

Michael Cohen often talks about organizations as a kind of technology. Usability as a concept is usually employed to describe the characteristics of a person's or group's interaction with a technology. Do you think the concept of usability can be extended to how an individual or a group interacts with an organization? In what ways might it be extended, and which not? Use the literature we read to guide your discussion. (1000 words maximum)

Jakob Nielsen, the (in)famous usability “guru” and contemporary of Donald Norman, defines interface usability on five dimensions [1]:

- Learnability – the speed at which a user can learn to successfully complete new tasks
- Memorability – the amount of procedural knowledge a user retains from one encounter to the next
- Efficiency – the number of steps needed to successfully complete a task
- Ease-of-use – the match between the user's mental model of the task and the conceptual model employed by the interface in completing the task
- Subjective appeal – the feeling of user (dis)satisfaction after engaging the interface

In comparing the usability of organizations to interface usability, as suggested by Cohen, we may also consider Nielsen's dimensions, noting the similarities as well as metaphorical limitations.

Learnability

Organizational learning takes place within the context of organizational culture. Star argues that the convergence of information artifacts and procedural knowledge within a localized community of practice promotes transparency [2]. The tighter the coupling between local resources and tasks, the more a user can concentrate on learning tasks instead of discerning infrastructure. Within these communities of practice, also, learning takes place through apprenticeship and legitimate peripheral participation [3]. The extent to which this learning takes place can vary with organizational culture, one type of interface to organizational technology. Robbins suggests that organizational norms, both explicitly codified in employee manuals and implicitly transferred through social rewards and sanctions, contribute to the rate at which an employee learns to complete tasks effectively [4]. When learning about an organization, the user encounters new information, engages a sensemaking process, and attempts to execute tasks in line with the knowledge gained through information seeking behaviors. The seeking strategies combined with the contexts of organizational resources leads to learning situated in the organization's framework [5].

Memorability

March and Leavitt suggest that organizational memory arises when knowledge is in a form that does not rely on individual membership [6]. Organizational technology, then, relies on the ability to codify knowledge in a way that is accessible to individuals and groups who may not have created it. In changing organizational environments, new technologies may require older knowledge artifacts to transform or remediate themselves to remain effective agents of organizational memory [7]. As organizations become increasingly digital and decentralized, the user must adapt to new ways of retrieving past information – documents as knowledge artifacts – in order to maintain memory of past transactions or tasks [8]. The ability of the user to re-engage

past knowledge is a measure of organizational usability. Organizations can achieve this usability through self-examination and elaborating upon the history that has led to the current organizational form. The creation of documents like the SI Strategic Assessment Report, providing a history of the organization's evolution and projecting future directions, serves as a knowledge artifact that promotes consistency in memory, consistency in interpreting actions for future direction [9].

Efficiency

A user, occupying a specific role within an organization, will likely perform job functions that either are coordinated with those around himself – near decomposability and strong ties – or serve as a liaison between departments or hierarchical levels – weak ties [10-12]. Ackerman argues that usability depends on the accommodation of nuance, flexibility, and ambiguity, which he claims are notably absent from CSCW technologies [13]. Organizational routines, unlike interfaces, may be quite efficient when resolving *ad hoc* situations. Suchman's analysis of an airline crew details the efficiency of negotiating tasks within a shared workspace [14]. Organizational technology, however, may decrease the efficiency of tasks. Zuboff puts forth an example where, after infomating offices, communications that could efficiently be conducted by turning to the person at the next desk were sent through inter-office mail or by email [15].

Ease-of-use

The ease of the user to discern the function within the organization depends on the ability to understand how the organization works by observing or experiencing it – an organizational variation of affordance [16]. Signaling of functional information flows can be seen in the physical layout of the organization [17]. A clear differentiation of organizational functions makes use easier. However, as organizations become more complex, it becomes more difficult to understand the complexity among levels of hierarchy [11]. As a result, highly complex and often decentralized organizations are more difficult to use. Unable to master the full range of functions within the organization, users may be forced to satisfice and focus efforts on understanding only the immediate infrastructure and resources available in the current role [10, 11].

Subjective appeal

The usability of an organization based on subjective appeal is a measurement of the satisfaction of the user with the experience. The interface to this aspect of organizational technology can be seen in both the social infrastructure and business processes. Zuboff's description of the DIALOG system's "Computer Coffee Break" communicated a highly positive subjective satisfaction from users [15]. This satisfaction quickly soured, however, when management interpreted social commentary out of context. Zuboff provides ample scenarios in which infomating of the organization proved disruptive in workers' happiness with the environment. As Zuboff and Yates point out, increased control and scientific management techniques frequently lead to dissatisfaction of users [15, 18]. The ability to scrutinize individual transactions leads to decontextualized evaluations of employees' actions; further assigning accountability based on data rather than contextualized interpretation. Nissenbaum calls for harsher sanctions based upon this type of accountability [19]. It is likely that increased punishment for accountability will

decrease worker/user satisfaction with the environment, having deleterious effect on the usability of the organization.

Conclusion

The usability of “organizations as technology” has strong parallels with the traditional concept of usability. The ability to learn new tasks through sensemaking and information seeking, sustaining organizational knowledge through memory and artifacts, creating efficient control and communication processes that are accessible and easy to use, and providing an environment in which workers will remain and thrive all fit the metaphor of individuals’ and groups’ interactions with IT interfaces. True, the metaphor has limits when comparing the evolutionary and dynamic nature of organizations against the typical rule-based architecture of technological interfaces; however, the lessons learned in interface design may be effectively leveraged when considering the construction of organizational technologies, cultures, and infrastructure.

(998 words)

1. Nielsen, J., *Usability engineering*. 1993, Boston: Academic Press. xiv, 358 p.
2. Star, S.L., G.C. Bowker, and L.J. Newmann, *Transparency beyond the individual level of scale: Convergence between information artifacts and communities of practice*, in *Digital Library Use: Social Practice in Design and Evaluation*, A.P. Bishop, N.A. VanHouse, and B.P. Battenfield, Editors. 2003, MIT Press: Cambridge, MA.
3. Lave, J., *Situated Learning in Communities of Practice*, in *Perspectives on Socially Shared Cognition*, L. Resnick, J. Levine, and S. Teasley, Editors. 1991, American Psychological Association: Washington, DC. p. 63-82.
4. Robbins, S., *Organizational Behavior: Concepts, Controversies, and Applications*. 1993: Prentice-Hall.
5. Pettigrew, K.E., R. Fidel, and H. Bruce, *Conceptual frameworks in information behavior*, in *Annual Review of Information Science & Technology*, M.E. Williams, Editor. 2001, ASIST and Information Today: Medford, NJ. p. 43-78.
6. Argote, L., *Organizational Learning: Creating, Retaining, and Transferring Knowledge*. 1999: Kluwer Academic Publishers.
7. Bolter, J.D., *Writing Space: The Computer, Hypertext, and the Remediation of Print*. 2nd ed. 2003, Hillsdale, NJ: Erlbaum.
8. Brown, J.S. and P. Duguid, *The Social Life of Information*. 2000/2002, Cambridge, MA: Harvard Business School Press.
9. Information, S.o., *SI Strategic Assessment Report*. 2004, University of Michigan: Ann Arbor, MI.
10. March, J.G., H.A. Simon, and H.S. Guetzkow, *Organizations*. 2nd ed. 1993, Cambridge, MA: Blackwell. ix, 287 p.
11. Simon, H., *The Sciences of the Artificial*. 3rd ed. 1996, Cambridge, MA: MIT Press.
12. Granovetter, M., *The Strength of Weak Ties*. *American Journal of Sociology*, 1973. **78**(6): p. 1360-1380.
13. Ackerman, M., *The intellectual challenge of CSCW: The gap between social requirements and technical feasibility*. *Human Computer Interaction*, 2000. **15**(2/3): p. 179-203.

14. Suchman, L., *Constituting Shared Workspaces*, in *Cognition and communication at work*, Y. Engstrom and D. Middleton, Editors. 1996, Cambridge University Press: New York, NY.
15. Zuboff, S., *In the age of the smart machine: the future of work and power*. 1988, New York, NY: Basic Books. xix, 468 p.
16. Norman, D., *The Design of Everyday Things*. 1990, New York, NY: Doubleday.
17. Guiliano, V., *The Mechanization of Office Work*, in *Computerization and Controversy*, C. Dunlop and R. Kling, Editors. 1991, Academic Press: New York, NY.
18. Yates, J., *Control through communication*. 1989, Baltimore, MD: Johns Hopkins University Press.
19. Nissenbaum, H., *Accountability in a computerized society*, in *Human values and the design of computer technology*, B. Friedman, Editor. 1997, Cambridge University Press: New York, NY. p. xiv, 320 p.