Out of our past: understanding our communication environment

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BACKGROUND AND CONTEXT

This chapter is based on two assumptions: first that new technologies (computers, networked communication and networked information) are driving cultural change in academic libraries; and, second, that current organizational culture will influence responses to computerization.

The arguments that technology drives cultural change are widely accepted. In higher education, cultural change and adapting to new technologies are seen as both desirable and inevitable. It is desirable to exploit the new capabilities of new technologies and inevitable in order to keep pace with the world outside academia. This is evidenced in eLib and other digital library projects worldwide, which seek to encourage new thinking, new ways of working and the creation of innovative uses of new technologies.

CULTURE AND TECHNOLOGY

Digital library research, of which TAPin forms a part, has increased our understanding of networked information and its human contexts. This research has generated two new areas of study: social informatics and organizational informatics. These terms have emerged from discussions in workshops and seminars sponsored by the National Science Foundation (NSF) in connection with the Digital Libraries Initiative (DLI). Social informatics describes the wider context of computers and society. Kling and Star offer the following definition: 'the social aspects of computerization – including the roles of information technology in organizational and social change and the ways that social organization of information technologies influence social practices (and are influenced by them)' (Kling and Star, 1997: para 4, line 3).

In an extensive review of social informatics and digital libraries Bishop and Star (1996) examined what they termed 'the social informatics of digital library

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use'. A key theme of this review is the persistence of personal communication. Examples are: interaction and collaboration with friends in information-seeking; the role of 'social worlds' in providing a reference group within which discussion of information-seeking takes place; and a preference for communication between close colleagues where discussion in a wider forum is perceived to be risky.

The new area of organizational informatics has emerged to integrate research into computing and applications development on one side and, on the other, the impact of computing on organizations and their human context. Kling and Allen (1996) argue that organizational informatics gives us two key insights into the relationship between computerization and organizations.

1) *The behaviour of human organizations affects the design and implementation of computer systems.*

2) *The effective use of computerization systems in organizations does not depend on technology alone.* Many other aspects of organizations – including job design, reward and incentive schemes, political negotiation, and cultural understandings – combine with technology choices to affect how computing is used in practice. (Kling and Allen 1996: 265)

Identifying different levels of interaction enriches the discussion of organizational informatics. Between the level of the organization and that of the individual, groups described as *communities of practice* are identified. These are individuals who share a common task, are part of the same group or use the same tools. Communities of practice may form part of the formal organization or have an informal status. For example, subject librarians interact with colleagues who may share the same tasks, they may be part of a teaching team with academics from their school/department/faculty or communicate with colleagues who share a common interest.

New themes emerge from social/organizational informatics discussions, which have relevance to this research. These are: the persistence of interpersonal communication in seeking and using information; the need for appropriate responses to people's needs which are sensitive to the human context; and the requirement for appropriate forms of organization to manage technology and the human interface. The symbiotic relationship between organizations, the people who work in them and computers provides further support for the specific conclusion of the research reported here that the existing culture influences the organization's response to networked communication. Equally important is the recognition of the mechanisms by which culture influences computer use through people's values, attitudes and behaviours in their workplace. The complexity of this interaction is reflected in the possible levels of analysis that comprise the human context. The term that I propose to encompass this area is the *communication environment.*

UNDERSTANDING THE COMMUNICATION ENVIRONMENT: A TOOLKIT

Broadly, the TAPin project sought to create a process of change within academic libraries by providing subject librarians with training and support to introduce academics to networked information. The results of this process were recorded and analysed, and form the basis of this chapter.

The implication of the TAPin research is that an understanding of 'where we are now', in terms of culture, helps us to predict likely responses to networks. This determines the most appropriate choice of strategies to reach our desired future destination.

The aim of this chapter is to provide simple models and tools to visualize key areas that underpin academic library culture. These key areas are derived from the TAPin experience and focus on the implications of networked information and networked communication for academic libraries. As with all models, however, it is recognized that these are a stylized interpretation of the evidence, not a literal representation of the truth. While it is not proposed that the conclusions of the TAPin project be generalized to all academic libraries – although all libraries share key common relationships – it is suggested that considering the communication environment is a starting-point for understanding the implications of networked communication for individual organizations and the subject librarians who work in them.

INTERPRETING THE COMMUNICATION ENVIRONMENT

Understanding the communication environment is too complex a task to be represented by any single measure. The analysis proposed is at three levels:

1. the organization
2. within the organization
3. the individual.

Within these levels are measures which together form a picture of where our organization is now. These are:

1. a typology of possible organizational responses
2. interactions with groups outside the library
3. modes of communication – how we communicate with users
4. modes of use – the levels of network use and access in the departments and in the library
5. communication strength – the way we communicate with schools/ departments and faculties
6. values and perceptions – our personal perceptions of our role
7. personal orientation – how we think about our role.

ORGANIZATIONAL RESPONSES TO NETWORKED INFORMATION

The typology presented here is a synthesis of observed organizational response to networks. It comprises two elements. A verbal description of four cases and the cultural response matrix which provides a visual representation of possible cases along two key axes: compatibility with networks; and the strength of existing culture.

THE TYPOLOGY

The adaptive library

The adaptive library does not change culture to meet networked information and networked communication, but adapts its approach to fit them into existing cultural assumptions. The adaptive library focuses on its presence, and it has an established role within the institution. The library's role in relation to its users is passive. As users know and understand the value of the library, the library neither seeks, nor feels the need, to promote itself. Electronic resources are available for users to consult, but they are not differentiated from other forms of information, such as print. The adaptive library is likely to have some or all of these characteristics:

- a focus on physical access to resources
- a practice of placing the responsibility for acquiring skills and knowledge of resources with the user
- a strong expert culture, which places the subject expert at the centre of the resource provision
- weak communication links with the academic department
- a lack of experimentation with new modes of communication
- a passive exploitation of resources, the availability of which is not supported through such activities as end-user training
- weak internal links between subject experts and technical support services.

The transforming library

The transforming library has a weak cultural identity. Its role is less established within its home institution, and its development is likely to have been characterized by many reorganizations and rapid expansion. The transforming library is sensitive to changes in the external environment and is likely to have the following characteristics:

- a preference for informal communication over formal communication

- many advice and friendship groups within it
- evidence of experimenting with new forms of communication
- culture change activities, such as training
- initiation of changes to its organizational structure
- evidence of changing or adapting its librarians' roles
- some conflict within the library
- some conflict with organizations within the institution.

The learning library

The learning library has a strong and responsive management culture, which supports and encourages change. It is likely to have, within it, reservoirs, or access to reservoirs, of relevant technical expertise and is likely to be practised at responding to innovation. The learning library is likely to have the following characteristics:

- integrative approach to resources – likely to expend efforts communicating this to end-users
- proactive relationship with users – likely to routinely deliver information skills training to end-users
- innovative – will experiment with new modes of communication as part of a coordinated formal response
- a close formal and informal relationship with academic departments
- a high level of communication between subject experts and technical support
- an awareness of strategic issues on the part of librarians
- a focus on communication with users about physical resources or location.

The unresponsive library

The unresponsive library has a weak culture whose response to environmental pressures is to ignore them. It is likely to have autocratic management style, perhaps led by an older professional unable, or unwilling, to take on new technologies. The unresponsive library will have weak links with academic departments and with other groups within the institution.

THE CULTURAL RESPONSE MATRIX

The cultural response matrix measures responses on two key axes: the strength of existing culture in defining responses to forces which create cultural change; and the degree of compatibility of existing cultures with the force for cultural change – in this instance, networked technology and networked communication (see Figure 14.1)

Strength of existing culture Low	Unresponsive	Transforming
	likely to experience conflict leading to radical organizational and cultural changes	likely to experience cultural and organizational changes
Strength of existing culture High	Adaptive	Learning
	adapted in the present, will experience conflict and change at a future date	adjusts existing culture and organizations to absorb forces for change
	Compatibility with forces for change (networked information) Low	Compatibility with forces for change (networked information) High

Figure 14.1   The cultural response matrix

The matrix poses the question, 'What is our response to networked communication and networked technology?'. An instructive exercise is to place a library within this framework to test the implications of current culture against future expectations.

The unresponsive or adaptive library is unlikely to make planned responses to the forces for change, since both are reactive rather than proactive. Such libraries will encounter greater negative effects of conflict and disruption either now or in the future when the forces for change become overwhelming.

Positive effects

The transforming library is engaged in a process of change. The forces for change in the external environment are likely to be the catalyst for change and shape it in a compatible direction.

Planned responses

Learning libraries are likely to be making planned responses to networked communication and networked technology. They will encounter greater positive effects as they adjust to meet the forces for change, and are least likely to be overwhelmed as a result.

ORGANIZATIONAL AND INDIVIDUAL RESPONSES

RELATIONS WITH OTHER GROUPS WITHIN THE ORGANIZATION

The TAPin project reported relationships with outside groups as either positive or in conflict with the library. These comments represent some of the attitudes present in the research.

- 'The computer centre was slow to put in networked links.'
- 'People within the department said it was not our job to teach Internet skills to students.'
- 'Academics preferred advice from colleagues or technical support within the department.'

The exploitation of networked information builds on the creation of a network infrastructure to support desktop access within the academic departments. Positive relationships with mutual understanding of the technical issues and end-use are essential for effective and efficient implementation. Where positive relationships existed with technical support staff, outcomes tended to be positive as well.

Conflict existed between groups who felt they had exclusive claims to the same role – that of trainer/adviser/teacher. Confrontations were reported with staff who claimed to fill the same role as the subject librarians implementing the TAPin model or training students. These conflicts represented a process of establishing credibility in new roles and taking ownership of areas of knowledge. They represent evidence of a process of defining new roles or defending old roles.

Each of these conflicts requires a different response. Conflicts with technical personnel who are building the networks which libraries are seeking to exploit must be resolved. In this sense they are negative because they hinder the process of creating the networked infrastructure. Conflicts which seek to define roles, however, need to be engaged in because the outcomes will directly affect the library's position, its self-image and its relationship with its users. In this way they are the healthy manifestation of a process of change.

THE ACCESS LIBRARY

The concept of the access library culture was devised as a research instrument to give researchers a point of comparison. Two cultures were proposed; an access or network-friendly culture; and a holdings or network-averse culture. The observations of actual responses are reported as modes of communication in the next section.

The concept of the access library remains an ideal. The following description, however, represents some of the activities that might be present in an access library.

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The access library allows end-user access to networked information and access to subject experts. Networked users can access information created for them, and consult subject experts electronically or in person if they need to. Networks provide choice in the medium of communication – for example, synchronous or asynchronous, face-to-face or electronic, one-to-one or one to many. Users and subject experts can manage their communication efficiently and effectively, choosing the medium that is most appropriate for their needs.

Networked activities might include:

- answering a student query about information for an assignment using a mailing list or electronic conference, distributing the same information to those on the same course/level who may also need it
- creating subject-based Web guides directing students to electronic and non-electronic resources in response to a request from a member of staff, perhaps in advance of an assignment being set
- designing customized pages from which to link to networked information resources such as BIDs, giving the user the information and guidance they need to use the resource effectively
- arranging a face-to-face meeting via e-mail with users who require expert advice.

The aim of the access library is to manage interactions with subject experts and to reduce both the need for physical presence and the importance of physical location. The purpose is not to eliminate the library's physical existence or face-to-face contact with the subject expert but to exploit the choices offered by networked communication and networked information.

MODES OF COMMUNICATION

Modes of communication describe the underlying assumptions observable in the library service at the point of use. Failures in communication were observed where:

1. the assumptions about what represents an access library culture were in conflict with the existing assumptions
2. where the implementation of networked solutions conflicted with existing modes of communication.

This typology is derived from the post-case analysis of the TAPin data. The modes of communication identified were visible to the researchers because they conflicted to some degree with the definition of an access culture.

The expert mode

The expert mode of communication places the subject expert at the centre of communication with users. It requires the physical presence of both the expert and the user for face-to-face consultation. The typical situation in UK higher education of increasing user demand for subject experts' time set against diminishing resources and increasing workload places this mode of communication under strain. Users who gain direct access to networked resources can bypass the subject expert in the belief that their information needs are being addressed. The subject expert who does not take ownership of information resources may become marginalized in the eyes of the user, leaving those immediately in contact with users using networked resources to fill the subject expert role. This may be in a remote location – for example, a computer centre, at home or in a faculty facility. The challenge of the expert mode is to make expertise available at the point where users access networks.

The print mode

The print mode emphasizes service delivery within the library at the issue desk or at the enquiry desk. Information-giving is confined to these locations, through face-to-face contacts or printed notices and guides. The user is required to be physically present. Subject experts are visible to the user at the enquiry point, but as enquiry desk staff rather than in their role as subject experts. Their expertise is communicated in the form of printed guides. The enquiry service is generalized, staffed by professionals who deploy their skills for all enquiries, supplemented by printed guides. The danger of this mode of communication is that a distributed delivery of information over networks diminishes the library as a physical service without offering an enriched view of the value of subject expertise to its users. It does not offer an ongoing rationale except to continue to manage (shrinking) physical collections. The challenge of the print mode is to reconnect the subject experts to their end-users and to create an interactive dialogue between the user and subject experts.

The mediated mode

The mediated mode places a professional and para-professional between the end-user and the resource. Booking and using resources, obtaining permissions, completing request forms and obtaining passwords are mediated activities requiring the physical intervention of library staff. The mediated mode inherits attitudes from single point of access, pay-as-you-use services. Its challenge is to move from a controlling role to an advisory role, allowing unmediated access

to networked resources while also providing appropriate advice and support to enable independent use.

The do-it-yourself (DIY) mode

This mode separates networked communication from the library service. Access within the library available to end-users, enquiry desks and library staff is limited, but users may have access to networked resources in computer labs and centres outside the library. While users may be encouraged to use the Internet, for example, it is 'out there' rather than 'in here'. Independent access of this nature breaks the link between library expertise and network use. The challenge of the DIY mode is to integrate networked communications and networked information into library information delivery.

The communication matrix

The communication matrix provides a visual representation of modes of communication along two key axes: end-use by users of networked technology; and the level of interaction with subject experts through networked communication (see Figure 14.2). The matrix is an interpretation of strategic choices in communication with users. This distance between the current position and the networked ideal represents the degree of difficulty of the task and the
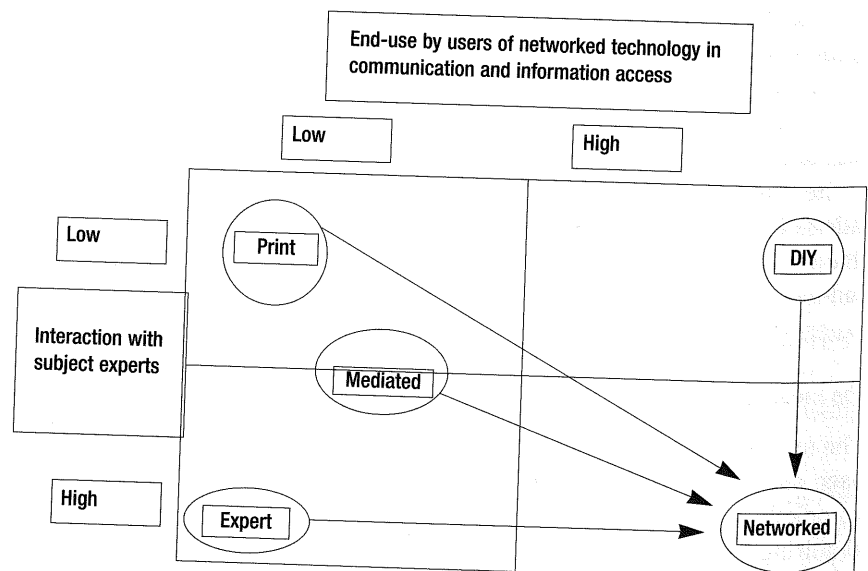
Figure 14.2   The communication matrix

degree of cultural change required to get there. Although the communication matrix is intended to inform an organizational approach, it is equally applicable to groups and individuals.

Modes of communication mark a point of departure rather than a plan of action. However, positioning academic library services within this matrix defines attitudes to: expert centredness; physical presence; control of resources; channels of communication to users; and the degree of users' assumed responsibility to operate the service. The TAPin evidence suggests that these are inherited assumptions embedded within the history of the organization. Planned change requires that these hidden assumptions are exposed and understood. They will become visible, in any case, at the point where they conflict with new areas of activity.

LEVELS OF USE

Levels of use refer to the ways in which networks are used to communicate with users. The use of networks is best measured as levels of development. A measure of 0–3 is offered here.

- **Level 0**. There is no use of networked communication or networked information.
- **Level 1**. The assumptions that underpin existing activities are directly transferred into new forms of communication. For example, e-mail can be used instead of a telephone.
- **Level 2**. Networks are used to locate new information created by other individuals or organizations, using tools that already exist. Examples might be electronic versions of government reports, statistics or databases.
- **Level 3**. Networked technologies are used to distribute information that is created specifically for distribution across networks. Within the context of this study this would include individual Web pages and library websites. Of course, with technical support, this process can be extended into the creation of new databases and interactive guides.

The relative position of the library and the academic department to each other at each level determines, to a significant degree, the nature of their dialogue about networked information. This dialogue is the focus of the TAPin model and the research that it has generated. The evidence of the TAPin research is that where the library is ahead or at the same level of development as their academic departments they have positive dialogues and move forward with least difficulty. Learning is a shared experience, with subject librarians and academics learning together, or in cases where subject librarians have skills they are responsive and sensitive to the information and training needs of their academic colleagues.

The levels of use matrix

The levels of use matrix gives a visual representation of the relative position of the library and the academic department (see Figure 14.3). In this diagram, the two axes represent increasing levels of network use for the LIS and academic department, level 3 being the highest attainable. The cases represent five different hypothetical cases with different pairings of levels of use, and the arrows show the distance to be travelled to reach the ideal situation where both the LIS and academic department are at level 3 and are therefore making the best use of networks in their relationship.
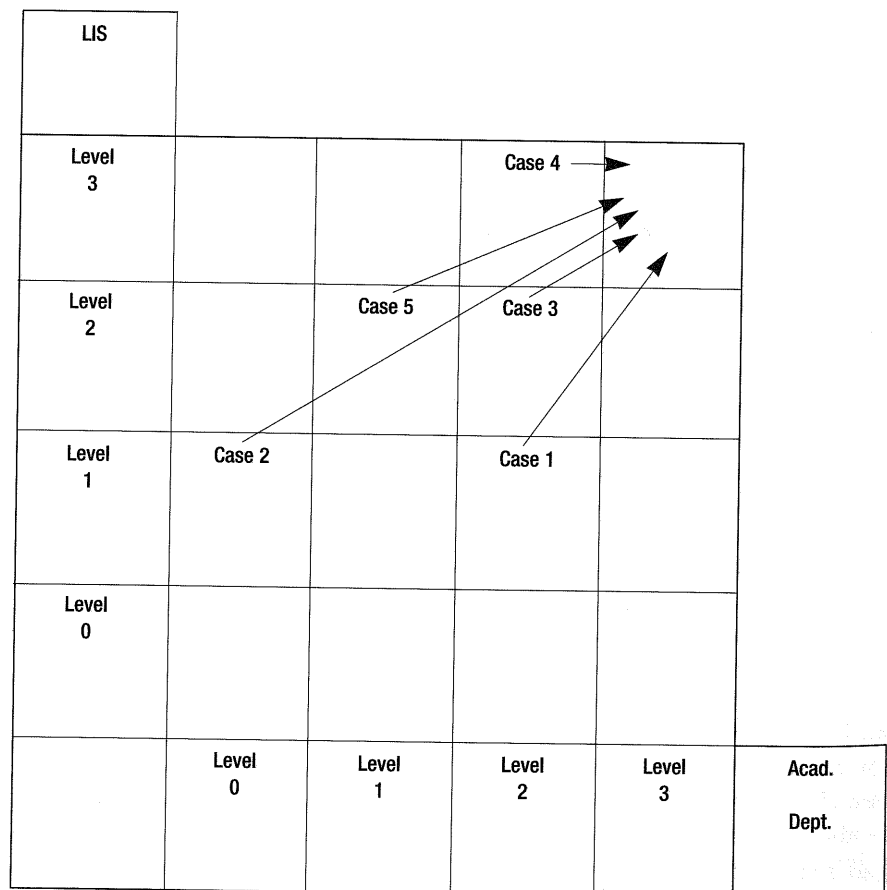
LIS					
Level 3			Case 4 ──▶		
Level 2		Case 5	Case 3		
Level 1	Case 2		Case 1		
Level 0					
	Level 0	Level 1	Level 2	Level 3	Acad. Dept.

Figure 14.3   The levels of use matrix

It is an informative exercise to place the library in relationship to academic faculties/schools/departments. The implication of this research is that where the library leads, dialogue is positive and productive. However, a disparity of level implies managing the gap between library and academic department. Understanding the nature of the gap points to areas of concern. This will inevitably include the following:

- **Technology.** LIS does not have the capability to deliver over networks, or the academic department is not physically connected to access information through networks.
- **Shared vision.** Libraries and academic departments do not have a shared understanding of what is possible, desirable or achievable with networked information, because they have no (shared) experience of it.
- **Service fit.** Gaps in networked use/access create mismatches in service. A typical example might be library development of networked delivery for departments who have limited networked access. The gap between library and department has the potential to create a positive cycle of mutual development and support, or a negative cycle of mutual divergence.

COMMUNICATION STRENGTH

Communication strength or weakness is reflected in evidence by two factors: the subject librarians' degree of integration into the formal structures of committees, boards and meetings; and the nature of informal communication between academics and subject librarians.

Examples of integration might be routine attendance at school or faculty committees where the library and networked communication form part of the discussion. This represents communication at a strategic level where subject librarians are in a position to speak and influence the school in matters that are relevant to the library. Library committees represent a second tier of integration. In this case, both librarians and academics meet, but outside the principal forums of both the library and the academic department.

Informal communication takes place outside the formal structures of the organization. Examples might include visiting the library or meetings during the lunch hour. Such communication gives opportunities for using personal influence and persuasion. Generally, frequent informal contact is equated with strong powers of influence, while casual infrequent contacts are a powerful mechanism for disseminating information to colleagues, although they are unlikely to be a means of persuasion.

The degree of integration into the formal communication structure and the frequency and extent of informal communication between individuals and

groups combines to give a picture of the relationship between library and faculty.

The communication strength matrix

Observed relationships are categorized in the communication strength matrix (see Figure 14.4).

In the diagram 'multiplex' represents the ideal with high integration and frequent communication, which combine to form a rich pattern of both information exchange and influence. 'Bureaucratic' describes situations in which subject librarians might be required to be present as routine practice but which are not underpinned by informal links. 'Low power' relationships will undermine initiatives such as TAPin. Here, the power to influence at a strategic or personal level is weak and support for library projects is difficult to generate. Libraries and subject librarians in this position need to create a stronger communication base before they can successfully embark on a proactive initiative such as the TAPin model. Networked libraries have strong influencing power. One of the outcomes reported from TAPin libraries was greater visibility and invitations to participate at a formal level, thereby moving towards a multiplex relationship.
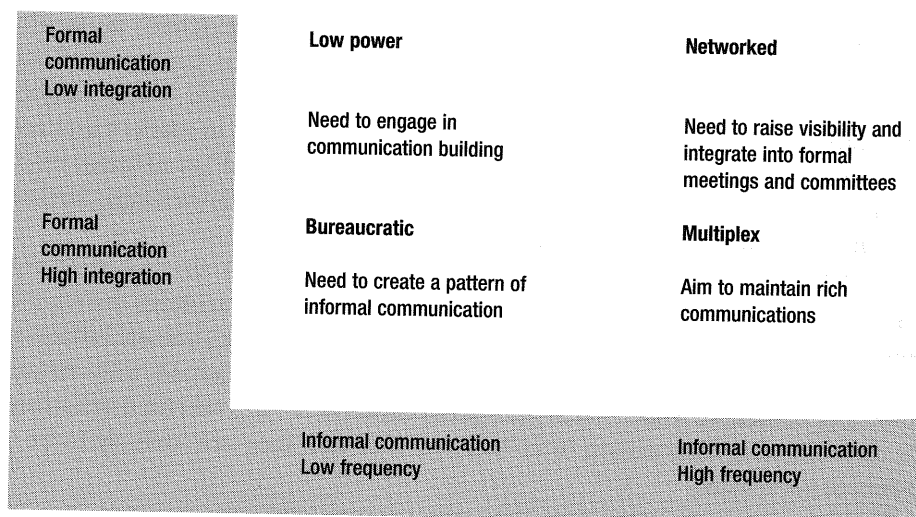
| Formal communication Low integration | Low power

Need to engage in communication building | Networked

Need to raise visibility and integrate into formal meetings and committees |
| --- | --- | --- |
| Formal communication High integration | Bureaucratic

Need to create a pattern of informal communication | Multiplex

Aim to maintain rich communications |
| | Informal communication Low frequency | Informal communication High frequency |

Figure 14.4   The communication strength matrix

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INDIVIDUAL RESPONSES

VALUES AND PERCEPTIONS

This section describes end-users' levels of expertise or perceived expertise as assessed by subject librarians and the value which subject librarians place on their own expertise. Personal attitudes have an effect on both motivation and outcomes. The following statements, reported in the research, represent attitudes expressed by subject librarians about academics' use of networks:

- 'The technology is easy to use, academics can acquire skills themselves.'
- 'Academics can easily acquire the skills they need from colleagues.'
- 'Academics only need networked skills at a basic level.'
- 'They already have networks, therefore they are experts.'

Attitudes about the value of subject librarians' expertise to academics are also significant. These statements represent attitudes expressed in the research:

- 'Academics cannot *see* my expertise.'
- 'Academics need advice from technical experts, not librarians.'
- 'Academics do not need expertise themselves, they can ask colleagues for help.'

Attitudes about the expertise and the perceived value of subject librarians conveying expertise to academics combine to form a significant indicator of the relative success or failure of the TAPin model.

The concept of perceived value is informed by the theories of cognitive choice (Kanfer, 1990) – specifically, Vrooms Valance–Instrumentality–Expectancy (VIE) theory. VIE seeks to explain the motivational force behind individual actions. It comprises three elements: effort–performance expectancy; immediate or first-level outcomes; and instrumentalities or second-level outcomes which derive from first-level outcomes. Perceived values are high where all three elements are positive whereas low or negative expectancy creates perceived values resulting in low motivation. VIE theories have generated an extensive literature. Here, they are used solely to improve our understanding of the evidence, and an extensive explanation of or analysis of VIE is neither intended nor attempted.

Low perceived values may occur for subject librarians who believe that their skills are undervalued in their department and their influence is low. In these circumstances, subject librarians believe that effort in implementing the TAPin model will not be rewarded with significant positive first-level outcomes, in terms of gaining appointments, access to the faculty or positive training encounters. Second-level outcomes, such as improved communication, personal profile and personal satisfaction, are therefore unlikely.

High perceived values may occur for subject librarians who believe that they

have valuable skills and have influence in the department which is likely to result in cooperation and positive responses. First-level outcomes will be positive and will lead to second-level outcomes.

Perceived difficulty describes subject librarians' views of how easy or difficult it is to use networked information. If it is believed to be easy to use, the subject librarian will consider that offering training is of limited value. If it is seen as difficult to use, the subject librarian will place a high value on offering training.

The perceived value matrix

The significance of the perceived value matrix (see Figure 14.5) is that it addresses the question of what individuals think about themselves and others and what they believe about the usefulness of what they are offering. Figure 14.5 does not represent an objective assessment of the situation, but a subjective analysis of what subject librarians believe.

In the matrix subject librarians in the low perceived value area need to address their relationship with their client community at a fundamental level. This issue contains within it a complex mix of personality, library culture and academic culture which is not addressed by the TAPin model. In fact, the outcomes of

Perceived Value Low	Leads to inaction – negative outcomes.	Action/inaction – mixed results.
	'Academics cannot see my expertise.'	'Academics cannot see my expertise.'
	'Networks are easy to use.'	'Academics are not interested in complicated resources. They only use them at a basic level anyway.'
	'Academics can find out for themselves.'	
Perceived Value High	Leads to action – positive outcomes – communication benefits.	Leads to action – positive outcomes – communication benefits – training benefits for academics.
	'Worthwhile, I made useful contacts.'	'I was able to give them useful skills in networked information retrieval – they value my expertise.'
	Perceived level of difficulty Low	Perceived level of difficulty High

Figure 14.5   The perceived value matrix

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implementing the TAPin model are undermined if it is implemented in situations where attitudes equivalent to the low perceived value measure are held.

Subject librarians in the high perceived value area need to test their beliefs within the academic community and adjust their objectives to fit. This process is built into the TAPin model. In the case study libraries valued benefits, such as improved communication and building formal and informal relationships with academics, even if they were found to be relatively expert users, were gained.

PERSONAL ORIENTATION

Personal orientation describes the individual's perspective on their role and the way this determines their interaction with others.

Physical orientation describes a curatorial approach that focuses on maintaining collections, and being in physical proximity with the collection to offer guidance and advice to users who choose to visit. This is a reactive approach that emphasizes physical presence and physical place.

A communication orientation describes subject librarians who are proactive in communicating with users. Activities that evidence this approach are providing information skills training to students and staff, with an emphasis on global communicating skills over and above particular, local physical space/resources.

The degree of personal choice is limited by how much freedom of action is permitted within the institution. Resources limit choice. Activities in the communication mode may be incompatible with an excessive workload, such as cataloguing or service management duties.

In an uncertain, changing environment a communication orientation is preferable. It offers the opportunity for informal and formal face-to-face contact with users and allows the possibility of a two-way flow of information from the library to the academic department and vice versa.

Subject librarians experience dissonance when a communication orientation is constrained at a time of uncertainty, when users need a proactive advice network. Models such as TAPin need to be considered in the context of personal orientation. Both personal orientation and resource limitations can combine to create conflict.

CONCLUDING THOUGHTS

Reflecting on this chapter prompts some additional thoughts. Perspectives are different at each level within an organization – for example, the head of library services has a different perspective from the subject expert. A complete picture requires a cumulative assembly of views and opinions. Understanding the

communication environment is a cumulative process that begins at an individual level and builds towards an understanding of the organizational response to networks. Reflecting on culture in the way proposed here is a starting-point – not an end in itself. It requires a desire to change, or an acceptance that an autonomous process of change has been initiated, and therefore a willingness to contemplate new ideas and less attractive current realities.

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