

the laboratory experiments are carried out on students who are easily accessible to research workers!

The primary generator

Some years ago a research student and colleague of mine, Jane Darke, interviewed some well-known British architects about their intentions when designing local authority housing. The architects first discussed their views on housing in general and how they saw the problems of designing such housing, and then discussed the history of a particular housing scheme in London. The design of housing under these conditions presents an extremely complex problem. The range of legislative and economic controls, the subtle social requirements and the demands of London sites all interact to generate a highly constrained situation. Faced with all this complexity Darke shows how the architects tended to latch on to a relatively simple idea very early in the design process (Darke 1978). This idea, or primary generator as Darke calls it, may be to create a mews-like street or leave as much open space as possible and so on. For example, one architect described how 'we assumed a terrace would be the best way of doing it . . . and the whole exercise, formally speaking, was to find a way of making a terrace continuous so that you can use space in the most efficient way . . .'. Thus a very simple idea is used to narrow down the range of possible solutions, and the designer is then able rapidly to construct and analyse a scheme. Here again we see this very close, perhaps inseparable, relation between analysis and synthesis. Darke however used her empirically gained evidence to propose a new kind of map which had some parallels with a more theoretical proposition (Hillier, Musgrove and O'Sullivan 1972). Instead of analysis–synthesis Darke's map reads generator–conjecture–analysis (Fig. 3.6). In plain language, first decide what you think might be an important aspect of the problem, develop a crude design on this basis and then examine it to see what else you can discover about the problem.

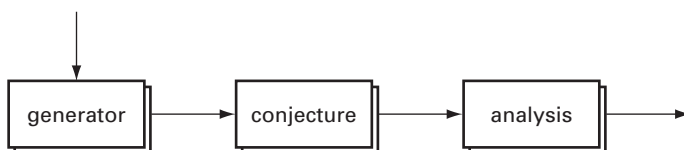


Figure 3.6
Jane Darke's map of the design process

Further evidence supporting the idea of the primary generator has been collected more recently using experimental observation and analysis of the drawings produced by designers (Rowe 1987). When reporting one of these case studies in detail, Rowe describes his analysis of a series of design drawings and detects lines of reasoning which are based on some synthetic and highly formative design idea rather than on analysis of the problem:

Involving the a priori use of an organising principle or model to direct the decision making process.

These early ideas, primary generators or organising principles sometimes have an influence which stretches throughout the whole design process and is detectable in the solution. However, it is also sometimes the case that designers gradually achieve a sufficiently good understanding of their problem to reject the early thoughts through which their knowledge was gained. Nevertheless this rejection can be surprisingly difficult to achieve. Rowe (1987) records the 'tenacity with which designers will cling to major design ideas and themes in the face of what, at times, might seem insurmountable odds'. Often these very ideas themselves create difficulties which may be organisational or technical, so it seems on the face of it odd that they are not rejected more readily. However, early anchors can be reassuring and if the designer succeeds in overcoming such difficulties and the original ideas were good, we are quite likely to recognise this as an act of great creativity. For example, Jorn Utzon's famous design for Sydney Opera House was based on geometrical ideas which could only be realised after overcoming considerable technical problems both of structure and cladding. Unfortunately, we are not all as creative as Utzon, and it is frequently the case that design students create more problems than they solve by selecting impractical or inappropriate primary generators.

We return to these ideas again in a later section but before we leave Darke's work it is worth noting some other evidence that she presents with little comment but which even further calls into question the value of design process maps. One of the architects interviewed was explicit about his method of obtaining a design brief (stages A and B in the RIBA handbook):

A brief comes about through essentially an ongoing relationship between what is possible in architecture and what you want to do, and everything you do modifies your idea of what is possible . . . you can't start with a brief and (then) design, you have to start designing and briefing simultaneously, because the two activities are completely interrelated.

(Darke 1978)