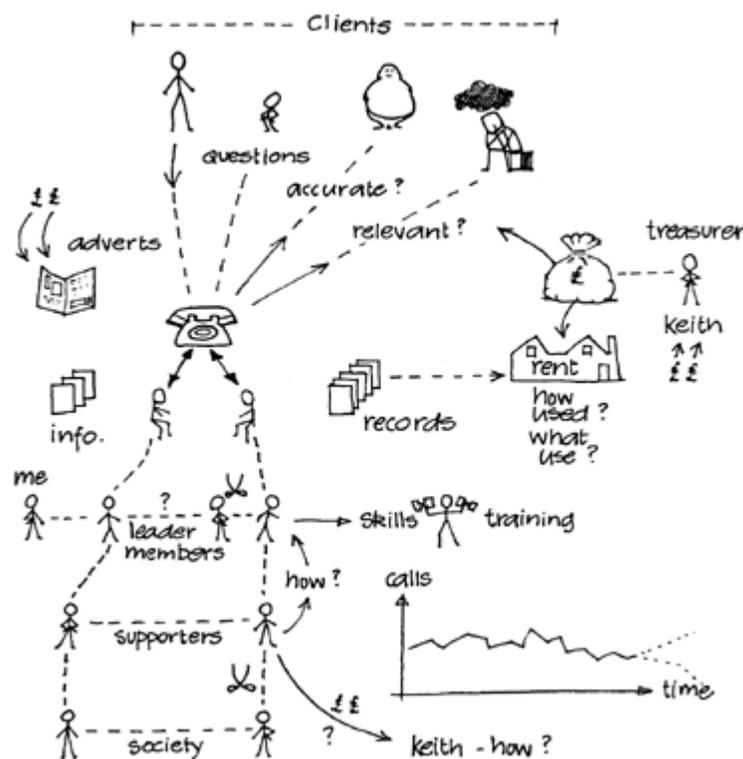


Rich pictures

Purpose

Rich pictures were particularly developed as part of Peter Checkland's Soft Systems Methodology for gathering information about a complex situation (Checkland, 1981; Checkland and Scholes, 1990). The idea of using drawings or pictures to think about issues is common to several problem solving or creative thinking methods (including therapy) because our intuitive consciousness communicates more easily in impressions and symbols than in words. Drawings can both *evoke* and *record* insight into a situation, and different visualization techniques such as visual brainstorming, imagery manipulation and creative dreaming have been developed emphasizing one of these two purposes over the other (Garfield, 1976; McKim, 1980; Shone, 1984; Parker, 1990).

Rich pictures are drawn at the pre-analysis stage, *before* you know clearly which parts of the situation should best be regarded as process and which as structure.



Part of a rich picture of a telephone helpline situation

Rich pictures (situation summaries) are used to depict complicated situations. They are an attempt to encapsulate the real situation through a no-holds-barred, cartoon representation of all the ideas covered already layout, connections, relationships, influences, cause-and-effect, and so on. As well as these objective notions, rich pictures should depict subjective elements such as character and characteristics, points of view and prejudices, spirit and human nature. If you are working with a client you should try to draw these from the actors themselves, at least initially, rather than focusing on your own interpretation of the situation.

Elements:

- pictorial symbols;
- keywords;
- cartoons;
- sketches;
- symbols;
- title.

Conventions

1. To help interpret a situation, choose symbols, scenes or images that represent the situation. Use as many colours as necessary and draw the symbols on a large piece of paper. Try not to get too carried away with the fun and challenge to your ingenuity in finding pictorial symbols.
2. Put in whatever connections you see between your pictorial symbols: avoid producing merely an unconnected set. Places where connections are lacking may later prove significant.
3. Avoid too much writing, either as commentary or as 'word bubbles' coming from people's mouths (but a brief summary can help explain the diagram to other people).
4. Don't include systems boundaries or specific references to systems in any way (see below).

Guidelines

1. A rich picture is an attempt to assemble *everything* that might be relevant to a complex situation. You should somehow represent every observation that occurs to you or that you gleaned from your initial survey.
2. Fall back on words only where ideas fail you for a sketch that encapsulates your meaning.
3. You should not seek to impose any style or structure on your picture. Place the elements on your sheet wherever your instinct prompts. At a later stage you may find that the placement itself has a message for you.
4. If you "don't know where to begin", then the following sequence may help to get you started:
 - a. first look for the elements of structure in the situation (these are the parts of the situation that change relatively slowly over time and are relatively stable, the people, the set-ups, the command hierarchy, perhaps);
 - b. next look for elements of process within the situation (these are the things that are in a state of change: the activities that are going on);
 - c. then look for the ways in which the structure and the processes interact. Doing this will give you an idea of the climate of the situation. That is, the ways in which the structure and the processes relate to each other.
5. Avoid thinking in *systems terms*. That is, using ideas like: "Well, the situation is made up of a marketing system and a production system and a quality control system". There are two reasons for this. The first is that the word "system" *implies* organized interconnections and it may be precisely the *absence* of such *organized* interconnectedness that lies at the heart of the matter: therefore, by assuming its existence (by the use of the word system) you may be missing the point. Note, however, that this does not mean that there won't be *some* sort of link or connection between your graphics, as mentioned above. The second reason is that doing so will channel you down a particular line of thought, namely the search for ways of making these systems more

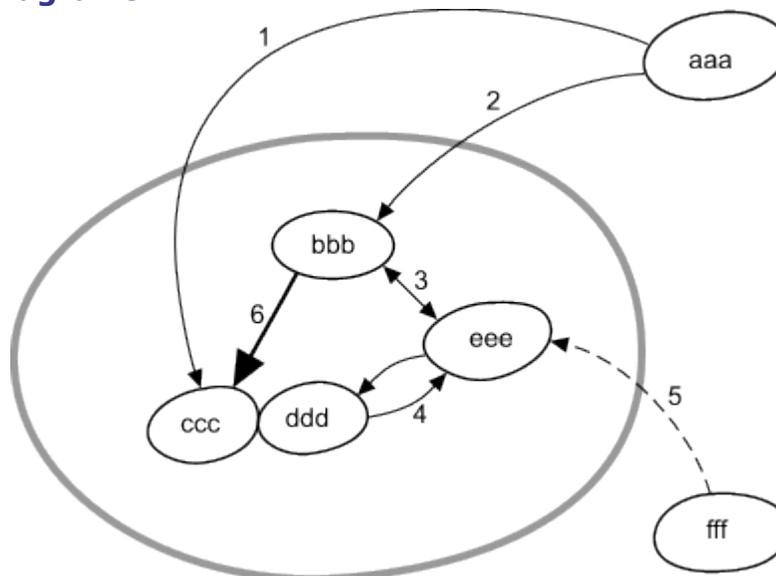
efficient.

6. Make sure that your picture includes not only the factual data about the situation, but also the subjective information.

7. Look at the *social* roles that are regarded within the situation as meaningful by those involved, and look at the kinds of behaviour expected from people in those roles. If you see any conflicts, indicate them.

8. Finally, include yourself in the picture. Make sure that your roles and relationships in the situation are clear. Remember that you are not an objective observer, but someone with a set of values, beliefs and norms that colour your perceptions.

Influence diagrams



Format for an influence diagram

Purpose

An influence diagram represents the main structural features of a situation and the important relationships that exist among them. It presents an overview of areas of activity or organizational and other groupings and their main interrelationships. It is used either to explore those interrelationships, perhaps leading to a regrouping and redefinition of the system and its components, or to express a broad view of how things are in the territory you are considering. Influence diagrams can be developed from a systems map by adding arrows and can be used as the starting point for a multiple cause diagram by clearer definition of the type of influence.

Elements:

- blobs of varying sizes;
- assorted arrows;
- words labelling blobs and possibly also labelling arrows;
- key for arrows;
- title.

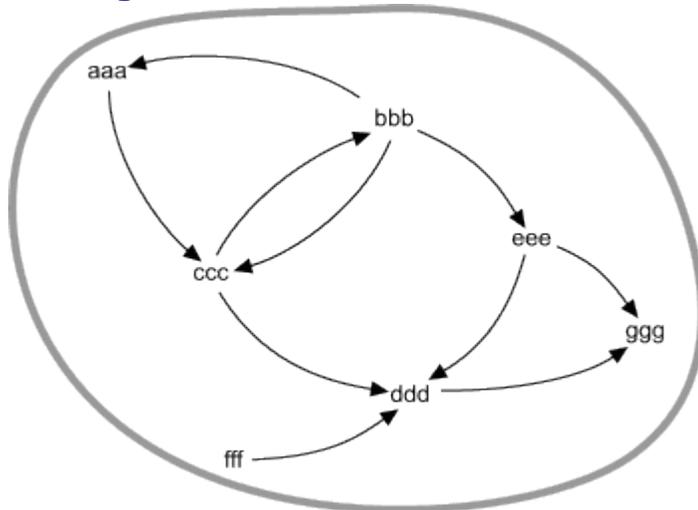
Conventions

1. As in systems maps, blob lines represent component boundaries. Inclusion of blobs and a system boundary is optional but highly recommended.
2. An arrow (e.g. 1 or 2 in the figure above) joining component aaa to component bbb or ccc shows that aaa can or does influence bbb or ccc.
3. A double-headed arrow (e.g. 3) should *never* be used to denote a two-way influence unless the influence is identical. Two separate arrows (e.g. 4) are preferable (see guideline 5).
4. Words (e.g. aaa, bbb, ccc, ddd, etc.) label components and system (if shown). They may also label arrows, if the nature of the influence is not obvious from the context. Alternatively, different influence can be represented by dotted (e.g. 5) or bold (e.g. 6) lines as long as a key is given.
5. Arrows do not show material flows.
6. An influence diagram, like a systems map, is a snapshot.
7. Arrows denote capacity to influence, not a sequence in time.
8. A title defining the system of interest is essential.

Guidelines

1. Avoid using arrows from features in the environment to the system boundary. By definition factors in the environment affect the system, so such arrows are superfluous. Arrows from environmental factors should terminate at a specific system component where possible. Arrows to the system boundary carry information only if they distinguish different types of influence (see guideline 3 below).
2. Different thicknesses of lines can indicate different strengths of influence. Thus in the figure above, 6 denotes a stronger influence than 1.
3. It is possible to distinguish different types of influence (e.g. influence via finance, information, supply of materials). Do so only if such distinctions are important and not self-evident, by the use of different lines (colour, dashing) to show this, and a key to explain them.
4. Resist the temptation to overload the diagram with information. It may be helpful to you to put down all influences you can think of at first, but for communication to others, select the significant ones.
5. Resist the temptation to use double headed arrows. Use them only when the influence is truly reciprocal and of the same type. If you are not careful the use of a double headed arrow can obscure important differences in the types of influence and their magnitude, which is seldom, if ever, equal. Use two arrows pointing in opposite directions instead.
6. Space and relative distance can also be used to suggest things about the nature of the relationships shown, e.g. an important but remote relationship.

Multiple cause diagrams



Format for a multiple cause diagram

Purpose

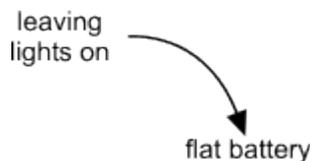
This type of diagram is used to explore why a given event happened or why a certain class of events tends to occur. It is not intended to predict behaviour, but may be used to develop a list of factors to bear in mind when considering comparable circumstances in the future. It is also useful for finding out why something went wrong or keeps recurring, e.g. through a causal loop, so that steps can be taken to prevent its recurrence. It can be derived from an influence diagram or developed anew.

Elements:

- system boundary (optional);
- phrases;
- arrows (which may occasionally be labelled);
- title.

Conventions

1. Inclusion of a system boundary is optional but recommended.
2. The phrases (aaa, bbb, ccc, ddd, etc.) relate to a state or an event e.g. "flat battery" or "battery goes flat". But, as the diagram is developed, it is preferable to describe these factors in terms of a variable (something that has a value that can go up or down) e.g. "amount of charge in battery".
3. Arrows indicate the causal connections between the phrases, and are read as *phrase at tail of arrow causes phrase at head of arrow*, e.g. "leaving lights on" causes "flat battery".



4. In a more developed diagram, with variables rather than states, the arrow is better read as "affects" e.g. "length of time lights are left on" affects "amount of charge in battery".

5. In general arrows are not labelled. However, it is acceptable to do so if you wish to add information about the *type* of causal connection e.g. "length of time lights are left on" reduces "amount of charge in battery" (to emphasize that an increase on one leads to a decrease in the other). Or "leaving lights on" contributes to "flat battery" (to emphasize that this is unlikely to be the only cause).
6. The chain of causal connections may be entirely sequential, or it may include loops.
7. A title defining the system of interest is essential.

Guidelines

1. In constructing such a diagram you normally begin at the factor/event to be explained and work backwards. A diagram should include more than one such end factor only if contributory factors were related, and explaining both events is important.
2. It is not necessary to put blobs around phrases, although if it improves clarity you can. Boxes, with their "activity sequence diagram" implications, are best avoided.
3. It helps in checking a draft to ensure that each individual relationship makes sense. If the meaning is not obvious then be more specific or insert any necessary intermediate causes.
4. Take care not to combine two factors into one e.g. "battery is flat and car won't start". This can prevent your identifying differences in their causes or consequences, and therefore potential points of intervention.
5. This type of diagram does not distinguish between necessary and/or sufficient causes (for example, in the figure above, Event aaa and Event bbb may both be necessary if Event ccc is to occur; or either may be sufficient to cause Event ccc). If the distinction is important for your purpose you will need to annotate your diagram to indicate this.
6. It is not essential to indicate a system boundary on a multiple-cause diagram, particularly if it has been developed from an influence diagram that already has one. Drawing such a diagram may well, however, develop your ideas about where to draw a boundary and so identify a system of interest.
7. It is important to remember that this diagram type, while superficially resembling an influence diagram, is different in that the words at either end of an arrow represent events that may happen or values that may change. In an influence diagram these words represent components of a system e.g. people or sub-systems.