# How We Learn

## (Media & Technology Across the Lifespan)

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### HWL Tracer Bullet #27

# *Dimensioning Phenomena, Problems, and Processes: Tracking, Mapping & Framing*

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1. **Dimensioning** Phenomena, Problems, and Processes
    a. Problem finding v posing v defining v formulating v solving v shaping v analysis
        i. Problem-solving is a main theme of a genre that includes processes of designing, experimenting, inventing, fault-finding, and trouble-shooting.
        ii. Friere asserted that "Problem-posing education bases itself on creativity and stimulates true reflection upon reality" (p. 71).
        iii. Newell, Shaw and Simon (1962) view creative activity as "a special class of problem-solving activity characterized by novelty, unconventionality, persistence, and *difficulty in problem formulation* (emphasis added)" (p. 66).
        iv. Csikszentmihalyi (1994): "Many creative individuals have pointed out in their work that the formulation of a problem is more important than its solution and that real advances in science and in art tend to come when new questions are asked or old problems are viewed from a new angle.... yet when measuring thinking processes, psychologists usually rely on problem solution, rather than problem formulation, as an index of creativity.... They thus fail to deal with one of the most interesting characteristics of the creative process—namely, the person's ability to define the nature of the problem." (p. 138)
        v. Getzels and Csikszentmihalyi (1976): "it is clear that finding a problem, that is, functioning effectively in a *discovered* [emphasis added] problem situation, may be a more important aspect of creative thinking and creative performance than is solving a problem once the problem has been found and formulated." (p. 82)
    b. Dimensioning a problem means accepting the givens of a problem but also being able to ask insightful questions about it— being not so imprisoned by its context or by our prior experiences.

c. A problem is a thing: "just as an object, spatially considered, may be regarded as a meeting place and special articulation of three dimensions so the object in its concrete fullness may be regarded as the meeting place of many more. It has its own position for example in a definitely graded universe of colour, of utility, of beauty and of truth…. It is characteristic of a dimension that no limit can be set to it either in the outward or the inward direction. It is thus in its nature absolutely continuous. At the same time if we arrest it in any particular of its infinite extension what we shall strike upon will be and must be something discrete and definite. There is doubtless something paradoxical in this." (Bowman, 1910, 507)
d. Uni-dimensional v multi-dimensional problems
e. Most fundamentally, dimensioning involves rendering a problem as four- or three-dimensional by situating it in space (geography) and time (history), and giving it depth & breadth (disciplinarity). One gives "timeliness" to and "heightens" and "deepens" awareness of a problem.
f. One question is, how many dimensions shall one give a problem or does a problem have?
g. One can seemingly multiply dimensions through interdisciplinarity.
h. M-theory speculates ten dimensions and this is a good rule of thumb or goal for dimensioning phenomena, problems, and processes— 10 dimensions / phenomenon, problem, process.
i. Dimensioning invariably involves tracking, mapping, and framing

**2. Tracking**

a. The cleaner and simpler the interface looks, the better, because it is less likely to bedazzle the user away from his or her main aim of following the well laid navigational paths as quickly and efficiently as possible. If an educator guides us on these journeys, our usual path can often be much the same as if we traveled with a scientist or engineer. So long as they can track our movements and we reach the proper destination, they are satisfied. And what does tracking as a technique of relating to the user do to the producer and the user? Although tracking has an element much like the commercial and government surveillance uses of computer, it is dressed up for this journey in the educational guise of "for your own good." (Neumark, 1995, p. 305)
b. Navigational Paths
c. Tracking down leads and sources
    i. Lead generation
    ii. Sources
d. Analytics
e. Traceability
f. Trails and traces
    i. Diffusion of ideas
    ii. Discourse trails and traces
    iii. Funding trails and traces
    iv. Policy trails and traces

v. Legal trails and traces
vi. Power trails and traces
vii. Browsing trails and traces
viii. Blogging trails and traces

g. Maps and Frames

**3. Mapping**

a. Cartography: "The cartography of ideas is a most difficult task, but it has to be done, and done well…. If you want to build, you have to know the ground you're building on" (Brinton, 1953, p. 462).
b. Social cartography is created through 'a process composed of a series of psychological transformations by which an individual acquires, codes, stores, recalls, and decodes information about the relative locations and attributes of phenomena in ... [the] everyday geographical environment.' This process consists of 'aggregate information ... acquisition, amalgamation, and storage,' producing a product depicting space peculiar to a moment in time" (Paulston & Liebman, 1994, p. 215).
c. Cognitive maps and concept maps, *per se*, date to the 1950s as psychologists and educators referred directly to these as both research and instructional methods. Psychologists had by that time drawn quite readily on cartography and interrelations among the physical territory, map, and mental image. By the mid 1950s Ableson (1954) in "A Technique and a Model for Multi-Dimensional Attitude Scaling" had already provided the makings of a productive research method of cognitive mapping and analysis. One of the key studies of cognitive mapping was published Paivio in 1969. By the 1970s, an empirical base and research method precedent for subsequent studies of cognitive, conceptual, mind, and semantic mapping had been established (see Roeckelein, 2004).
d. Topology
e. Ecology
f. Coordination
    i. Beings, things, figures, interests, ideas, ideologies, elements, entities, etc.
    ii. Problem of boundaries
    iii. Problem of links and nodes
g. Articulation (Form of Relationships)
    i. A way of "describing the continual severing, realignment, and recombination of discourses, social groups, political interests, and structures of power."
    ii. A process of creating links and connections
    iii. "An articulation is thus the form of the connection that can make a unity of two different elements, under certain conditions. It is a linkage which is not necessary, determined, absolute and essential for all time. You have to ask, under what circumstances can a connection be forged or made?" (Hall, 1986/1996, p. 141).

4. **Framing**
    a. Influence over meaning
    b. Rhetorical packaging of meanings
    c. A frame is a "schemata of interpretation…. to locate, perceive, identify, and label" (Goffman, 1974), which creates meaning, shapes experience, gives direction, etc.
    d. "Framing is concerned with the way interests, communicators, sources, and culture combine to yield coherent ways of understanding the world" (Reese, Gandy & Grant, 2001, p. 11).
    e. Imaging

Researchers in cultural studies and media studies tend to approach events, sites, etc. by tracking, mapping and framing— a methodology of description and interpretation. In fact, these researchers often refer to their frames or framings of data, phenomena, and sites of interest as *frameworks*. Tracking refers to an observation or documentation of trails, traces, performances, etc., while mapping refers to an articulation or coordination (forms of relationships) of beings, things, figures, interests, ideas, ideologies, elements, entities, nodes, etc. Mapping may take a form of modeling (strengths of relationships) and is what it suggests— cultural or social cartography (Paulston, 1977).

Framing refers to influence over meaning or a packaging of meanings, and not merely to a "lens" through which a participant or researcher "views" events, things, data, phenomena, or sites (see Principles). This is one aspect that makes social science so interesting— both research participants and researchers invariably and simultaneously frame or draw on frames to influence, filter, orient, package, or shape data, phenomena, meanings, etc. Erving Goffman (1974), the renowned sociologist and theorist of performance, defined a frame as a "schemata of interpretation…. to locate, perceive, identify, and label," which creates meaning, shapes experience, and gives direction, etc.

> Framing is concerned with the way interests, communicators, sources, and culture combine to yield coherent ways of understanding the world… frames organize by providing identifiable patterns or structures, which can vary in their complexity…. Frames structure. That is, they impose a pattern on the social world, a pattern constituted by any number of symbolic devices (Reese, Gandy & Grant, 2001, pp. 11, 12, 17).

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