**Modeling physical and cultural environment**

**INLS 582, Systems Analysis**

**Wednesday, 3/14/12**

**Reading:** B&H, 107-115; 115-123.

Monk & Howard (1998) (rich pictures)

**Slides:**

cultural-comp.ppt

cultural-ex.ppt

cultural-exercise-sol.ppt

physical-comp.ppt

phys-ex.ppt

**Exercise:** cultural model: training outsourcing example

**Physical Model**

The physical model looks at the places where work occurs. The only items included are those that are important to the system or that affect the tasks and how they’re performed. Generally, it looks like a floorplan, but additional labels or areas may be marked. Or, you can annotate a photograph (Sci-fi Shop Return) Your goal is to abstract or highlight those objects crucial to illustrating your point. Model includes:

* structures
* furniture
* equipment
* paths taken by the user
* artifacts used in the work (and their paths, if significant)
* lines of communication used (e.g., calling over the wall), sight lines (e.g., in a classroom or meeting room)
* breakdowns.

Breakdowns may included unnecessary travel, not enough space for a job, ease of interruption that isn’t necessary, poor ergonomics, lack of confidentiality, etc. Some of these may be easy reorganization, some may actually call for architectural changes (which may not be possible at this point, but which may be noted for future use).

Consider Davis Library – for someone unfamiliar with it, where do they go to ask a question?

Consider interactions between the physical and non-physical aspects of the situation.

Note that some physical problems may be solved by non-physical means. For example, if someone is too easily interruptible by people coming in to drop off requests (and staying to chat), having requests sent by email may allow fewer interruptions and batching of request handling. (On the other hand, the lack of informal communication could also be a problem.) Conversely, consider the problem of a receptionist who can’t be seen from the entryway of an office because of a wall – how do people know where to go?

Consider the needs for different kinds of lines.

Bank (confidentiality, not a lot of artifacts or equipment needed by customer, security on part of bank)

Airport check-in (luggage, security, obvious sources of information for strangers, especially tired ones)

Airport security (luggage, packing and unpacking space, security people and equipment)

Grocery store (carts, check-out equipment, no real need for security or confidentiality)

<example, charts, phys-ex.ppt.>

**Cultural Model**

In many ways, this is the trickiest to construct, because culture is such an intangible thing. On the other hand, smooth user and management acceptance of the system depends on it being consistent with the organization’s culture, or being consistent with a change that has been agreed on. There may be different cultures at the individual, group, management, and organization level. They may be reflected in both formal, written policies (may be found in training materials, policy manuals, etc.), and in informal “understood” policies – what really occurs. These are influences that affect and/or constrain work.

Remember that not all influences or constraints are bad. An organization might have a culture that emphasizes getting information to a customer quickly. That may put pressure on representatives to be able to get accounts and solve problems quickly, but may be something in which they take pride as a sign of good work and be good for the company’s reputation. Sometimes looking at the reward structure can be revealing.

The model is created as a result of an interview, and represents one person’s view of the cultural influences around him or her. Clearly, it is possible to have conflicting models, representing differing points of view. Model contains:

* Central person (or group, department), whose view you are representing <central bubble>
* Sources of influence. These may be individuals, departments, “corporate culture”, customers, etc. <surrounding bubbles; amount of overlap with central bubble can represent strength of influence>
* standards of the organization or industry
* sources of power
* values
* sources of identity (personal or group)
* emotions felt or perceived
* breakdowns represent pressures that prevent work being done in a satisfactory manner, which includes the idea of job satisfaction. E.g., conflicting messages from an influence.
* <example>

**Rich Pictures Monk & Howard, 1998**

This model is another way of representing the environment in which a system operates or will operate, capturing the intangibles – concerns, stakeholders, competition, etc.

“All work has numerous, and sometimes competing, objectives” (p. 22)

They refer to these objectives as concerns.

“Concerns are the high-level objectives that significantly construing the way work is done.” (p. 22)

They propose the rich picture, “a cartoon-like representation that identifies all the stakeholders, their concerns, and some of the structure underlying the work context. A rich picture is a tool for recording and reasoning about these aspects of the work context, in particular, how they should affect the design.” (p. 22)

It focuses on the stakeholders, their interrelationships, and their concerns, and tensions among them.

You can be very creative in the design, but as with all other models, it should be clear and communicate to its intended audience. Remember that this is a very high-level view of the entire situation and context. The rich picture can be augmented by notes (e.g., explaining concerns or tensions), or can coordinate with other models (e.g., flow, physical, use case, prototype).

**Components:**

Structure: “aspects of the work context that are slow to change.” (p. 23) These can be represented by icons.

* Stakeholders
* Organizational structure
* Physical structure
* Competitors
* Anyone who will use or could be affected by new system

Process: “transformations that occur in process of work” (p. 24) Labeled lines connecting structure elements.

* Flow of goods, documents, or data
* Influence of roles
* Authority, delegation, etc.

Concerns: “motivations for using the system, different perspectives” (p. 24) Thought bubbles for structure elements.

Tensions: tensions between stakeholders. They use the crossed-swords icon, you could also use the lightning bolt breakdown.

You will probably choose to use one or the other, not both, in your projects. Note that the discussion your team has in preparing these models is often the really informative part, as you start to merge your perceptions of the more intangible things. This is a model you may choose not to include in your proposal, or show your clients. (Do include it in your appendix, however.)

<examples>

Exercise: outsourcing.