

## Coherence

Paul Tatter, Notes for ASTC session, October, 2009

All coherence happens in a particular context. We can't do everything, so we might as well do a few things with coherence, real synergy and really well. What matters is a coherent ensemble of activity.

Coherence may profoundly describe how well a science center's activities are attuned to its values. These values, whether or not they are articulated, determine the science center's core purpose. The internal coherence of its operations across all working sub-groups (exhibits, education, visitor services, finance, facilities, fund-raising, marketing, board committees) with regard to their management, processes, and evolving outcomes, and the external coherence of its long-term roles in the community may be more important than any other organizational characteristics.

It may be that coherence is a quality of every vigorous, innovative, persistent and sustainable organization. This may be particularly applicable in times of change, or even as a desirable characteristic of institutional change itself. *Dynamic coherence*—a developmental trajectory or a pathway of developmental change (not necessarily growth, except in the sense of continual learning)—may be essential for the creative evolution of any organization, especially for an organization grounded in educational and humanly liberating values (learning, respect, trust, hope, participation, patience, reason, equity, peace, community, personal growth and experience, questioning, caring, happiness, inspiration, cooperation, independence, interdependence...etc.)

What is it that persists as coherent in an organization's trajectory or pathway throughout challenges or change? What will be different and what will be the same? What is it that holds things together and keeps them logically integrated and intelligible and aesthetically consistent throughout change? What are the institutional and relational consequences of an absence of coherence—of incoherence? How do we know in our community if we are doing what we want to be doing?

An important perspective on coherence for science centers may be how much they perceive themselves as non-profit or for-profit organizations. A non-profit is very different from business or government. Peter Drucker: "The 'non-profit' institution neither supplies goods or services nor controls. Its 'product' is neither a pair of shoes nor an effective regulation. Its product is a *changed human being*. The non-profit institutions are human-change agents. Their 'product' is a cured patient, a child that learns, a young man or woman grown into a self-respecting adult; a changed human life altogether."

Changing human lives requires continuity and repeated, evolving transactions with the same people over long periods of time. This is not a commonly held point of view. The prevailing attitude seems to be that some event changes lives. Sometimes an event does, but not usually. Usually what changes lives are coherent relationships and shared activities that last for a time.

Coherence is not an intellectual event or a static state of affairs. Coherence is a quality of activity; it is functional. Things are coherent or incoherent whether or not we attend to them.

Under what circumstances is attention to coherence absolutely necessary: during transitions (in leadership, purpose, capacity, down- or up-sizing), during aging, during unexpected external pressures, during hard economic times, during rapid social change? How do we build and create coherence? What are we doing right now to build a coherent institutional culture? What are we doing right now to build a coherent community? What would strategic coherence look like?

What are the elements of the organization to which coherence applies?

- Its values

- What it means by its principles and purposes

- Its argument: what, why, how, when

- Its identity

- Its internal and external behavior in all things

- Its role and relationships with the community

- Its organizational processes and management

- Its working groups, parts and sub-parts (for example, coherence of operations among exhibits, educational programs, visitor services, facilities, fund-raising, trustees, etc.)

- Its people with each other...

What would you add to this list?

What are some actions that support coherence?

- Cultivating comfort with not knowing how something will turn out before it happens

- Having a long view: thinking a lot more than a year ahead...like decades

- Attending to the qualities of the present and what people are doing now

- Suspending urgency

- Valuing people for whom and what they are today, rather than for what they ought to be

- Clarifying vision

- Clarifying values and purposes

- Establishing (institutionalizing) creative processes for non-linear and unexpected changes

- Expecting and planning for transitions

- Keeping staff that understand and contribute to the values and purposes of the organization

- Finding and keeping essential and contributing niches in the local community's ecosystem

- Being selective and consistent in creating partnerships and alliances

- Innovating continually and continuously (in such things as educational, exhibit, and management practices)

- Trying to create a better future by making today better...

This all may have to do with how focused we can keep an organization on its primary values and purpose. So, creating a focus and sticking with it may really be the key we thought it was when we first talked about this. Do we have examples of this that we can describe and share?

Especially in hard economic times, internal and external coherence may have strategic importance. Are the science center's activities well tuned to its mission values? How can we help working groups throughout our centers work more closely together? How do we create and maintain the focus of our identity and value as members of our local communities? Internal coherence, like the coherence of a well-grounded personality in action, may be essential to the role, sustainability and value of a science center in its community. It also may be a practical counter to institutional entropy, and may provide benchmarks by which to focus

choices and actions. It quietly adds value and coordination to every activity of a science center, and visibly adds value when the center is embraced as an essential member of its community.

usages and etymology (from various sources)

*cohere*

Latin: cohaerere; co-, together + haerere, to stick, to cling to, cleave (stick fast, adhere), combine; sticking together, holding together, to cause to form a united or orderly whole to hold together firmly as parts of the same mass, to consist of parts that cohere to become united in principles, relationships or interests to be connected naturally or logically, as by a common principle; be consistent to become or stay united in action; be in accord to be logically or aesthetically consistent

*coherence*

quality of being logically integrated, consistent and intelligible  
quality or state of logical, orderly and aesthetically consistent relationship of parts  
congruity

*coherent*

orderly, logical or aesthetic relation of parts that affords comprehension or recognition  
sticking together, logically connected, consistent, and intelligible  
capable of intelligible speech, thought, etc., clarity

analog and metaphors

*physics*

to stick together as parts of the same mass; to be united by molecular cohesion  
mutual relationship between sets of electromagnetic or sound waves in which their amplitudes or frequencies, or both, are equivalent to each other  
For two waves perfectly correlated for all times, if the first wave changes, the second will change in the same way; if combined they can exhibit complete constructive interference at all times. The second wave could be the first wave at a different time or position.  
Cf. temporal coherence, spatial coherence, spectral coherence, polarization coherence  
a property holding for two or more waves or fields when each individual wave or field is in phase with every other one; coherence can hold for quantum states in general

*quantum coherence*

In quantum mechanics, all objects have wave-like properties. Quantum coherence is the ability to interfere constructively or destructively with each other, depending on whether the waves are in phase or out of phase. *Large-scale quantum coherence leads to novel phenomena.*

*Troy, Dennis, Jennifer on coherence*

Singing from the same sheet of music

Integrity of response

Countervailing entropy

Cf. strategic coherence, musical coherence