Rich Pictures: Sustainable Development, and Stakeholders – The benefits of content analysis[1]

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Abstract

This paper concerns the interpretation of pictures which stakeholders draw in order to help them structure and understand complex situations. The pictures in question are called Rich Pictures (RPs) and the matter at the heart of interpretation is insight drawn from eduction (drawing forth). Insights relate to stakeholders of all kinds, be they the individual, the group, the context in which the individual and the group find themselves, and the means whereby the context can be made more sustainable or improved. RP drawing, often as a collaborative, stakeholder exercise, is a powerful activity which has the capacity to break down barriers of language, education and culture. Drawing upon research with RPs from around the world and spanning fifty years of our combined practice, this paper demonstrates RPs utility, universality and resilience. We maintain that RP drawing enriches problem solving and, in the long term, saves time and resources from being expended on erroneous and/or superficial tasks.

But the interpretation of RPs is still in its infancy. By use of processes derived from various forms of Content Analysis (CA) we argue that RPs can be applied as a powerful tool in a variety of policy fields. Conclusions for application are drawn and suggestions are made for further research relating to the clearer interpretation of Rich Pictures.

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1. Introduction - A brief history and background to Rich Pictures

The Rich Picture or RP is a free form diagram chiefly used for problem structuring as previously observed (Deutz, et al 2010, Bell and Morse 2013). In drawing a RP there are few rules applied (Checkland 1981). It should be as free of words as possible and involve visual metaphors to express meaning.

These pictures are used primarily to help groups and individuals to understand complex contexts be they natural, social, technical and cultural. The RP provides an unstructured way of capturing information flows, communication and in essence the human experience of complexity. These pictures can encapsulate meanings, associations and non-verbal communication and thus their purpose is to make pre-deliberative-analysis assessments which can on occasion – by their spontaneity, serendipity and creativity offer unforeseen and un-biased insight into differing perceptions. Rich Pictures have been contributing to the assessment of complex situations such as those found in Sustainable Development contexts for many years. However, the early inspiration for the use of Rich Pictures within an overtly participatory manner is difficult to nail down as they appear to gain their inspiration from a number of sources and almost 'emerge' fully formed from the literature (Checkland 1972; Churchman 1979). Arguments can be made for a variety of primary sources but our research indicates that RPs as we know them today relate back to Checkland's writings on Soft Systems in 1975 (Checkland 1975). Soft Systems refers to the sort of complex and 'messy' existences that we as humans live our lives through.

"The end point of this stage in the analysis should be a picture of the problem situation, one as rich as can be assembled in the time available" (Ibid,page 281).

The use of diagrams in Soft Systems obeys rules and these rules have a tradition. Fathulla (2008) notes:

"The way people use diagrams, irrespective of the application has been eloquently described by J D Watson, Nobel Prize winner (1968), who discovered the structure of DNA: ".. drawing and thinking are frequently so simultaneous that the graphic image appears almost an extension of the thinking process."p.267. (Fathulla 2008)

Using diagrams to help with the thinking process is well-established. The range of visualisation techniques includes: mind maps (Buzan 1992; Marguiles & Maal 2002), road maps (Phaal et al. 2009) and a variety of graphic devices.

The advantages of diagrams was also discussed in Checkland's seminal book of 1981 (Checkland 1981) although, interestingly, the only citation to Rich Pictures in the book is to a

glossary definition of it on page 317 – there being no substantive use of the diagrams in the text itself.

Soft Systems has been an important medium for Rich Picture use, and RPs are included in several later works by Checkland (Checkland & Holwell 1998; Checkland & Scholes 1990; Checkland 1988; Checkland 1981; Checkland & Poulter 2006). Arguably the most important development for the wider appreciation of Rich Pictures themselves was provided by Systems academics at the Open University who both explored the use of the diagramming method in courses (Open University 1987; Open University 1997; Open University 2000; Open University 2004).

Community, stakeholders and the use of various innovative techniques including visual and diagraming methods and techniques of various kinds have been alluded to in a number of contributions in the sustainable development Rich Picture literature (Deutz et al. 2010; Powell 1997; Pandey 2009). Bell and Morse have discussed their application (Bell & Morse 2013; Bell & Morse 2007) in terms of sustainable development and have explored their meaning in other contexts such as sustainability indicators (Bell & Morse 2012). However, the literature on the interpretation of Rich Pictures or, more specifically on how techniques such as content analysis (CA) may be applied to them, is less well developed and arguably almost non-existent. CA is traditionally thought of as a technique to be applied to textual data, often using software tools designed to help with coding. Thus, for example, the number of times certain words are mentioned in a text can provide some insight into the perspective of the author. More sophisticated approaches can apply techniques of coding to identify how often certain issues are mentioned in the text and how they may (or may not) be associated with others. But while CA has often been applied to textual data in an early review Holsti (1969; page 14) defines it more broadly as

"any technique for making inferences by objectively and systematically identifying specified characteristics of messages"

With this definition it is clear that CA can be applied to any type of information, not just textual, including drawings and video. To our knowledge CA has never bene applied to RPs and in this paper we will discuss the value of RPs to Sustainable Development (SD) and suggests means involving CA to improve their interpretation. Without clarity about the interpretation of RPs their contribution must remain unclear to problem structuring. One of the purposes of this paper is to address this lack of clarity.

2. What are the uses of Rich Pictures?

The challenges society faces in terms of SD are increasingly publically presented as pressing and inescapable if we are to survive let alone prosper (Klein 2015; Brown 2011). Among the five capitals of SD[2], it is human, social and the related financial capitals which provide the majority of threat. Civic and social structures are facing hugely complex issues but the complexity of pressing issues may contain a systemic catalyst. Roger Conant and Ross Ashby produced a theorem which was central to the study of cybernetics. It is stated that "every good regulator of a system must be a model of that system" (Conant & Ashby 1970). To regulate (and thus understand, assess and plan for) a system the regulator needs to be a model of the system – must be commensurate to the complexity of the system. It must contain within itself the essence of the system in question.

In our combined research we have found that RPs are useful aids to assessing complex systems, but, what is a RP? Given the structure-less and near rule-less organisation of the genre there can be no definitive or exemplar RP which will evidence all key features. One is as good as another. The example we provide in Figure 1 is a figure that shows a RP drawn by a group of sustainability professionals in Slovakia. In the space we have available we cannot go into the detail of Figure 1 but in this RP visual metaphor (the three 'wise monkeys', the marionette, globe and conference) combine to help the members of a group speak about things which they find difficult or even impossible. We find particularly interesting the image of the marionette, the un-identified person being controlled by 'WB' possibly a reference to the World Bank.

As Bell and Morse noted elsewhere:

"Rich Pictures would appear to be a means to almost 'trick' the individual or the group into an examination of cryptic (hidden meaning), arcane (pertaining it the inward or mystical) or occult (hidden secret) aspects of the individual or the group. In total, the picture is an acroamatic device." p34. (Bell & Morse 2013).

[Acroamatic refers to a hidden teaching, abstruse and profound].

[Inert Figure 1 An example of a Rich Picture about here]

[2] As noted for example by Forum for the Future at http://www.forumforthefuture.org/project/five-capitals/overview, consulted on **93** 25.07.2013

The Figure allows us to clarify what a RP is. At one level it is a diagram/ image that merges minimal text and visuals to reveal combinatorial (collections and sometimes opposing) stories and these may be complex, conflicting and agonised. RPs can and frequently are drawn by individuals but by providing an opportunity for groups to draw together and create a combined diagram the RP can be argued to assist the exploration of different world views by including in one form multiple perspectives. Building on this we can focus our definition of the RP. It is a physical picture drawn by an individual or a variety of hands which encourages discussion and debate whilst aiding stakeholder understanding from differing perspectives. Key to the pictures power is the often noted observation that people will often draw what they will not speak about and will not write about (Bell and Morse 2013). This revealing and revelatory factor makes the RP a powerful device in participatory processes and RPs are often employed in such processes to encourage groups to scope out and identify relevant components, linkages and issues for a complex system (for example in processes of the type noted in the work of Chambers - Chambers 2002).

In our research we have found RPs provide us with a way to produce multi-perspective representations and models of complex systems. For some the RP can be regarded as a semi-rationalist, semi-chaotic modelling language in its own right. However, it is important not to get too carried away with modelling. In this regard it is worth remembering another of Ashby's ideas, the Darkness Principle (Conant & Ashby 1970) which simply states that no complex system with many components and feedback loops can be known completely. Practitioner humility is important in all explorations but RPs do seem to have powerful potential. Pictures are a supplementary language that can often convey meaning and opinion more readily and concisely than formal language of speech and writing.

3. Making Rich Pictures which 'work'

Although RPs may appear to be anarchic and structure-less they also seem to be resilient to a variety of external pressures such as negative group dynamics, conflicting opinions and hierarchical resolutions. RPs can also be argued to offer potential for shared thinking and communication and in the twenty first century social groupings of all kinds need to be resilient and to make use of resilient methods if they are to face the multiple challenges of the age (as argued in Bell & Morse 2012). It is an anecdotal truth often commented on that identifying real problems is the main problem for those engaged in real problem structuring (see for example the discussion in Mingers & Rosenhead 2004). The formative stage of problem structuring is often

short-changed by methods and by the advocates too keen to get to a ‘solution’ and to be ‘busy’ “sorting out the mess”. This ‘solutionizing’ attitude finds its roots in some or all of the following behaviours:

- Superficial identification of real problems below or behind those that present on the surface
- Insufficient/ impeded time allocation to problem identification
- Scepticism that time spent on ‘thinking’ is merited in increasingly busy schedules.
- Asking the wrong people to describe the problem
- Wanting the “solution” too quickly

This paper focuses on Content Analysis of RPs but one of the addtional points of focus is on the value of groups and communities developing and interpreting RPs as visual narratives of current and potential future situations. This, of course, immediately raises the question as to what we mean by community? Indeed just who can benefit from the use of RPs and who are they made for? The answers to these questions are relatively simple, at least on one level – RPs can be used and made by anyone – no specialist knowledge is required. In our practice the kinds of groups we have seen use RPs include:

- Local people in a geographic area (urban and rural)
- Work groups
- Teachers, administrators and governors
- Consultancy professionals
- Local government officials
- Charity workers
- Counselling services
- Students working in proximity and also working at distance, asynchronously on complex system (natural or manmade) issues.

RPs are not a tool that can only be used by a highly trained practitioner, and neither are they restricted by some sort of copyright to those that have to pay a subscription or sign up to a set of conditions. As part of our research we have produced guidelines, not forcible rules, for the creation of RPs. We discuss these guidelines later.

In use terms, typically a community will be asked to share its ideas and perspectives and the RP is a key device for achieving that. A RP provides a readily understandable, "ice-breaker", shared space where the members can set out their ideas and negotiate what should be included and what should be left out. Yet while they have literally been employed in thousands of participatory sessions globally very little has been written about them. Some generic points can be made about the RP drawing process. Chief among these is the observation that at some point within the RP process of drawing in a group context some level of mutual understanding occurs. This may not be consensual or positive. It can and frequently is conflicting and contested but members of the group, by a joint process of sharing stories and drawing metaphors come to an enhanced mutual understanding of position and view. Often such understanding accompanies a 'point' in the RP process when group ideas are visualized, discussed and considered. The moment when instability and risk is accepted because the group drawing process allows for dangerous and previously unsaid thoughts to be permissible. This may be emphasised by the group permitting the freedom to suggest a critical change or an idea that might dramatically alter the development/state of a system. At its best this is a time when the group will consent to imaging the unimaginable and seeing a wider picture of complexity than that which is included in any single members perspective.

But, all of this is well reported in the existing literature. Our chief concern here is in the interpretation of the picture produced. We go on to discuss this in the following section.

4. How groups and communities can interpret Rich Pictures

Perhaps the best way to describe the use a community can make of a RP is to draw down from anecdote.

"I was working on a coastal community project in Lebanon in the mid 2000s. I was not shining as a person at this time. I was aware of the recent history of Lebanon, the unrest in the area, the continuing pressure of the Palestinian community and the anxiety caused by Israel and it's super-presence in the south.

The workshops should have been a disaster. I was speaking in English with simultaneous translation - usually in a 'conference-style' council chamber in the municipality council chamber. Disaster! The lack of empathy I could communicate via translation, the ambience of the rooms, the expected inter-group hostility of the participants. All should have contributed to a nightmare. Almost everything was wrong to produce the west European cultural artefact of the rich picture.

The outcome of the process were some of the richest and most vibrant rich pictures of my experience. Sometimes the groups were strongly led by my colleagues from Beirut and, in one or two occasions a local important male dignitary "took over" his group, lectured them for a long period and then left them to produce the RP to order. Ha! This did not work. The groups of listeners, once the power symbol had left (too busy to stay to draw) the group went about an anarchic process. My memory is not perfect and my notes are limited but I recall having to brush up on my interpretation of body language because everything proceeded in loud, joyful and rapid Arabic. There were loud shouting voices, cell phones everywhere - sometimes one person using two at once, many hands with many pens, rivers of beautiful text (to my eyes) which I could not understand and speech which I could have listened to for ever. The result was the production of rich, textural, expressive, astonishing pictures. Pictures which showed corruption and pollution and power and conceit and pain and humour and fear and joy. Glorious. At this time I was a bit wiser and knew how to disappear and how to see without being seen. I knew more about getting me out of the way. I watched and learned. (Simon Bell, 2005).

[Insert Figure 2 RP from anecdote about here]

Once it has been produced by the group, the RP is an artefact. This means that the group has had an experience but how can the learning derived from this experience and represented in the RP be maximized post group work? To answer this we need to be clear about what the outcomes are of a RP exercise?

We argue that there are two emergent properties or outcomes from the RP exercise:

1. The physical picture drawn by a variety of hands

2. The dynamics and team learning that have emerged.

Both of these can be put to positive use and applied as a basis for project planning using purposeful activity approaches like Soft Systems Methodology (probably best shown in Checkland & Poulter 2006).

In this section we want to briefly describe some approaches to critically analyse the content of RPs. This should help us to understand what are the 'elements' that make a good RP? How can we define good? Is there such a thing as a bad RP? There are lots of questions to consider here.

As we have already established, the RP that is drawn by a group of people is a form of collaborative artefact or art but the RP can also fall into many other categories of art styles. The diverse field of art interpretation has been of considerable interest in our work. Art interpretation

is a subjective area to explore due to the controversial nature of aesthetics. The RP, in our opinion and as with many forms of art, seeks knowledge of the 'inner' by way of the 'outer' or put simply there is perhaps more to a RP than just what is seen at first glance. The RP has forms, shapes, boundaries, colours and kinetics that both correlate and contend with certain art appreciation styles. The RP is, in essence, a medium that outputs both individual art and group art so therefore areas such as art appreciation, aesthetics and appraisal are of great consequence. We delve deeper into these topics in our book (Bell et al. 2016) but primarily RPs are an aid to group thinking alongside personal understanding. They offer an autocratic platform to consider the effect a tiny change might have on a large system. They allow us to conceptualise the tipping point and dip collective toes into possible futures.

The RP is the outcome of a quasi-analytical process – either by an individual or a group (two or more) people. The RP thus reflects thoughts, feelings and beliefs that are present at the time of drawing. It might not capture all of the discussion that the group had and does not explain why things may have been included or left out. But, to date the diagram and what is and what is not included has tended to be the end of the matter of the interpretation of RPs. The RP is an 'output' and goes no further other than as an aid to helping the group identify priorities and future actions.

However, we wish to go much further than that and propose the idea that RPs can be analysed so as to tell us something about the 'hidden' thoughts of those that make them. This is a deep dive into the RP that could tell us a lot about the dynamics and mindset of those composing the RP. Our primary device for making our deep dive is CA.

As noted above, CA is a widely used approach in the social sciences, of course, and has been applied to a variety of types of document, including interview transcripts. Krippendorff (2012) provides a general outline of content analysis although there are many reviews that focus on the application of content analysis is specific fields. For example, reviews of content analysis as applied to material that can often arise within Corporate Social Responsibility can be found in Unerman (2000), Guthrie et al. (2004) and Guthrie and Abeysekera (2006); the latter review in particular looks at the use of CA within environmental reporting by companies. CA provides a means by which material, typically text, can be analysed to tease out some underlying messages. As Stemler (2001; page 137) neatly puts it:

"Content analysis has been defined as a systematic, replicable technique for compressing

many words of text into fewer content categories based on explicit rules of coding"

For example, one may wish to use CA to look for common themes across dozens of lengthy interview transcripts. Are there points that a number of respondents make, and do they tend to make the same linkage between those points and others? The identification of such patterns within what can be very bulky material can be very valuable within research. The issues that form the basis of the CA may emerge once the texts have been read or they may be set a priori. Indeed, as noted above, CA can be applied to any qualitative material, including pictures and video. However, as far as we are aware CA has never been applied to RPs. Our question is: 'why not?' CA would seem to offer great value in RP assessment given that a workshop may have maybe 4 or 5 groups all developing their own RPs on the same topic, and we suggest it would be intriguing to explore the similarities and differences between the RPs, and indeed whether some elements are common across the groups and whether elements are related to each other. In one model approach CA could be facilitated by the groups presenting and explaining their RPs to all others in the room, and it is possible, of course, to include an element of participatory CA by asking participants to identify patterns in each other's work. Of course the RP is itself an analysis; a story of what the group/individual thinks is the situation as they see it. This is fair enough, but there are cases where a number of groups will be asked to analyse the same situation and this adds a whole new level of richness. Not only do we have the insights within each group but also an additional layer of richness between them. To date these have tended to be treated as separate analyses and while groups may be asked to present and talk about their RP, which may have some influence on what other groups do, the tendency is to keep each group working within its own shell of exploration. Our focus is to assess the scope to 'analyse the analyses'; to explore the ways in which the analyses overlap and indeed differ. If the groups are working on the same question then their RPs can be thought of as 'answers' in much the same way that we can contemplate looking for patterns across interview transcripts. It would provide a means by which the many components of RPs can be compressed into fewer "content categories based on explicit rules of coding" (using the words of Stemler, 2001). This form of 'meta-analysis' of RPs could prove to be very powerful indeed, and be undertaken with fairly standard methods commonly applied in CA in other domains, yet has been ignored by the RP community. Why should that be? Is it because we like to encourage isolation in working between groups? That we value the integrity of the group and do not wish to interfere with that in any way – even by a post hoc analysis?

We argue that the CA of RPs is a field ripe for development. But it is possible to go a lot further than this. To date, RPs have been seen mainly as an enquiry or discussion aiding device and their real usefulness expires after completion. However there is unique iconography in RPs. In our experience the 'message' of a RP can be drawn out (educed) by making use of an approach we call Eductive[3] Interpretation (EI). This approach can lead to enlightened understanding of the pictures that provides a refined and systemic form of CA of RPs designed to look for similarities, differences and relationships. In effect it would be possible to analyse the quality of RPs as analyses and perhaps ask questions as to why it is that some groups produce 'better' analyses (RPs) than do others? This has obvious repercussions in terms of designing workshops to maximise the potential for analysis, but it also allows for a calibration of the sort of content analysis noted above. Maybe some elements common to a number of RPs are missing from a particular groups RP because their analysis was poor. EI provides a chance to scrutinise, study and analyse RPs. Understand what you are seeing, don't allow pre-made expectations to take over. If you see a fish icon then think….is it really a fish? Does it represent only a fish? Is it a metaphor for something else, what icons, if any, are close by, are they linked in some way, do they help tell a story about the fish. Is the fish alone….why? Is the fish in the water environment and if not then why? Does the fish display emotion or movement? Is the fish in a boundary? Is the boundary within a boundary? And so on. Really pour over the picture and ask yourself questions whilst you explore. To help with EI it is possible to imagine the creation of an analytical framework, and an example developed by us is set out as Table 1.

[Insert Table 1 about here]

We call this approach the Subjective Assessment of Group Analysis (SAGA) and it contains four criteria to assess the RP:

- Colour relevance. We assume that the use of a variety of colours in the RPs shows that the group has given it much thought
- Kinetic. For example, we assume that the use of lines to connect or groups elements of the RP show that its creator have not just created a RP with unrelated 'bits' but have thought through how they are connected. Also important here are whether the group has resorted to the use of text to explain ideas rather than try to express them as symbols.
- Mood expression. This specifically looks for evidence of fracture in the RP. Does the RP show a strong sense of narrative – a story – or is it just a collection of unrelated pieces?

[3] To Educe is to draw forth. To interpret is to explain meaning and therefore to do both is to draw forth and explain.

- Evidence for addressing the question being asked in the workshop. Does the RP address the question being asked or has it gone off on a tangent?

In Table 1 we illustrate how even these four EI indicators can provide a range of assessments of the quality of a RP. But, of course, the SAGA framework is but one tool that can aid EI as a form of CA. It is certainly possible to develop these ideas much further and even borrow ideas from published frameworks designed to help with art appraisal. The latter have a long history and has its roots with the work of Gustav Theodor Fechner (1801 to 1887), a pioneer in experimental psychology and 'experimental aesthetics', who suggested that "formal judgments of beauty and harmony should be measured rather than only postulated or deduced from philosophical concepts" (Hagtvedt et al. 2008 page 200).

But there are challenges here of course as what is rich to one person is poor to another, what is beautiful in colour is ugly to another, what is considered a relevant and understandable picture is open to wide interpretation. This is a point with a lengthy legacy, for example Plato argued that beauty, goodness and truth are abstract essences and not actually visible. For example, we see a rich element in a picture but we never actually see the *form* of 'richness' Richness is a property that more than one picture or thing can have and therefore many things can be rich. Richness is but a universal independent property, as with the form of beauty, that more than one thing can have. In essence, RPs can be destroyed but 'richness will still exist. We would assume that for a Platonist, the term 'richness' would be the ultimate universal perfection to all that could be considered to be rich. It should also be noted that perhaps a poor RP is actually rich in information insofar as it reflects the situation i.e. 'poor'. A poor RP might be reflecting an 'information poor' situation which has a low set emotional chord or mood. Perhaps the situation is deficient and lacking with inadequate material or data to be reflected upon thus the constitution of a poor RP. A RP has a singular purpose which is to reflect a situation as perceived by its creator(s). The RP, for some, is never actually finished there will always be more to add and take away. It should be noted that no person or persons set out to draw a poor RP they are, however consciously or unconsciously obeying, Socrates advice , 'to know thyself'. Clearly the philosophical waters run deep. To examine a situation one must a weigh up of the best material to be investigated or to be shown in a RP, and this might be so lacking in depth and clarity that a 'rich' RP would be out of the question.

Figure 3 sets out these two approaches to the analysis of RPs. At the left hand side of the figure the SAGA framework allows for the quality of RPs to be assessed and then we can ask the sort of questions at the foot of Figure 3. Are the RPs of differing quality and, if so, why? At the right

hand side of the figure we have the CA of the RPs to see whether there are common patterns. But it is important to note that these two analyses are related. It is not inconceivable that the CA may detect patterns across some RPs rather than all of them and it is also possible that the better RPs are those where we see these patterns. Thus we can see that the 'less rich' RPs are perhaps reflective of a weaker analysis undertaken by the group and thus we may not necessarily expect to see the patterns identified across other groups..

[Insert Figure 3 about here]

This discussion demonstrates that the RP is so much more than a series of process, structure and relationship outputs and therefore, to interpret both soft and hard facts, the appraisal methods need to be holistic as well as deconstructionist. By this we mean, it is only possible to understand certain formal information when taking the RP apart. However, Looking at the whole picture gives a more comprehensive view which can highlight the more subtle, soft or tacit messages or nuances.

5. Discussion - The problem of Interpretation

RP interpretation has not received much systemic attention in academia. There are many reasons for this including the apparent triviality of the exercise, the complexity of icons, the ambiguity of meaning, subjectivity of the interpreter, cultural perceptions and erroneousness levels of accuracy. High level guidelines to aid interpretation could be too general and imprecise whereas low level guidelines are too ad hoc, numerous and incompatible to serve every situation being depicted in a RP. Haramundanis would argue that icons cannot stand alone and must have written descriptions;

"icons alone are not enough. Icons are objects, and objects alone are poor substitutes for written descriptions of objects" (Haramundanis 1996).

Horans' (Horan 2002) life work showing examples of icons used across the world does seem to suggest there is little universality in graphic perceptions. The RP derives meaning, apart from those who were involved in the drawing, from the viewer. A viewer can interpret what they see in many different ways. The RP tool is a language platform for intercommunication beyond the spoken or the text based. Meaning is derived from pictures and the occasional words but such meaning is often disputable. Contradiction within the conveyance of complex phenomena is seen in many disciplines; for example, in Art; Albers definition of the paradoxical quality in painting's and Eliot's analysis of 'difficult' poetry (Williamson 1998). In maths there is Godel's inconsistency or incompleteness in mathematics (Berto 2010) as well as in architecture;

Venturi's 'contradiction in architecture' (Venturi 1977) . In system design and problem structuring there is a special requirement to convey the whole in its totality or at least a consensus upon totality. It is far easier to exclude tricky concepts accepting simplicity rather than embody the difficult unity of inclusion but to do so yields a fascinating insight of the whole. The architect Mies van Rohe would say that, "*God is in the details*" (Whitman 1969). Excess complication can however clutter and confuse upon the essential components. As Paul Valéry famously said "*Everything simple is false. Everything which is complex is unusable*" (Valery 1937). While this is quite clever it does not really help with the interpretative process – in the end rules and guidelines are needed but much is still dependent on the craft skills of the interpreter.

We argue that the RP has an excellent multifaceted communicative ability – this is part of the reason for its success – and we can go much further in terms of analyses that can be applied to them. While we have not provided examples here we do feel that frameworks to help us assess quality (such as SAGA) and also CA are the new frontiers with RPs and provide much food for thought. What is needed is a research project to explore these ideas and apply them to real RPs. Admittedly this is a challenge. The RP does not tell a single story but instead tells lots of stories going on simultaneously. It is a combinatorial artefact. A RP can reveal ideas people didn't consciously build into them and in this sense the RP contains the potential for serendipity and surprise. To draw a RP is to be prepared to engage in a willingness to think big thoughts and wide concepts. To go beyond the comfort zone using visuals, perhaps hiding behind metaphor for thinking dangerous concepts. Understanding or reading a RP does not take high level training, anyone can read a RP. The language of pictures is universal at times (and thus breaks down barriers of education, language and above all culture) exclusive at others (and thus provides a challenge to interpretation and meaning).

Reading direction can be culturally defined; Europeans read from left to right, Arabian from right to left and Chinese from top to bottom. RPs are unusual in their comprehension, many are drawn by multiple hands and from many angles and thus need to be rotated 360 degrees for better understanding. Text is perhaps more precise in explanation but there are other meanings, such as implied thought, subtle nuance of meaning, personification as well as complexity of relationships that are better presented using visuals.

We suggest that the RP can provide enough context of domain and boundary to allow certain visual stories to be understood with universal acceptance. Context will come from the adjacent icons, boundary and sub-boundaries and other supplementary stimuli such as colour, size, text

and even facial expression and body language. Other RP interpretation enablers which are not directly associated with a single image can be background space, lines and arrows demarcating direction, consistent style and size of neighbouring icons.

6. Conclusions - Rich Pictures and Sustainable Development

Our core concern here is the value of Rich Pictures as aids for stakeholders to interpret their experience – and in particular their experiences in Sustainable Development. A RP is usually applied in order to explore a difficult or complex issue and key among those in SD is Gladwell's 'tipping point' or the point at which development is no longer capable of being sustainable.

The tipping point means manmade and natural disasters, incurable diseases and bizarre human decisions causing immense devastation. Some mathematicians refer to it as the greedy algorithm. But it does not have to be a corrupting damaging power it can, at least in the world of visuals, become a mirror of truth and a truth which can be explored in a hopeful and proactive manner. Too often a tipping point is presented almost as a finale to the story. We argue that this mindset is both unhelpful to problem structuring and exhausting to those challenged by the opportunity to 'do something about it'. The mindset it engenders is fatalistic and can lead to what Martin Seligman referred to as "learned helplessness". In a mindset of helplessness many forces and issues may be misconstrued as 'final' and 'apocalyptic' but are they? In other words, is there a 'real' and objective tipping point in society that can be experienced by all or are there many perceptions of 'tipping points' depending on peoples' views as to what is being tipped from what to what, according to the specific question asked and the specific data presented? After all, one person's tipping point may be someone else's elevation point (the tipping point which saw the end of the use of leaded petrol was the elevation of lead-free, the tipping point which resulted in the end of CFC propellants in aerosols was the elevation point for alternative technologies which had previously been deemed too expensive). Indeed some may not even perceive that something has been tipped and may not even care if told (climate change deniers might be included in this most obvious case). Perspective, as so often in the social sciences, is critical here and this is precisely where participatory approaches designed to elicit the variety of perspective have value. RPs give us freedom to envisage, share and agree in a combinatorial and multiple perspective manner on contentious issues and this can include engaging with the forces in this world which created the environmental tipping point, the means to set in train the necessary conditions which may help us to avoid this tipping point and to create the conditions which allow us to imagine a better world beyond this point. A RP a stakeholder group can dare to imagine the unimaginable, have an autonomy of drawing that can allow group thinking to challenge the individual

perception and bias and come to see the wider ‘wisdom of crowds’ (Surowiecki 2005). In short, RPs have the potential to represent the shared truth of a group and the imagination of a community. Using the tools we suggest in this paper we could begin to look for truths that are being shared across groups undertaking the same analysis. If groups working more or less independently arrive at the same point then can we say we have some deeper wisdom here? But, of course, how we accept or respond to such truth and such imagination is an entirely different matter.

Resilient and sustainable communities are those that embrace their image and understanding of the truth and thus they are powerful. The RP is a platform or permissive environment for a collaborative voice to challenge the rules, deny Occams simplicity, and delve into a visual world of imagery and of creative innovation. Visuals are less emotive than words and response to such pictures thus becomes individual insight. If such insight is shared then a stakeholder group can become educated in differences of opinion. Therefore juxtaposed world views might not be the downfall of creative solutions but rather, through the lens of visualisation, such understanding can be the eduction of stakeholder resolutions.

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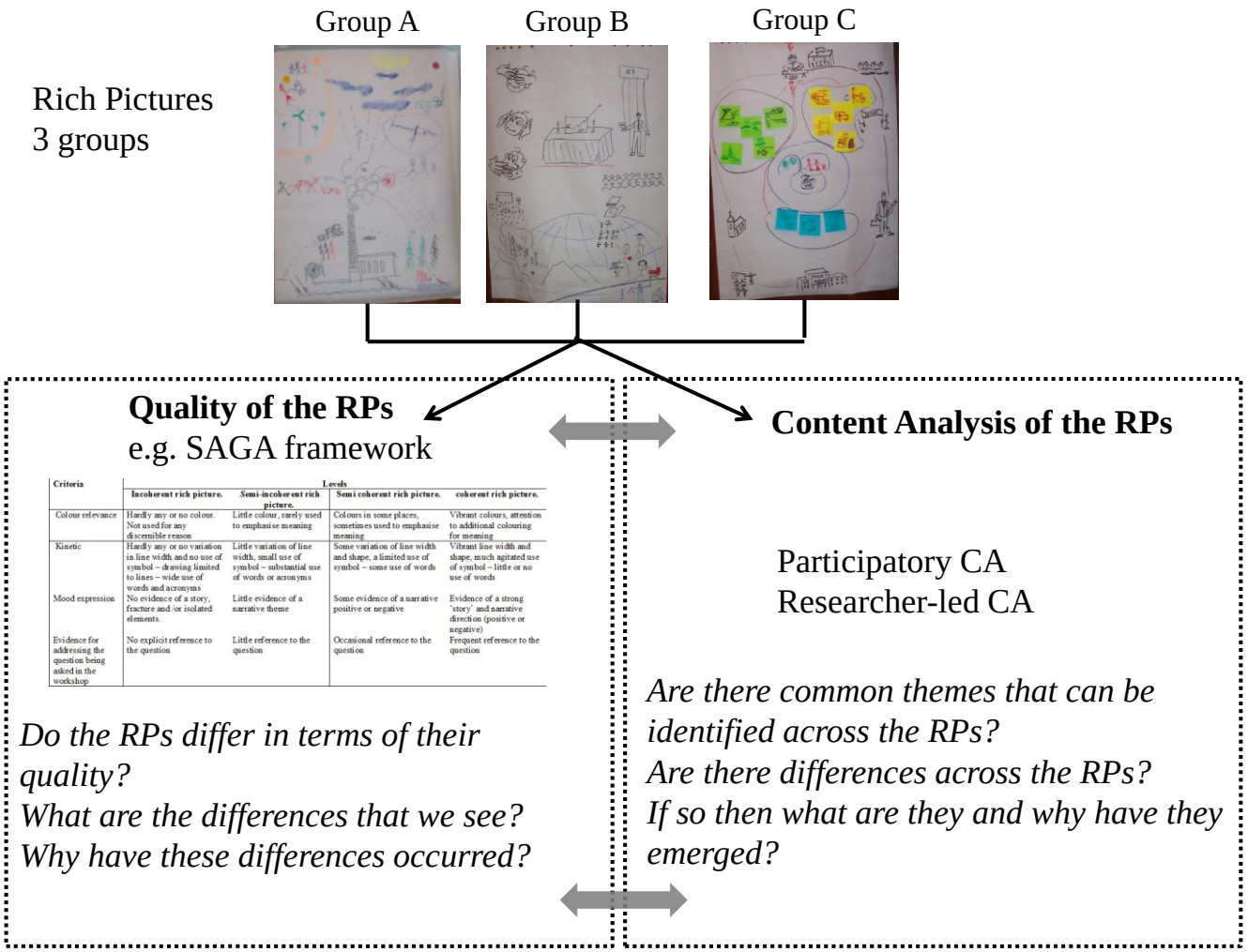
Figure 1.

Figure 2.



Criteria	Levels			
	Incoherent rich picture.	Semi-incoherent rich picture.	Semi coherent rich picture.	coherent rich picture.
Colour relevance	Hardly any or no colour. Not used for any discernible reason	Little colour, rarely used to emphasise meaning	Colours in some places, sometimes used to emphasise meaning	Vibrant colours, attention to additional colouring for meaning
Kinetic	Hardly any or no variation in line width and no use of symbol – drawing limited to lines – wide use of words and acronyms	Little variation of line width, small use of symbol – substantial use of words or acronyms	Some variation of line width and shape, a limited use of symbol – some use of words	Vibrant line width and shape, much agitated use of symbol – little or no use of words
Mood expression	No evidence of a story, fracture and /or isolated elements.	Little evidence of a narrative theme	Some evidence of a narrative positive or negative	Evidence of a strong 'story' and narrative direction (positive or negative)
Evidence for addressing the question being asked in the workshop	No explicit reference to the question	Little reference to the question	Occasional reference to the question	Frequent reference to the question

Figure 3. Two ways of analysing Rich Pictures from three groups (A, B and C) working on the same question

Table 1. Subjective Assessment of Group Analysis (SAGA) criteria employed for Rich Pictures.

Criteria	**Levels**			
	Incoherent rich picture.	***Semi-incoherent rich picture.***	**Semi coherent rich picture.**	**coherent rich picture.**
Colour relevance	Hardly any or no colour. Not used for any discernible reason	Little colour, rarely used to emphasise meaning	Colours in some places, sometimes used to emphasise meaning	Vibrant colours, attention to additional colouring for meaning
Kinetic	Hardly any or no variation in line width and no use of symbol – drawing limited to lines – wide use of words and acronyms	Little variation of line width, small use of symbol – substantial use of words or acronyms	Some variation of line width and shape, a limited use of symbol – some use of words	Vibrant line width and shape, much agitated use of symbol – little or no use of words
Mood expression	No evidence of a story, fracture and /or isolated elements.	Little evidence of a narrative theme	Some evidence of a narrative positive or negative	Evidence of a strong 'story' and narrative direction (positive or negative)
Evidence for addressing the question being asked in the workshop	No explicit reference to the question	Little reference to the question	Occasional reference to the question	Frequent reference to the question