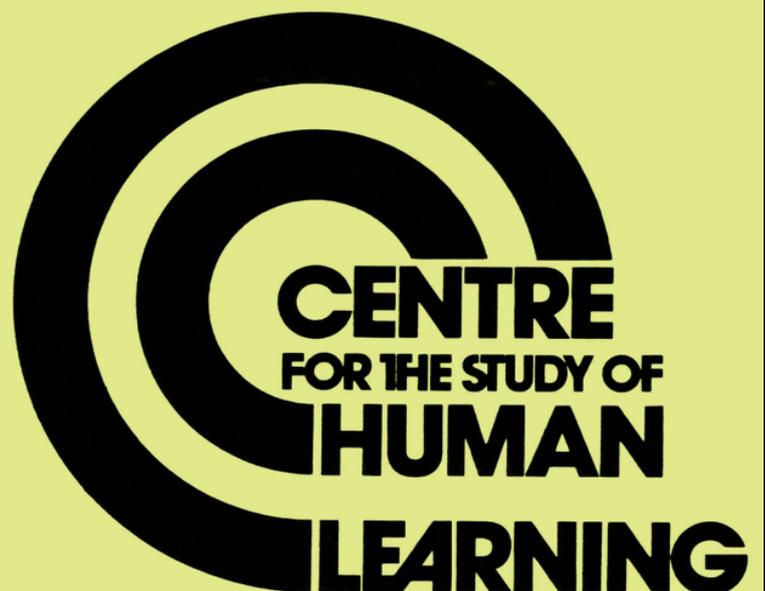


(Conference Papers)

Practical Theory Building, Despite Missing Data, by Completing Tests for Self Consistency

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INTRODUCTORY THEORY

Assertion 1:

There is no infallible starting point for knowledge/information.

- No god-given knowledge of space or time (Kant's a-priori schemata).
- Nothing sacrosanct about our concept of "dimensions".
- Even the rules of logic are arrived at by trial and error.
- And even meaningful perception must be learned by the individual or his species.

Justified by: { Reductio ad absurdum
{
{ Observation

The knowledge must start somewhere, so presumably initial concepts are arbitrary, very fallible, open to selection, and very simple but combinable.

Piaget calls these elementary units "schemes". He explains their subsequent selection and elaboration in terms of accommodation to interaction with the outside world, and equilibration internally - "seeking self consistency amongst the encoded constructs.

Assertion 2:

Science must also observe this double criterion - optimal agreement both externally and internally.

Francis Bacon (1620; 1/95)

Kant (1787/1978. pages 124-6).

But since external "observation" is also a fallible product of self-consistency seeking, it cannot claim any absolute privilege - especially when conditions for observation are poor.
So:-

Assertion 3:

Overall self-consistency of any integrated model is our only ultimate criterion of its validity. The extent to which this is "external" or "internal" is of secondary importance, as long as either is entirely absent.

Logical positivists and Popperians make the mistake of assuming certain infallible axioms. They also propose dogmatic strategies which cannot be justified in terms of their own over-rigorous criteria, so they are not even consistent.

(Ayer, 1978, Holland, 1977).

So must we always be bound by the impirical testability of an idea?

Two Applications:

1. Ultra-micro brain function.
2. Adeptation of "basic" macro concepts to suit the particular Industrial situation:-

Application 1:

Reconciling the many disconnected ideas about brain mechanism:

- a) Rigorous Physics and saltatory conduction.
 - b) What, physically, is Piaget's "scheme"?
 - c) Account for sequential organisation of memory (Penfield).
 - d) Explain electrical access to a chemical memory.
 - e) Is memory "tape recorded"? (Hyden, See Eccles).
 - f) How is memory accurately recalled?
 - g) What controls the growth of nerve fibres? (tenuous impirical test).
 - h) Why is there not more interference between close nerve-fibres?
 - i) Do our ideas progress teleologically, or by trial-and-error?
(Cs do species evolve teleologically?)
 - j) Deffuse mechanism (Lashley) yet capable of precision.
- etc. ,

There is a theoretical solution linking all these issues in some detail, but very little direct impirical evidence due to practical obstacles. Nevertheless, it is here suggested that it is more cost-effective to continue the theoretical exploration, rather than to grasp at the dubious impirical tests currently available.

Application 2:

Breakfast Foods are made to please people. They must meet the legal requirements designed to protect the people of the Country in which they are sold. But to sell, they must be appreciated by the people who buy them. Appreciation is a personal subjective process, thus many of the characteristics most important to a Food Manufacturing Company are especially subjective. Attempts are continually made to translate these subjective characteristics into objective measures; but since the ultimate referent is the consumer, any secondary or tertiary interpretation of subjective qualities into objective standards must remain calibrated against

what the consumer appreciates. Thus, the assessment of quality in the manufacture of breakfast foods depends crucially upon the subjective standards of the people making them. They must firstly show these standards and stabilise them amongst themselves and they must then use the consumer as a longer term referent. There is no absolute meaning to the idea of quality in any manufactured product. It is always a question of shared standards and reference to a larger user group.

Repertory Grid Techniques have been used to enable people working in Industry to become more conscious of their own thoughts, feelings, perceptions and values. Grids can then be used to compare and share individual constructions of experience. They are used as a conversational technology for the creation of shared knowledge.

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