a purely oral form to hybrids, where performance is mixed with the sale of locally printed

[73] Note: See for example the Cearense repentistas Ivan and Galdino performing in the streets of Curitiba in 2008 at https://www.youtube.com/watch?v=frl5Mp53PB0 or for an academic analysis of the form , Or Sautchuk, Joao Miguel, '**Poetic improvisation in the Brazilian Northeast',** Vibrant: Virtual Brazilian Anthropology 8:1 2011 http://www.scielo.br/scielo.php?script=sci_arttext&pid=S1809-43412011000100010&lng=en&nrm=iso&tlng=en (both sites accessed February 2017)

texts or tapes/CDs. All play such a fundamental role in their own cultures that it is debateable whether those cultures can be said to survive in their absence.

15. At the beginning of this section, we remarked on the distinction in English between 'literature' and 'oral literature'. The latter, as pointed out by Ngugi wa Thiong'o[74], is clearly an oxymoron in that the defining characteristic of literature is that it is written. He goes on to discuss the work of Ugandan linguist Piu Zirimu, a cultural activist who was murdered by agents of Idi Amin in 1977. Zirimu was critical of concepts of literacy and illiteracy, with the former regarded as the norm and the latter, with orality as its form, as some lesser offshoot. Instead he coined the word '*orature*' and conceived of the binary of 'orate' and 'literate', not as '*oppositional absolutes*' but as natural allies, each with their '*adequacies and inadequacies'*, '*connected by the word*'. It is hard to see Shakespeare disagreeing.

16. Among the features of 'orature' is its multi-faceted nature, offering a '*fluidity between drama, story, song, discourse and performance'*. We have already referred to the subject matter of established schools of oral performers, the historical and the contemporary, the sublime and the comic. Ngugi wa Thiong'o goes further in recognising the power of the medium to offer '*a dynamic inter-linkage of art forms*' which has a particular capacity to explore core ontological concepts which sit uneasily within the structured discourses of the modern world. Orature, he says, has no problem with '*the normality of the connection between nature, nurture, supernatural and supernurtual'*. As he points out, such

[74] Note: Ngugi wa Thiong'o, 2012, 'Globalectics: theory and the politics of knowing', University of Columbia Press, Chapter 4.. This is the source of all quotes in this paragraph. In talking about 'orature' the author makes reference to 'Orature, a self portrait' the work of the South African sculptor Pikita Ntuli (http://www.pitikantuli.com/), published in K. Owesu,1988, 'Storms of the Heart: an anthology of black arts and culture' Camden, London

connections, of animals speaking to humans or vice-versa, of changes from one form to another, of ever-present spirits form part of the foundational stories not just of Gikikuyu culture but of Classical Greek, Scandinavian and Indian epics too. Similar connections, such as with ancestors or with features of the natural world remain an important part of many people's understanding of the world and, therefore of the development they would like to see[75].

17. To return to our definitions of development (CI, 1.x.y), any development trajectory that seeks to ignore or eradicate rather than build on such roots is, at the least, open to accusations of being a forced imposition. We spoke also of the limited listening capacity of the development support sector (CI,1.z.z). The sort of material discussed here is hardly ever used even in the more general analyses of social needs and opinion that development support uses as the background to more detailed planning. It may appear to have no connection to the technical language beloved of the planners of development support. However, it forms a vibrant part of the social reality in which such plans are intended to be applied. Such a failure to listen means being out of touch with the roots of the societies in which they as working as well as missing out on an opportunity to be better informed of opinion and daily goings within it.

Visual Communication

18. Orature, like dance, theatre and many forms of text illustration, has long made extensive use of visual imagery as part of its effect. More recently, visual communication has taken many other forms. The twentieth century saw the expansion of the use of photography and of mass advertising and the development of film and video. This has been

[75] Note: We discuss this further in relation to competing knowledges more generally in the Other Book (1.z.x) with particular reference to the work of Frederique Apffel-Marglin in relation to religious festivals in India and agricultural practice in Peru.

followed by the explosion of digital technologies with mobile phones offering instant photo and video capture and the capacity to process and display masses of information on highly portable devices. The cumulative effect of all this is that images have become an ubiquitous feature of daily life.

19. The explosion in quantity of visualisations in all their forms raises many questions as to their effect on how we see the world and express ourselves within it. These provided both a subject of study for the IKM Emergent Programme and an opportunity for experiment in expression (see Box 1). In this section, we focus on the use of images or visualisations as means of illustrating, displaying, interpreting or communicating information or knowledge. We are thinking principally of maps, diagrams and data visualisations and what they offer.

20. Robert Horn has argued that the organised combination of words, images and shapes has all the necessary ingredients – morphology, syntax, semantics and pragmatics – to constitute an actual language[76]. His use of the word 'language', and more general commentary on the increasing visualisation of communication in the societies in which we live, has given rise to the concept of visual literacy and therefore, presumably, to that of visual illiteracy. Alan Blackwell, in his introduction to 'Thinking with Diagrams', argues that '*neither linguistic nor perceptual theories are sufficient to completely explain their advantages and disadvantages*' but goes on to argue that '*modern thought has already been greatly influenced by the ability to publish conventional pictorial illustrations in books and it seems that the widespread facility to create and interact with diagrams will encourage new styles of literacy in a similar fashion'*[77]

[76] Note: R.E.Horn, 1998, 'Visual Language: global communication for the 21st century', XPLANE Press, Portland, Oregon
[77] Note: A.F. Blackwell, 2001, 'Thinking with Diagrams', Springer

21. Ideas of visual language or literacy raise the question, given our previous arguments on the centrality of language to life (Challenging Ignorance x.y.z), of how they also affect our experience of thinking and knowing as well as, arguably, of being. Do we transport such concepts of natural languages to visual languages and, if so, where does that leave us? I would suggest that it is premature to judge: that, as Elkins found in his study of the use of images in a single university (2.2.14, above), there is a lot going on that we do not understand. Horn's work represents a useful entry into thinking about the increasing impact of visual communication on our work and our environment but it is incomplete. The use of the word 'language' in this context may turn out to be more a helpful metaphor than an actual description. At the least, I would suggest that if the 'language' designation is accepted, we will have to talk about multiple languages – not necessarily 'visual English', visual French' etc. but recognising that visual communication takes place within different cultural contexts. These range from very basic differences such as the meaning of colour (for example, does white represent life or death?) or the order in which we interpret what is on a page. Someone used to reading a Roman script is likely to assume that an image on the left of a diagram in some sense comes before that on the right. An Arabic reader might think the opposite.

BOX 1 – Visual Artefacts in the IKM Emergent Programme

A: Tools for local engagement

(Photo, Cooperative Sula Batsu, 2010)

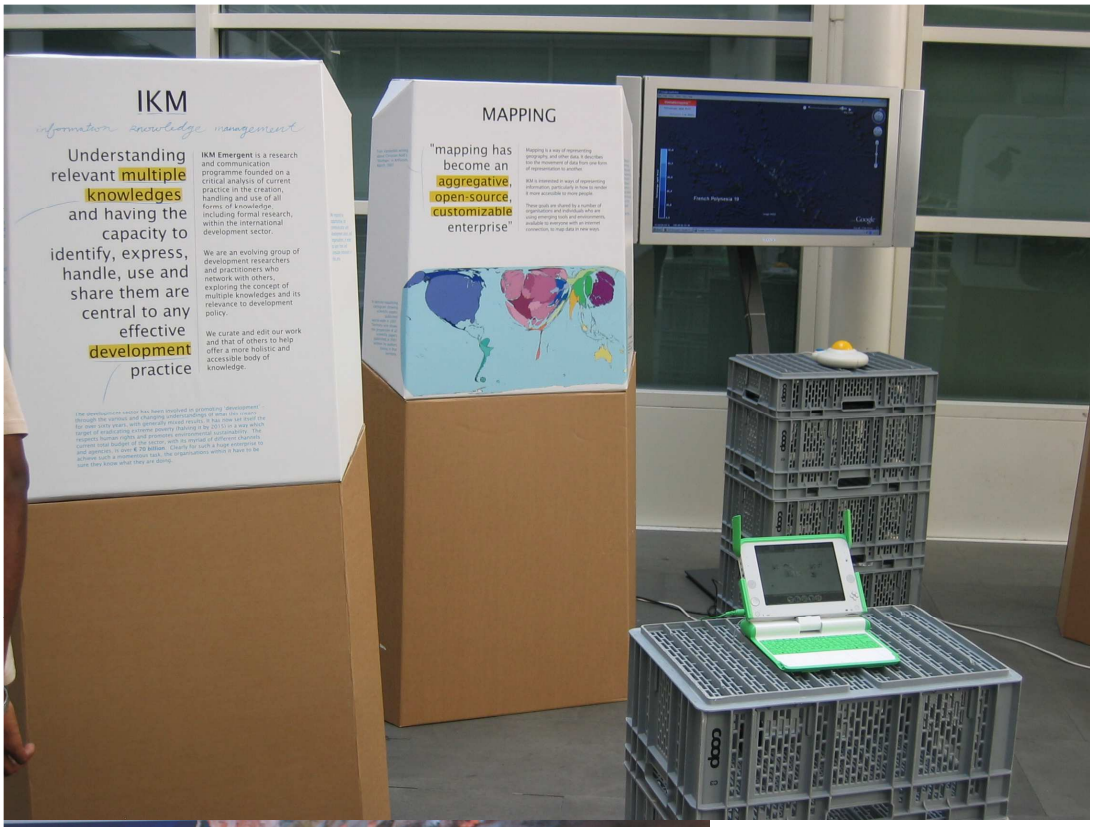
For images, as for any other form of communication, it is important to start from where people are. This goes beyond a capacity to simply understand the image. Sula Batsu worked with school children in a poor rural area of Costa Rica where all the images used to illustrate daily life in the school were taken from affluent urban environments. The children may have known what all the appliances they were looking at were, but they did not have them in their own homes. The impact of this supposedly educational material was thus disempowering. It communicated messages of inferiority and backwardness to the children whilst, by providing images of a reality they did not experience, not helping them interpret their lessons in relation to their own environment. Sula Batsu, as part of IKM Emergent, provided cameras to the children to take photos of their own neighbourhoods which were then made into games such as Bingo, to introduce discussion about the issues the photos raised – food, farming, transport, the environment etc. See https://ourproject4ikm.wordpress.com/2009/07/10/new-communities-in-the-spotlight/ (accessed May 2017)

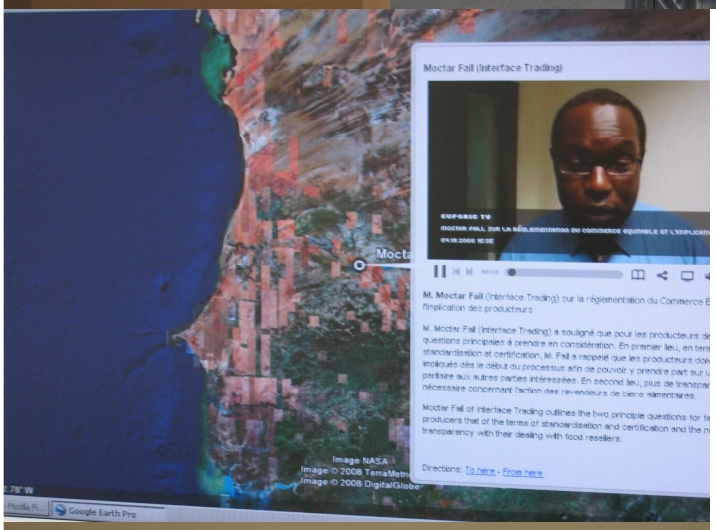
Dan Baron and Manoela Souza made extensive use of drama and dance in their work with rural educators in Para State Brazil. The work had both pedagogic objectives and a number of 'specific objectives and subjectives' of which no 4 was *'Illuminate the theatricality of the human being and his/ her social spaces to understand how to construct dialogic and democratic stages to form a actors capable of intervention, self-determination and stimulating self-determination in others' (Harvest in Times of Drought, p101)*

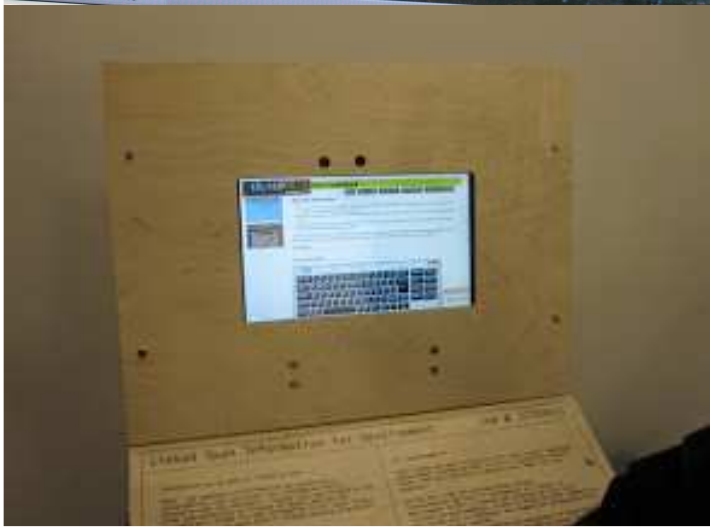
Dance changes the body by recovering what has been forgotten by the imposed culture, in the hardened and maimed bones, and at the same time releasing us from the past we have suffered. This choreography has a contagious swing which engages the (smiling) companionship of the class. It is a very powerful tool, because it is the doorway to the self of the other.
Margarete Nonato (p109)

B: Public Installations

South African artist Ralph Borland (pictured above) designed installations for IKM first for an EADI conference in Geneva (2008, above and 1&2 next page) and then for the ICT4D conference London (2010) and EADI/DSA conference York (2011). The second consisted of wooden stands in which interactive notebook computers offering talking heads, digital stories and informational material were mounted. Some of this material is now missing but an introduction to Linked Data survives - http://linkedinfo.ikmemergent.net/ (accessed May 2017)


IKM
information knowledge management
Understanding relevant multiple knowledges and having the capacity to identify, express, handle, use and share them are central to any effective development practice
IKM Emergent is a research and communication programme founded on a critical analysis of current practice in the creation, handling and use of all forms of knowledge, including formal research, within the international development sector.
We are an evolving group of development researchers and practitioners who network with others, exploring the concept of multiple knowledges and its relevance to development policy.
We curate and edit our work and that of others to help offer a more holistic and accessible body of knowledge.
MAPPING
"mapping has become an aggregative, open-source, customizable enterprise"

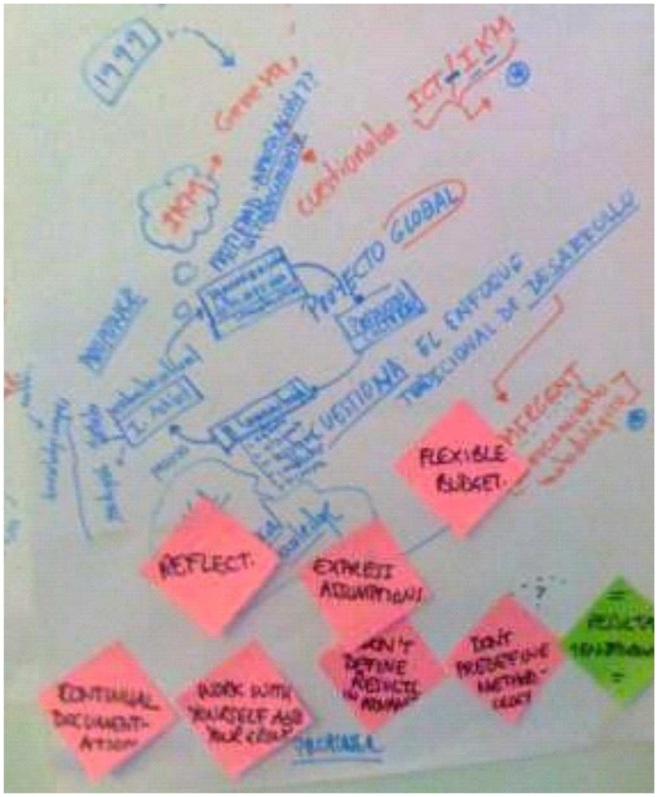

Moctar Fall (Interface Trading)
Image NASA
Image © 2008 TerraMetrics
Image © 2008 DigitalGlobe
Google Earth Pro



C: Visual Notes

Visual notes made by Roberta Faulhaber of presentations at the Participatory Knowledge Building for Development Workshop, EADI/DSA Conference, York, 2011
Also, presented as a Prezi - https://prezi.com/odc1imqxcoo5/participatory-knowledge-building-for-development/ (accessed May 2017)

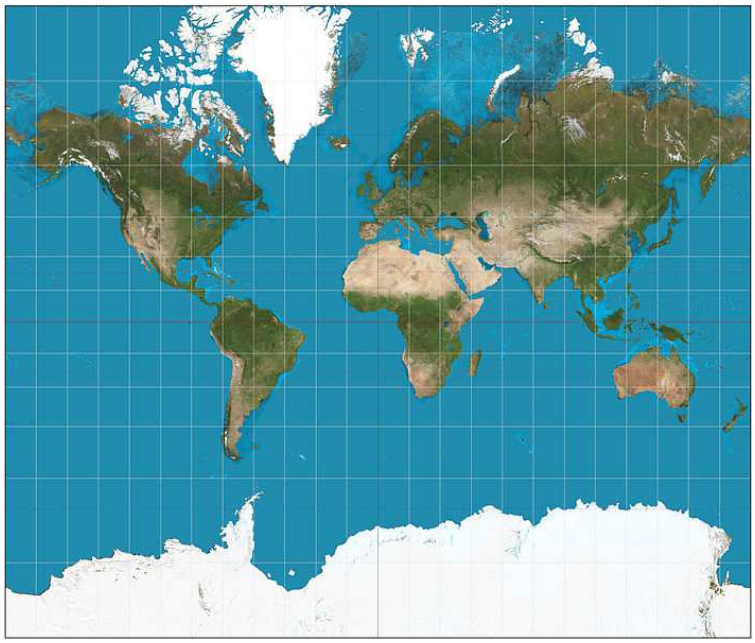
More exploratory visual notes, generated by Sarah Cummings, Kemly Camacho and Kingo Mchombu, as part of interviews about knowledge exchanges within the IKM Emergent Programme, produced and displayed during the EADI/DSA conference in York, 2011. Details and context are provided by Hannah Beardon & Daniel Guijarro, 2011, IKM: Working with Change, http://wiki.ikmemergent.net/index.php/Workspaces:9_Practice_Based_Change (accessed May 2017)



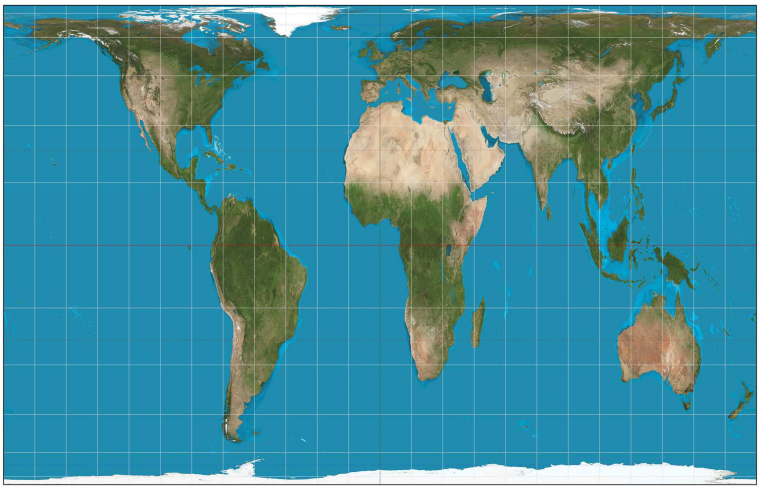
22. Languages, we argued in Challenging Ignorance (x.y.z), both constitute and are constituted by culture. What might this mean in visual terms? At one level, there can be important differences in what can be represented and how. Islamic culture, for example, offers a rich range of meaning-laden visual representation alongside strict constraints on the direct use of religious imagery[78]. In other contexts, the very idea of representation itself may be problematic. If your strongest experience of water is of immersion in a life giving, three-dimensional, multi-sensory substance, how can a shaded blue area on a flat and dry piece of paper in any sense be held to represent it?

23. Cartography, that is the making of maps relating to physical space, offers an example of some of the philosophical and practical issues that arise around the representation of issues which mean different things to different people. First, it offers a number of possible purposes. Some early maps, for instance showing Jerusalem as the centre of the world, had cosmological or religious purposes. Maps and charts have long been used to help people find their way. This can involve the reading of features on a screen or paper, such as the standard road map, but can also offer the completely different perspectives of directions or expected landmarks. The portolans of marine navigators comprised a mixture of compass bearings with illustrations and notes of what could be expected in terms of landmarks whilst following them, an approach which is maintained in some marine and air navigation systems to this day. Finally, there is the map as a formal record of a particular space. This was developed within the context of the Enlightenment as a supposedly scientific and objective representation of space, either upon a globe or then, following strict rules of projection on a flat surface. What is presented and how – and the impression thus created – involves a series of choices which have long

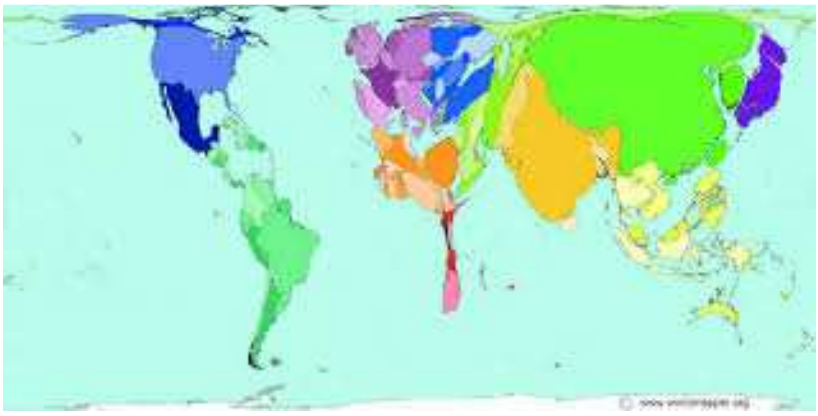
[78] Note: See, for example, Jamal J. Elias, 2012, 'Aisha's Cushion: Religious Art, Perception, and Practice in Islam', Harvard U.P.



Map of the World by Mercator Projection, Danial. R. Strebe,
https://commons.wikimedia.org/wiki/File:Mercator_projection_SW.jpg (accessed April 2017)



Map of the World by Gall-Peters Projection, Danial. R. Strebe,
https://en.wikipedia.org/wiki/Gall%E2%80%93Peters_projection#/media/File:Gall%E2%80%93Peters_projection_SW.jpg (accessed April 2017)



Countries mapped in size according to their energy depletion, 2007
http://www.worldmapper.org/display.php?selected=312 (accessed April 2017)

been subject to accusations of bias. This led to alternative projections, for instance using the Gall-Peters rather than the Mercator projection to better show the size of one space relative to another; to including different data from more varied sources, such as the participatory map making described above (2.1.8); or cartograms which represent the size of nations through portraying indicators other than physical space, such as the relative wealth or energy consumption.

24. The supposed objectivity of maps as a representation of spatial realities has been exploited for some highly subjective purposes. There is a long tradition of using maps to assert or exaggerate political dominion. At the time of writing, for example, some maps will show Crimea as part of the Russian Federation, others as part of Ukraine. More common, in the development context, is the use of scientific mapmaking to assert a colonial (or subsequently) governmental interpretation of a local reality, which can then, in part using the authority of the map, be imposed on local populations. Most commonly, these interpretations relate first to land surveys and then to ownership and use. Other purposes include defining boundaries for administrative purposes, creating a basis for subsequent taxation or emphasising colonial spaces, such as churches and schools whilst rendering indigenous features invisible. Unsurprisingly, there are numerous recorded instances of physical resistance to the work of colonial surveyors.

25. In this range of approaches, uses and abuses, each guided by different purposes, cartographic maps serve as analogy for other forms of visualisation, including those that take maps as their inspiration. Geographic Information Systems use maps as a base on which to display other technical data, such as that relating to forest cover, minerals or water resources, relating to physical space locations. In an example of how similar technology can be applied in very different ways, the use of GIS

in the development sector ranges from the highly technical, plotting data derived from satellite sensing[79], to the intensely social process of participatory spatial information management[80]. Other artefacts, such as cognitive maps, systems and soft systems maps, topic maps, social network maps or idea maps all use concepts of mapping, including those relating to cosmologies and to journeys (physical, intellectual or spiritual), to achieve their particular purpose. In all cases, the viewer needs to be clear about what they are looking at, why, on the basis of which choices and assumptions.

26. There is potential for misunderstanding and deception here. The introduction to 'The Map as Art' argues *'Traditional maps assert, "This is how the world is". Artists' maps countermand that complicity, saying, "This is my vision, and I encourage you to construct your own"'* (p.11) [81]. I would argue that, as long as such issues are explicit, it is legitimate to produce maps in any form and for any purpose that catches your fancy. However, and returning to the argument about the cultural context of images, part of this explicitness needs to include a recognition that 'your fancy' may not be helpful to anyone else's understanding of a phenomenon, still less have any credible claim to universal validity. It is also legitimate to represent physical space in ways which do not involve maps. Failing to recognise these underlying choices risks glossing over, in an enthusiasm for inclusive, participative or even experimental or artistic mapmaking, the fact that we are using an artefact, which in its common use as an assertion of objective reality, aims '*to subsume any number of heterogeneous understandings of lived and experienced space within a rationalized grid of "sameness"*'[82]. A

[79]See for example http://www.fieldlook.com, (accessed 15th September 2011)
[80]See for example http://www.ppgis.net/, (accessed 15th September 2011)
[81] Note: Katherine Harmon, 2009, 'The Map as Art: contemporary artists explore cartography, Princeton Architectural Press, New York and, 2004, 'You Are Here: personal geographies and other maps of the imagination', same author and publisher
[82] Note: This is discussed with far greater erudition than is managed here in D.L. Martin, 2011, 'Curious Visions of Modernity: enchantment, magic and the sacred',

recognition of the extent to which our own capacity to understand the world is framed by our own cultural assumptions and our familiarity with 'scientific' artefacts echoes our discussion of the ways in which proficiency in a single intellectual discipline can, through the power of the focus it demands, become a barrier to a broader understanding of phenomena (CI,2.x,y.).

27. This in turn raises the issue of the relationship of language to rules of expression in particular circumstances. Natural languages are often adapted to fit specific purposes such as worship, legal argument, the precision of medical description. In such cases, words can also be used to explain the adaptation. The same language can thus provide both the means of a specific form of expression and a description of what is being done and why. Visual representations can also be used for specific purposes but in doing so, various rules may apply which cannot reliably be explained visually. For example, Mind Maps offer a way of organising and visualising the connections of evidence and ideas which relate to a defined central issue or question. They do so in a way which is consistent with the method of the originator of the concept, Tony Buzan. This consists of having a central concept to which other issues relate through any number of hierarchically ordered trees and branches. Many people find it very useful and our purpose is not to criticise it in itself but to observe how it imposes a structure – that of a central focus to which a series of lesser elements relate – through which the viewer is supposed to understand how the elements identified relate to each other. A different structure could produce a different understanding and yet the choices made in designing the structure may not have been made explicit or explained. Similar remarks could be made about the imposition of linearity in flow diagrams, of time in GANTT charts, or what is included or excluded in

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systems and soft systems maps.

28. The problem with all these examples is not with the rules themselves but with the constraints that may be implicit within them. Unlike with text of with paper based graphic representation, computer generated diagrams often do not offer the option of displaying information in a different way. The software is written in conformity with what can be quite strict rules as to what can be shown and how[83]. As Cheng observes, '*using a given diagram effectively requires the viewer to think about that diagram in quite particular ways*'[84]. This means that the diagram may in effect be offering a proposition or an argument rather than encouraging a more open reflection on what is under discussion. He also observes that, in general, diagrams '*do not contain all the information that a viewer needs to use them properly*', in other words visualisation does not automatically make information more accessible.

29. Similar issues apply to data visualisations. Here, there are two sets of choices, one relating to data and the other to design. There is indeed

[83] Insert: And often without explaining anywhere obvious what these rules are. An old, anonymous Open University Course, written in the days when diagrams were generated by hand, provides a masterful description of many types of diagram and the rationale for their development and use. We have not been able to find a modern-day equivalent aimed at people generating diagrams on their computers. 'The Basic Types of Diagram' (Block 1 Part 2), 'Models and Ways of Thinking', Block (1:3) and 'Basics of Cognitive Mapping (5:2) in 'T247, Working with Systems', Open University, UK

[84] Note: Cheng, P.C.H., Lowe, R.K. & Scaife, M. 2001, 'Cognitive Science Approaches to Understanding Diagrammatic Representations', Artificial Intelligence Review 15: 79.
The works cited by both Blackwell (note 77 above) and Cheng are fairly analytical.

A more practical look at the issues of presenting complex qualitative information is offered by Noah Ilinsky, 2006, 'Generation of Complex Diagrams: how to make lasagne instead of spaghetti', University of Washington, https://digital.lib.washington.edu/researchworks/bitstream/handle/1773/3100/iliinsky_complex_diagrams.pdf?sequence=1&isAllowed=y (accessed 19th April 2017) and in Steele, J. & Ilinsky (eds), N. 2010, 'Beautiful Visualization: looking at data through the eyes of experts', O'Reilly. A. Lockwood, 1969, 'Diagrams: a visual survey of graphs, maps, charts and diagrams for the graphic designer', Studio Vista London / Watson-Guptill New York also offers sound practical design advice.

even a pre-choice. This, which can be regarded as explicit but might be seen as an example of hiding in plain sight, is the view that whatever is being illustrated is best understood in terms of the quantitative data that pertains to it. As we discussed in Challenging Ignorance (x.y.z), this is a common, possibly dominant, approach to trying to understand the realities of the world around us. It might also be seen as quite a contemporary phenomenon and one that is far more rooted in some cultures than others. The legitimacy of a quantitative approach also relates to issues of the quality of data – accuracy, completeness, currency – that particularly affect data from developing countries (3.1.z below). There are also important choices about which data to select, which should again be explicit. What is being counted and what is not and what values, if any, are being ascribed to any indicator are all of massive importance to the validity of any ensuing visualisation. For example, most neo-classical economists do not include time spent on child care within their figures that estimate Gross National Product as, apparently, the continuation of the human race is not of economic value[85]. In a similar vein, are the number of private cars in circulation in a city an indicator of wealth or of poor public transport?

30. Then there are the actual choices in the design and layout of the visualisation. These are not simply aesthetic. The choices made strongly affect how the viewer will interpret and remember what is put before them. The whole point of a visualisation is to present a simplified representation of the data which will allow greater comprehension of what are intended to be the salient points. The artificial and selective nature of the process is perhaps best indicated not by the type of data infographics which are most common in the development support sector but in the more immediately critical representation of bodily data in acute medicine[86]. Here, large amounts of data, produced by machines like

[85] Note: Econocracy reference
[86] Note: These issues (and more) are discussed in S.E.Wildevuur,2009, 'Invisible

Magnetic Resonance Imaging Scanners, are re-produced in visual forms on screens for use in medical diagnosis. The images may appear to have an almost photographic quality but they are in fact digital constructions which aim to establish first 'norms' and then, using data selection, intensity and colour, the most probable variations from those norms. In many cases the 'norm' may not be based on data from the scan of an individual but on composite data from a much larger population with which the data from the scanned individual is subsequently 'blended'. In the process, much irrelevant data is discarded as noise along with, it is recognised theoretically, data which might point to much rarer alternative diagnoses. It should also be recognised that medical diagnostics have a range of scanning tools each of which has it particular purposes. It is quite possible to have a number of completely normal scans and then another which indicates a serious problem. The 'normalcy' of the former thus applies only to the data selected in and by that process. It has no general value.

31. Clarity of purpose is central to the effective use of any communications artefact, even if the purpose is just to play (2.2.4). Visual communication can be used for a variety of purposes some of which are supposed to illustrate or portray some aspect of reality, others to help us think and to generate new understandings of it. In each case, the purpose needs to guide what is produced. Common purposes include:

Illustrative Explanation

32. In the introduction to his 1953 book 'Prints and Visual Communication', William Ivins states that

'*All kinds of reasons have been alleged in explanation of the slow progress of science and technology in ancient times and in the ages that*

Vision: Could Science learn from the Arts', Nederlands Tijdschrift voor Geneeskunde, Houten, the Netherlands. *Sarah – the point about composite data was made either by Edward or by one of the Athena papers, any ideas?*

succeeded them, but no reference is ever made to the deterrent effect of the lack of any way of precisely and accurately repeating pictorial statements about things observed and about tools and their uses' (p. 16)[87]. His argument was that it was the widespread distribution of cheap images that showed how things worked that enabled the mass adoption and adaption of technical innovation from the nineteenth century onwards, a process he saw as synonymous with breaking down class barriers to actionable and useful knowledge. In the development support sector, similar pictorial approaches were much used in development communications, especially around appropriate technologies, from the 1960s onwards although, as the example Dr. Hoffman illustrates (2.3.9), the fact that the images were simple and cheap did not remove the need for great care in how they were conceived and executed. Currently, similar communication is attempted through You Tube video clips and various phone apps, although with very variable levels of attention to what is likely to work as a communications process.

33. Pictorial explanation also has a major role to play in supporting narrative. This is obvious in the widespread readership of cartoons and bandes dessinés but also has more intellectual examples as in the cartoons of the Mexican artist Rius (Cuba for Beginners, Marx for beginners) or the type of visual notetaking illustrated in Box 1.

Making an Argument

34. Visual explanation is also at the core of some much more specialist processes. The display of data in medical imaging, for example, aims to give the fullest possible representation of data about an aspect of the human body for the specific purpose of guiding medical intervention. If, however, the aim of the image is to make some more general point about

[87] Ivins, W.J. 1953, 'Prints and Visual Communication', MIT Press 1989

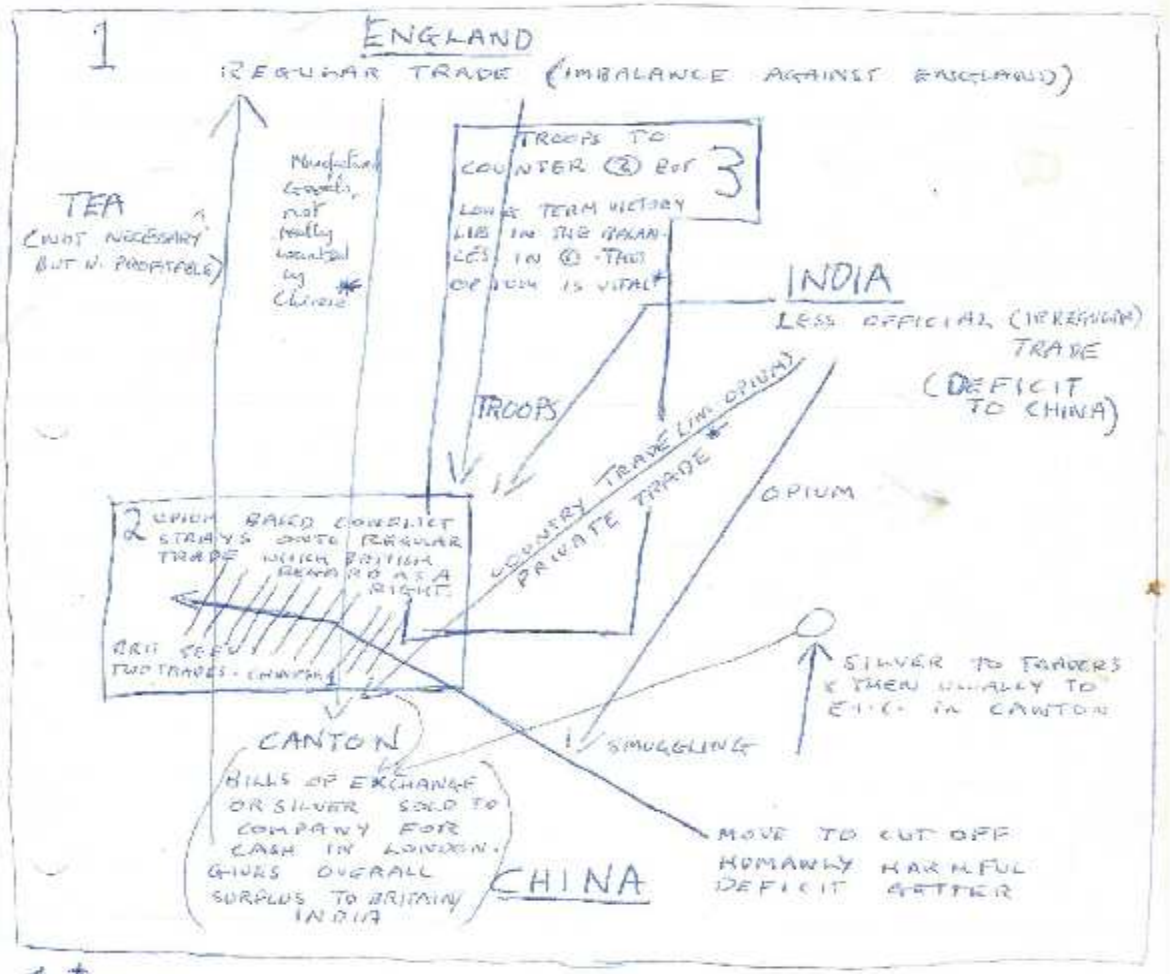
the human condition, then it is being used to make an argument. There is an important distinction, albeit one which can be hard to make especially in areas of quantitative technical information, between simply displaying what is understood to be material fact and displaying a selection of available evidence in order to make an argument. Both are legitimate pursuits but if the latter is experienced as the former, room for serious misunderstanding is created.

35. In this context, and with reference to the SciDev.Net paper cited below, it is worth noting that whilst the data collected during research activity should be as accurate and objective as possible, the process of writing it up and presenting it is essentially subjective. It is the researcher's capacity to usefully interpret the data which is the main knowledge component that is being paid for in the process. This is important to our discussion here because of the difference between how well an image captures a material reality (for example the famous map of the London Underground) or how well it explains an argument. I offer an example from the humanities, where arguments are usually presented in the form of written essays. Box 2 shows an example of an attempt to present the argument of an interpretation of an historical event in diagrammatic form. The question to be asked of the visualisation is primarily whether it presents the argument clearly (contemporary response: only to a degree). The question of whether the argument is correct or not has, here, and I would suggest in all situations of a visualised argument, to be answered within a wider framework, incorporating other opinion and information.

Box 2. An Experimental Essay (1974)

Why did the British shoot their way into Canton in 1839?

The diagram seeks to explain and evidence the main forces which led to war in a simpler and more economic form than the essay expected. A modern digital version could attempt a kinetic 3D representation.



1* After Import tariff is reduced to 5% — Nanking treaty - British can export manufactured textiles more easily — at great loss to peasant industry in China.

* PRIVATE TRADE (officials) 1833/4 Took £ 563,000 worth into China (only £ 40,000 in Opium). Took out only £ 243,329. Balance sold for bills of change in London to E.I.C. leaving cash in company's hands to buy TEA.

2 War 'officially' not about Opium (viz. Palmerstons letter 1839) but on spread of Opium dispute to Honourable security of 'rightful trade'. In British eyes China had no Right to do (this P.T.O

3.* If British Govt. had not intervened as in dispute English Opium pushers like Innes would have started their own private war which would have totally ruined normal trade - (Elliots letter to Palmerston 1839).

Rendering complex situations or relationships

36. *'What is to be sought in designs for the display of information is the clear portrayal of complexity. Not the complication of the simple; rather the task of the designer is to give visual access to the subtle and the difficult - that is, the revelation of the complex'* (Epilogue)[88]

Maps, diagrams and computer visualisations offer more options for displaying relationships between various points of reference than text. Whilst text allows endless opportunity for linear explanation, the space on a page or screen, the size and colour of objects, the spaces between them, the way in which they are ordered plus accompanying marks such as arrows or text allow for a greater range of interpretation. The capacity to render digital information dynamically, such as the Gapminder animation showing the connections between income per head and life expectancy over time[89], offers a significant additional dimension. Graphical layout also makes it more possible to show the development and interaction of a number of autonomous processes all happening at the same time, to observe and record the simultaneity of a situation (CI, x.y.z).

37. The *'revelation of the complex*' takes us beyond the often standardised ways of rendering quantitative information. As Iliinsky explains, '*anyone who wants to show qualitative relationships frequently has to create the metaphor themselves, and do so in such a way that they can be comprehended by their audience*' (p8)[90]. This, as he points out, can be a hard ask. Such visualisations, aside from the possibility of being deliberately misleading, can fail to communicate their message or create mis-understanding. As Blackwell, citing research in experimental

[88] Note: E.R.Tufte, 2001, 'The Visual Display of Quantitative Information', Graphics Press, Cheshire, Connecticut. His other books 'Envisioning Information', 'Visual Explanations' and 'Beautiful Evidence' (2006) are also well worth studying. The latter includes a brilliant critique of standard PowerPoint presentations.
[89] Note: http://www.gapminder.org/tools/#_locale_id=en;&state_time_value=1889;;&chart-type=bubbles (accessed 2nd May 2017)
[90] Note: See thesis, cited note xz above

psychology, puts it, '*the form in which a problem is presented can make structurally identical problems either very easy or very difficult to solve*'[91]. However, they can also offer new perspectives on their subject matter, bringing into play the reader's spatial intelligence or capacity to spot patterns.

38. In the context of this book, stimulated by the need to work with multiple knowledges in the field of development support, this purpose of visualisation has some important and specific applications. Mapping existing knowledges, and the epistemologies in which they are rooted, relating to a particular challenge or theme is (as suggested in CI, x.y.z) a necessary starting point in any transdisciplinary endeavour. The map not only shows where the starting knowledges do or do not connect and where they may clash. It can also identify gaps or areas of confusion, which may in turn suggest promising new lines of enquiry.

39. Other applications relate to information overload, both in terms of quantity and in terms of multiple ways of classifying and describing what is produced. As traditional taxonomies (3.x.y below) labour under the burden of having multiple users with more than one logic and world view active in the same space, information resources can be more flexibly signposted through dynamic topic maps which can incorporate a variety of relationships between constituent parts.

Supporting emergent and/or collaborative practice

40. The construction of such maps – the determination of what terms should be used and how they can relate to each other – can also be a prime example of how collaborative work around visualisations can go beyond

[91] Note, Blackwell, see Introduction, note 77 above

the representation of known and agreed facts to facilitate the generation of new knowledge.

41. This, I would suggest is one of the main purposes of visualisations. I would also argue that some of their apparent imperfections offer value to the process. Apart from some disciplines which have their own specific visual practices, such as cartography or radiography, visual languages are not expected to be perfectly understood. It is thus less embarrassing to ask a naïve or apparently stupid question about them. Visual arguments are not likely to include all possible counter-arguments, so it is legitimate to pose alternative visions. Visual metaphors, particularly when dealing with complexity and qualitative information cannot be assumed to work, and so are also open to questions about meaning. The result is a far more open discussion than might be possible after the formal presentation of words within the boundaries of a defined discipline. It is also not a discussion which lends itself easily to firm direction or control. Again, in the context of our interest in development support, it is a method of discourse which can be particularly effective in supporting an emergent process.

42. Similar ambiguities mean that visualisations tend not to be associated with defined methodologies or ingrained habits. There can be a freedom about their form and their use. They allow the articulation of completely different perspectives[92]. They can be used to develop ideas and understandings of hypothetical or imaginary situations (see below). In

[92] Insert: One excellent example of this was an approach to the sociology of London offered by an exploration of the route of the 73 bus, its drivers, passengers and the communities through which it passed. See Nina Wakeford, 2003, 'Working with new media's cultural intermediaries: the development of collaborative projects at INCITE', *Information, Communication & Society* 6:2 2003 229–245, https://msu.edu/~jmonberg/415/Schedule_files/sts2-wakeford.pdf (accessed May 2017) for a textual explanation of what was achieved. In an example of the issues described in 3.x.y below, the artefact itself (a web site) is no longer available although some impressions of what was there can be pieced together through searching for http://73urbanjourneys.com on the Wayback Machine (https://web.archive.org/)

all of this, they are a very appropriate tool for the creation of new spaces in which to generate new work: free, creative spaces, which lie between disciplines, between institutions, possibly between cultures or thought and practice, governed only by the interactive dynamics of those who have chosen to collaboratively explore new challenges within them (2.1.31 above, CI, x.y.z).

43. In development support settings, maps, diagrams and drawings are commonly used as aids to discussion or, in more planned and formal settings such as community map making, as formal outputs of the process. Such work takes place both informally within teams, communities of practice and workshops and, more explicitly, as part of the methodology of participatory planning or of programme or product development. Some examples from IKM are offered in Box 1. The use of visual aids can be very helpful but it is not a fool-proof exercise. They are being used in a context where who is involved, in what setting, on what terms and within what wider context and power relationships are all at least as important as the image, as is the quality of any facilitation offered.

44. Most of such work, even that done at a distance, is carried out through people directly communicating with other people who are participating in the same process. In some cases, such as the example of a collaboratively constructed topic map, similar results might be created by creating an interactive on-line space in which the autonomous actions of users – through the links they follow between the different terms – shapes the on-line environment in which they are working. Such user data can be collected anonymously or, perhaps within more established communities of practice, it may be possible to see who is looking at what. As the paper that explored this possibility observes '*that people often have the need to work together with information and that who is doing what with a given a*

piece of information may be just as important as the information itself'[93]. Interestingly, and as a possible example of the road not taken (Challenging Ignorance 1.5.5), the software to enable such on-line interactivity has existed, at least in alpha form, since the mid-1990s. Of course, in the interim this information – of what we click on and in what order - which could have been of public value in open form has become one of the main sources of revenue to some of the world's largest corporations as it is privately mined from our daily online activity.

Displaying multiple perspectives

45. Much of our emphasis in this work has been on accepting and learning to work constructively within a context of multiple knowledges. Part of this involves acknowledging and being prepared to take seriously multiple perspectives. Many such perspectives make use of visual forms for their communication. However, in the use of visual aids to discussion, it is relatively unusual for a range of different visual perspectives of the same topic or challenge to be brought together at the same time and their convergences and differences discussed. It is equally rare to find such images collected together on a shared drive or web site to show the full range of perspectives available. In this context, I note the historic role of the *atlas* as a means of bringing together representations of many different physical features as they apply to a defined space – be it a region, an ocean or the entire world. More recently large geographic atlases have gone out of fashion as people seek their geographic information on the web. There have however been some more creative interpretations of the artefact which suggest the potential for a very contemporary use[94]. If governments

[93] Note: Snowdon, D., Grasso, A. & Segond, F. 1999, Exploring Gardens of Information, Culture and Language', Xerox Research Centre Europe. https://www.researchgate.net/publication/2944295_Exploring_Gardens_of_Information_Culture_and_Language (accessed May 2017). See also Snowdon D., Churchill E.F. & Frecon E. (eds), 2004, 'Inhabited Information Spaces: living with your data', Springer

[94] Insert: For example:
Rebecca Solnit, 2010, 'Infinite City: a San Francisco atlas', University of California

or development support agencies maintained atlases of their main areas of work, this would both challenge them to think about the perspectives and evidence they used to orient their work and also make such issues transparent – and open to discussion and review - by those whose support they seek.

46. Which, in a sense, leads us back to the reasons for discussing the potential conceptual and practical difficulties and opportunities associated with visual communication at some length. The most obvious is that visual communication is – and has been throughout history[95] - enormously important. It is, in all its many forms but especially in relation to data visualisations, both increasingly common and popular[96]. It also has the potential to contribute to many of the issues we have sought to explore both in this book and in Challenging Ignorance: transdisciplinary communication and the expression of multiple knowledges, observing simultaneity, the understanding of complex situations, support for emergent and collaborative ways of working. Arguably, the increasing use

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Press, which gives a range of personal reflections of many aspects of a place which is clearly dear to the author. It starts 'Every place deserves an atlas, an atlas is at least implicit in every place'.

James Cheshire & Oliver Uberti, 2014, 'London, The Information Capital:100 maps and graphics that will change how you view the city' Particular Books, Penguin, offers a technical masterclass in the range of data visualisation and mapping techniques as well as constructing, through the range of issues covered, a genuine atlas of the city.

Sara Fanelli, 1995, 'My Map Book', Walker Books, offers an highly expressive child's eye view of important aspects in the artist's young life where the 'amateurism' of the actual drawing in no way diminishes the expression of feelings about what we has chosen to illustrate

[95] Note: Chapter 2 of Horn's book (2.4.20) gives a good overview of historical uses of visual communication

[96] Note: See Imogen Robinson, 2016, 'Data Visualisation: contributions to evidence based decision making', Sci Dev.Net. This outlines and assesses the growth in use of visualisations by development support research institutions and their popularity with readers – SciDev.Net itself found that its articles with visualisations had 180% more page views than those without - http://www.scidev.net/filemanager/root/site_assets/leanring_reports/data_visualisation_learning_report_scidevnet.pdf (accessed 25 Abril 2017) -

of visualisation for expressions of knowledge is altering how we understand knowledge and even how we think.

47. This, of course, begs the question of who 'we' are. Does this mean everyone, or do groups of people, perhaps characterised by cultural origin, educational attainment or gender, respond to visualised knowledge in different ways? This is but one example of many little researched and still unanswered questions about visualisation. I have referenced above many valuable studies about seeing, about the role of art in science, about information design, the visualisation of complex arguments, visual language and literacy. It is, however, unclear if there is any cumulative relationship between these phenomena. Is there a generalised trend towards understanding the world in visual terms or are these distinct and separate pieces of work offering only a fragmented vision of the whole? What is the case, to an astonishing degree, is that this fascinating and often brilliantly illustrated literature appears to inhabit a monocultural world.

48. There is no need or even possibility for fixed rules to govern the creation, use and understanding of visualisations. As they become increasingly used, there is a need for a better comprehension of their possibilities and pitfalls and more competence in approaching them. Within the development support sector in particular, it is vital that such comprehension includes how visualisation can work across boundaries of culture, gender and discipline, in all directions. Without it, we remain prey to the embellishments of charlatans and short of the necessary confidence and capacity to invest in consistently creative and constructive practice.

Imaginaries

50. One final form of artefact, which often but not always consists of visual images, aims to offer imaginary situations in which users can learn,

play or explore. These cover a range of possible activities. Some are scenario planning, exercises where people are invited to imagine where an area of work or an aspect of social reality will be in ten years' time and then invited, in text or drawings, to describe the process of getting from A, the present, to B, the imagined future. There are exercises in which imaginary profiles are created of a number of possible audiences for an artefact or users of a service to try and encourage user centred design. Virtual reality environments or games can be created either for training purposes or, as communications tools to try and convey a more complete impression of a totally different reality than can be achieved by photography or film alone. In 2015, for example, the UK branch of Amnesty International[97] used a VR rendition of conditions in the war torn city of Aleppo, Syria, to raise awareness and funds.

51. To date, the use of imaginaries of all types in the development support sector is fairly rare. In one sense, this is a pity. Development support is all about imagining futures and yet the process of how or why some visions are pursued and others not is seldom inclusive or transparent. 'Scenario modelling' might facilitate more informed discussion of the risks and opportunities different choices represent as well as making them more explicit. On the other hand, there is the danger of groups of external experts getting carried away with their own self-referenced imaginations and compounding misunderstandings of the realities they are trying to change rather than removing them. Training exercises can be devised to resolve problems as perceived by one set of actors and not those experienced by others[98]. At the very least there is a need for diversity of

[97] Note: See https://www.amnesty.org.uk/press-releases/virtual-reality-aleppo-street-fundraising-campaign-launched or https://www.youtube.com/watch?v=sVSiCMd5zi8 (both accessed May 2017)

[98] Insert: In the 1980s I used the time between in-country assignments as an Emergency Assessor for Oxfam GB to draft some 'flow diagram' software to enable busy and stressed field workers to methodically work through issues of emergency assessment and the logistics of any response. At the time, it was recommended that the new personal computers be used in clean, air-conditioned environments.

perspectives in the planning of such activities and for triangulation – the testing of what is developed against the views of others – of their results. Indeed, it is probably as aids to participatory discussion, to seeing what visions of the future exist and the extent to which they are shared, that such artefacts may have their prime use. This accords with the principles of speculative design which, rather than act as some form of crude prototype, aims '*to create spaces for discussion and debate about alternative ways of being'*, '*to inspire and encourage people's imaginations to flow freely*' and to '*act as a catalyst for collectively redefining our relationship to reality*' (p.2)[99].

51. 'Challenging Ignorance' grappled in several places with the challenge of knowledge based work or communication in situations not just of some disagreement, rooted in discipline or position, but of complete conceptual separation. An example may be that of South African anthropologist Lesley Green's work in Brazil with the Palikur people in Roraima (state of Brazil) [100]. She recorded their knowledge and perceptions of life using seven chapters or groupings of stories, which included stories of creation, clans, wars, floods, dispossession and slavery, shamans, conversion to Christianity amongst others etc.

"We organized a workshop with Palikur elders and interested parties and sought to find consensus on the chapters of the Palikur historical canon.

We realised that using the proposed software would encourage field workers to spend more time in such environments. This clashed with our main concern which was that the major information problem with emergency response was that field workers were not spending enough time talking to and understanding the needs – and strengths – of affected populations. We therefore stopped developing the software.

[99] Note: Anthony Dunne and Fiona Raby, 2013, 'Speculative Everything: design, fiction, and social dreaming', MIT Press

[100] Green, L.J, 2007 Cultural Heritage, Archives and Citizenship: reflections on using Virtual Reality for presenting knowledge diversity in the public sphere, Critical Arts, Volume 21, Issue 2 November 2007, pages 308 – 320. The article also makes a significant contribution to the discussion on mapping, 2.4.24 above. It also discusses highly relevant ethical issues about the ownership, privacy settings and use of the VR created.

*There seemed to be at least seven 'chapters' or groupings of stories...Yet clustering these stories thematically was paradoxical: not only did several story groups overlap but also neither the categories nor the material in them lent themselves to chronological ordering. It seemed uncomfortably obvious that we were imposing a structure that did not really matter to local people. As field research progressed, we began to correlate stories with archaeological sites that we were investigating the landscape almost without realising it. After a while, mapping the stories began to seem the obvious alternative to imposing a chronology. We began a memory-map project in order to locate stories spatially, and compiled a database of stories in relation to place names. Apparently, the approach echoed the everyday practice of telling stories about the places through which this one was moving. Yet this too ran into difficulty: where on a map do you put stories of the stars? What about the stories of the underworld? And what to do with stories with a specific seasonal relationship to a place, such as when the water was high, or when it was appropriate to hunt or to make a field? The most perplexing was where to place text where the hero was said to move directly from the underworld into the upper world of the sky - apparently not passing through this world at all. In this regard neither a horizontal mapping of the world (like a map), nor a vertical mapping of the layers of the world (as if they were stacked up from underworld to sky) provided a ready logic. In short: familiar ways of visualising space - via cartography - and familiar ways of organising time - through chronology – seemed to be blocking, not assisting, my understanding of Palikur knowledge" (*p.310).

The article goes on to describe the development of a Virtual Reality Archive to try and overcome the knowledge representation issues identified. In the process, Dr. Green gives an example of good practice for the creation and use of all new artefacts, giving serious consideration to ethical issues of business model, ownership, privacy settings, and subsequent adaptation and use (p.315-6).

52. This example may as yet be highly unusual, but the attempt to use a highly contemporary artefact to address a deeply rooted problem of knowledge expression serves as an illustration of the potential discussed in this chapter to use artefacts to radically change development support work. In this, it is not alone. However, many of the more interesting examples I have offered represent experiments or 'proof of concept' rather than anything part of mainstream practice. Particularly in relation to cross boundary communication, the creative use of artefacts, including visual images, remains another area of relative ignorance. It is an area of enormous potential but it requires a lot more understanding of what works and a commitment to quality and integrity of purpose in what is attempted. If it is to be done, and our practice is to move forward, it is worth doing well. It will require many types of expertise to deliver, most importantly that which is able to verify that artefacts fairly express the knowledges they seek to represent. In a world of tweets and selfies, it is essential to recognise that artefacts are there for everyone to create and use. Where they are being used as part of important processes of change, it is equally important to recognise and pay for the art and craft within them.