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Emerging knowledge distribution means
and their characterization

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Abstract: Despite the amount of attention that processes and structures for knowledge management has received within research during the last decade, little attention has been directed towards the actual means used for the distribution of knowledge by individuals. Here is presented results from a study of emerging electronically mediated distribution means followed with a characterization and analysis. For the characterization and analysis a framework for interpretation of the different distribution means was created based on the constructs of organizational learning and the levels of knowledge system interpretation. The results show that knowledge distribution is not an isolated event. It takes place in larger context, such as organizational learning, since it touches upon other activities or phenomena such as knowledge acquisition, knowledge interpretation, and organizational memory.

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1. Introduction

The usage of electronic media, such as computers, for distributing knowledge has during the last decade been almost explosive, e.g. the growth in usage of the Internet for communication, thus giving rise to and enabling new knowledge distribution means. Electronic media have helped overcome time and space constraints when sharing knowledge between individuals separated by physical boundaries and have made it easier to record, store, search, and retrieve it. The background to the increasing focus in organizations on knowledge and its management may be found in the work, going back as far as Drucker (1988) and Huber (1984, 1990), relating to the growth and development of the post-industrial society and its informational demands as well within the literature concerning organizational memory.

Attention towards the need for methods and theories on knowledge management has been called for at different conferences (ICIS 1998) as well as within organization science literature (Wiig 1996 and Angus, Patel, and Harty 1998). Growing focus on knowledge has become apparent within the literature on organizational learning and organizational memory, e.g. Walsh and Ungson (1991) calling for methods on managing it. The organizational processes and structures for managing and distributing knowledge have in the last decade been given a lot of attention. Walsh and Ungson (1991) as well as Ackerman and Halverson (1998) have explored the structures and content of organizational memories. Huber (1991) has explored the management of knowledge through the constructs of organizational learning. Stein and Zwas (1995) as well as Wijnhoven (1998) have explored the processes and management of organizational memory. Goodman and Darr (1998) have explored the processes behind knowledge exchange. Despite the above research not much attention has been directed towards the actual means individuals use for knowledge exchange or distribution in promoting organizational learning. The technological aspects of the means for knowledge exchange, such as the media, have received a fair amount of attention, e.g. the review of technologies for knowledge management of Davenport and Prusak (1998). Swan, Scarbrough, and Preston (1999) point out the same and emphasize that the real issues to focus on are the people management issues and not just the technological ones.

There are examples of systems that have been developed to support organizational memory and knowledge exchange. Ackerman and Malone (1990) have developed an organizational memory system called "answer garden" that allows organizations to develop databases of commonly asked questions that grow organically as new questions arises and are answered. A system such as this one address the mechanisms employed for distributing knowledge in the structured form of question-answer. However, there is still a lack of knowledge concerning what means individuals use for knowledge distribution and what characterize them as opposed to traditional ways of distributing knowledge. It is the aim of this paper work to contribute with knowledge regarding the means used by individuals for distributing knowledge by presenting the results from a descriptive study (Eberhagen 1999).

Before going any further we need to define what we mean by knowledge distribution means. Wijnhoven (1998) defines organizational memory means as the procedures and media used for effectively interacting with the organizational memory. Following this view we define a knowledge distribution means as being concerned with the media for the distribution of the knowledge; the structure, form or language that the knowledge is represented in; and processes or procedures for its management and creation.
2. The framework for characterization

In order to analyze and characterize the different knowledge distribution means we have built a framework based on the work of Huber (1991), concerning the constructs of organizational learning where knowledge distribution is but one, and the levels of knowledge system analysis (Lundberg 1999).

We have placed our study within the context of organization learning since the main reasons, the driving force or purpose, for distributing knowledge, within units or between units, is either to promote organizational or individual learning. Organizational learning is the prime motivator for distributing knowledge, unless we are in a situation of selling knowledge, then money is the driving force. We note that the differences between knowledge distribution and a similar distribution process, information distribution, here become apparent. If the purpose for distributing knowledge is to promote learning, then information distribution within an organization, an essential part of the organization's information processing, is done in order to reduce uncertainty and resolve ambiguity (Daft and Lengel 1986).

Organizational learning, according to Huber (1991), is based or constituted of four different learning-related constructs: knowledge acquisition, knowledge distribution, information interpretation, and organizational memory. Knowledge acquisition is the process by which knowledge is obtained. Information distribution is the process by which information from different sources is shared and thereby leads to new information or understanding. Information interpretation is the process by which distributed information is given one or more commonly understood interpretations, i.e. information is given meaning, events translated, and shared understanding is developed. Organizational memory is the means by which knowledge is stored for future use, whether they are computer supported databases, standard operating procedures and routines, or the minds of the members of the organization, and whether the information or knowledge is hard or soft.

When trying to characterize the different knowledge distribution means one may look on the different levels the knowledge distribution means can be interpreted from. Lundberg (1999) describe three different levels of a knowledge system (basically a social system interacting with artifacts such as computer-based information systems or paper-represented information) can be interpreted from. These levels are:

- The knowledge level, referring to the knowledge content, the ideas conveyed, and the knowledge processes of a system.
- The representation level, referring to the representation systems used in the knowledge system, such as the languages and other representational forms employed in the system.
- The technical level, referring to the media and artifacts that is used to convey the knowledge in the systems.

These levels of interpretation are also appropriate when it comes to describing and characterizing the different knowledge distribution means. One may look on them from a technical level, (discussing issues such as e.g. the media used for conveying the knowledge), a representation level, (discussing issues such as e.g. language and structure), or from a knowledge level, (discussing issues concerning aspects of content and processes supported).

We have then brought together the constructs of organizational learning from Huber (1991) and the levels of the knowledge system (Lundberg 1999) to form a framework within which we have identified concepts, theories, and features with which we may study, interpret, and characterize the different distribution means from, see figure 1.
Constructs of organizational learning | Levels of the knowledge system
---|---
**Knowledge acquisition** | Technical | Representational | Knowledge
**Knowledge interpretation** | Media richness [3, 9], and Interactivity [4, 11] | Genre [6], Communication context [10], AST [12], Shared frames [2, 3], Interactivity [4, 7], and Feedback [7, 9] | Matching [1], and Genre [6]
**Organizational memory** | Retention media/bins [2, 13], Media bindingness [8], and Indexability [1, 3, 14] | Genre [6], Best practice (problem-solution) [1], and Decision stimulus and organizational response [2] | Updating and maintenance [1, 13, 14], Storage, retrieval, and retention [2, 13, 14], and Genre [6]

[8] Innis 1972 and Ong 1982
[12] Poole and DeSanctis 1990
[14] Stein and Zwass 1995

Figure 1. The theoretical framework with identified concepts and features.

Each of the different constructs of organizational learning may be interpreted or studied from technical, representational, and knowledge level. At the technical level each constructs is related to issues concerning technical aspects such as physical artifacts, e.g. hardware, and their capacities or limits. At the representational level they are related to issues of structural aspects such as e.g. form and substance, and language. Lastly, at the knowledge level each of the constructs is related to issues concerning processes and content, such as e.g. adoption and contribution of knowledge (Goodman and Darr 1998).

In order characterize the distribution means we have identified theories and concepts within the framework that we have found relevant, see figure 1. They were grouped into those relating media choice and use, theories relating to structure and context for knowledge distribution, and theories on knowledge content and knowledge processes. Media choice deals with how individuals choose medium or means for contributing or adopting knowledge, as Goodman and Darr (1998) point out, when one or more are available. Poole and Jackson (1993) and Rudy (1996) has identified the following theories as relevant when discussing media choice and effects of media choice: information richness (Daft and Lengel 1986), social influence (Rudy 1996), social presence (Rice 1984, and Trevino, Daft, and Lengel 1990), symbolic meaning (Rice 1984, and Trevino, Daft, and Lengel 1990), critical mass (Markus 1990), interactivity (Zack 1993), and bindingness (Ong 1982 and Inmis 1972).

We also looked at the theory of adaptive structuration (Poole and DeSanctis 1990), as it is an important theory in explaining behaviourist aspect behind the choice as well as use of media for distribution. Theories relating to structure and context for knowledge distribution refers to the substance and form of knowledge distribution means such as the concept of genre from Yates and Orlikowski (1992), different communication contexts wherein knowledge is distributed (Tubbs and Moss 1994), and drawing on Goffman (1981) and Zack (1993) the concepts of feedback and interactivity in the communication process. Theories on knowledge content and knowledge processes deals with characteristics of distribution means that either facilitate the knowledge creation process (Nonaka and Takeuchi 1995), i.e. learning or sharing; or help reducing or overcoming inhibitors to the knowledge distribution, adopting and contributing knowledge, related to organizational learning (Goodman and Darr 1998).
3. Identified knowledge distribution means

Here we present the identified computer mediated knowledge distribution means and describe them. The aim and criterion for identifying different knowledge distribution means has been to identify those that represent a broad variety of knowledge distribution means, ranging from media related to process related, and representing unique aspects of the knowledge distribution. The criterion for selecting has been that the means should have at least some "critical mass" of usage, i.e. have a fairly broad scope of usage. They should thus not be totally new and alien but be recognized and accepted within the consciousness of individuals who distribute knowledge. This last criterion was met by investigating public and popular sites on the Internet supporting professional activities such as development and research, e.g. Microsoft® and CNET amongst many others.

3.1 FAQ

FAQ (frequently asked questions) is a way of distributing knowledge to a community of knowledge workers within a specific area/field. FAQ consists of a typical standardized question that a knowledge worker may raise, coupled then with a following passage of text describing the solution/answer to the raised question, i.e. problem-solution. Both the question and the solution are given in free text, in a narrative form (experiencing some degree of formal structure and language), although using those technical terms that the knowledge community uses, thereby demanding more than a brief acquaintance with the knowledge domain. The type of knowledge is practical know-how knowledge in explicit form and is meant to give pragmatic solutions to real problems. Often there may be given several different FAQs within a specific area in order to cover as many different aspects as possible of the area/field. The FAQ given are not meant to give answer to every possible problem or question that might arise but to give general guidelines that will give enough knowledge for the reader to further draw his/her own conclusions and provoke a learning process. Although the knowledge of the FAQ or of the collection of FAQs may be expressed in different forms when comparing different ones, they share a couple of features that makes them distinct:

- They are always expressed as a general and common question coupled with an answer.
- They are created by the experts within the field/area and are directed towards the knowledge worker within the field/area.
- They are looked-up, matching the questions or problems of the individual with the general and common questions of the FAQ, in search for the answer or solution.
- They are always explicit know-how knowledge and the receiver is meant to internalize the knowledge, convert it to tacit form through comprehending it.

The FAQs are very common in accompanying products that require knowledge to use, such as programming and system development environments.

3.2 Success or failure stories

A success or failure story is another way to disseminate know-how or experience-based knowledge in an explicit way, although in narrative form allowing very varied language. A success story is a narration describing how someone went about in achieving a specific goal. The success story may therefore serve us as a good example to us when we try to achieve similar goals. This is learning from the experience of others, the practical know-how knowledge. The language of the case descriptions is the individuals' own and does not belong to the terminology of the elite expert group within the knowledge domain. There exist no obvious structure of the expressed knowledge, such as the one of FAQ. The stories are structured in order to allow browsing through them, but can be indexed and categorized, according to problem areas/domains, in order to allow for a more effective search and retrieval. The opposite of a success story is a failure story. At first one may argue against the usage of
these because who is interested in failures. However, they are of equal importance when conveying practical know-how. They contain the wisdom of what not to do or describing the circumstances when an, otherwise successful, action might fail. The failure stories share exactly the same characteristics as the successful ones.

3.3 Step by step

Step by step or how-to stories tries to give good examples of how to go about in accomplishing something. They are often written with the intention of being pedagogical and represent typical know-how knowledge represented in a strict clear language without lengthy technical explanations and burdening technical terms that require thorough definitions. Knowledge distributed is typical know-how and presented in a language structured often from a pedagogical angle. The structure of the knowledge is made into steps. For every step taken the knowledge base of the individual is augmented, i.e. an incremental process of learning, and the previously learned is often exemplified, thus becoming more embedded within the individual. Typically these kinds of knowledge repositories accompanies development products, this in order to get the individual on the correct track as fast as possible. There is an underlying pedagogical intention of fostering the individual into a "good tradition", ensuring that all individuals taking part of this knowledge learns a common way to express themselves and how to think about similar problems, thus having formed a knowledge community of some sort. Step-by-step or how-to stories are for example those tutorials or educational programs that are offered by Sun Microsystems through the Java Developer Connection, and Microsoft®.

3.4 Reviews

Another way to seek or distribute knowledge is through review or evaluations. The reviews are statements by some alleged expert or authority on a subject within a specific knowledge field and are typically concerned with some product, book, or service. Individuals seek out these reviews or evaluations because it is just too time-consuming or bone tiring to earn the wisdom through brute experience. One seeks an overview of something presented in a compact format, presented by an expert, an individual or an organization, or what we hope is an authority of some sort. If the seekers are e.g. looking for reviews concerned with a group of products, they want to find some set of criteria on which these products have been evaluated or compared so that they can form their own opinion.

The knowledge given is know-why type of knowledge since most reviews base their argumentation on understanding the underlying facts. The review or evaluations are often located with the "expert in the field". Knowledge seekers locate these stores and browse through them. This demands that the individual wanting to take part of a review or evaluation must at least be able to locate these stores and that the content of them are somewhat known. Knowledge presented has no specific structure except for the topic-centered structure. The language used is not formal but the technical level of terminology, which belongs to the "authority", tries to match that of the broad audience.

3.5 Subscriptions

This way of distributing knowledge sets itself apart from the other ones. To subscribe to something means that you have registered, at the source of the information or the knowledge distribution, the needs you have. Typically we think of e-mail subscriptions in form of mailing lists that we subscribe to. However equally common is it to register yourself with a vendor whenever you bought something and receive upgrade information or other product information. Here you have to let others take part of your needs and let them play the active part of supplying knowledge to you whenever something that matches your needs can be found. The mode of knowledge acquisition is here a typical pushing. Knowledge is pushed on someone by another one who knows the first one's needs. The process here is a directed distribution process towards selected receivers, based on their explicit made and shared needs. This is opposed to the other distributing means where the individuals must take an active part,
i.e. the individuals must of course know his/her own needs and make the effort of looking up the knowledge or pulling it from the source.

3.6 Bulletin boards

These are nothing more than a public location where an individual may go and post something that he/she thinks others should take part of. On the other hand the individual can visit the location and browse through what others have posted there to see if something interesting shows up. Messages can be read many times as there often is no news control. The search for knowledge can either be a search for something specific according to one's needs or just an idle browsing. Bulletin boards are not totally unstructured but may be divided into different categories, thus making browsing more feasible. A public bulletin board would be too unrestricted to be really useful if one searches for something specific. There would be just too much non-relevant stuff. However, the restricted use of one within a specific knowledge community ensure that the members visiting the board knows roughly what it's content will be. Weather to consider bulletin boards as a medium or means for other knowledge distribution means or as a knowledge distribution means on its own might be difficult to discern. On one hand a bulletin board offers a public "meeting" place, enabling people to exchange knowledge or information of any kind. As such it may act as a medium or means for the other types of distribution means. On the other hand bulletin boards may be regarded as distribution means on its own since members of a specific knowledge community utilizing the board both for disseminating and retrieving knowledge comes to create a common knowledge store, albeit a bit unstructured.

3.7 Discussion groups

This knowledge distribution means distinguishes itself from the previous ones by introducing the dialog as a communication model for the knowledge exchange. Discussion groups are typically structured to be concerned with a specific problem area. The individuals taking part in the discussion group usually raise different issues concerning the problem and reply to each other (they may even make replies to the replies and in some sense form sub-issues). Messages posted in a discussion group are made accessible to all the participants. Different aspects of an issue together with the replies constitute the collective knowledge of the participants regarding a specific issue. The conversation, which is a series of messages that are directly or indirectly replies to each other, form a tree-structure or a web if a reply is allowed to address several issues. Usually the discussion group is intended for reaching a common understanding or debating an issue, equalizing the individuals anxiety and expectations, of that specific issue. The discussion groups are not public in the sense that bulletin boards are. The discussion groups can either be open, where participants can enter on whim, or private in the sense that the individuals have to be invited to the discussion group in order to take part of it, i.e. there is a control on who may participate. Due to the inherent structure of issues and replies, following an on going discussion is rather easy even if a participant is invited in the middle of the discussion. There is usually a storage facility coupled with the discussion group that enables new participants to follow up on what has been discussed before. Discussion groups usually have some sort of news control mechanism that keeps track of where the participant is in the conversation, which messages are read by whom, and which the participant has yet to read. Examples of discussion groups are news groups, conference systems, and similar.
4. Characterization of the distribution means

Having identified concepts and theories, which may be used in exploring the different interpretive levels of organizational learning, we have arrived at framework that give us a workable foundation for identifying the characteristics we will use when analyzing the different knowledge distribution means.

The three different levels of interpretation yield three views of the distribution means. At the technical level we have characterized the knowledge distribution means as shown below in figure 2.

<table>
<thead>
<tr>
<th>Characteristics Means</th>
<th>Indexability</th>
<th>Cues</th>
<th>Language variety</th>
<th>Feedback and interactivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>FAQ</td>
<td>Yes</td>
<td>Low</td>
<td>Medium (strict structure)</td>
<td>Low</td>
</tr>
<tr>
<td>Success/failure stories</td>
<td>Yes</td>
<td>Low (linguistic features only)</td>
<td>Rich</td>
<td>Low</td>
</tr>
<tr>
<td>Reviews</td>
<td>Yes</td>
<td>Low</td>
<td>Medium (strict language)</td>
<td>Low</td>
</tr>
<tr>
<td>Step by step</td>
<td>Yes</td>
<td>Low</td>
<td>Medium (strict language and structure)</td>
<td>Low</td>
</tr>
<tr>
<td>Subscriptions</td>
<td>N/A</td>
<td>Low</td>
<td>Medium to rich (some strict language)</td>
<td>Low to medium</td>
</tr>
<tr>
<td>Bulletin boards</td>
<td>Yes</td>
<td>Medium (linguistic features and number of responses)</td>
<td>Rich</td>
<td>Medium</td>
</tr>
<tr>
<td>Discussion groups</td>
<td>Yes</td>
<td>Medium (linguistic features, number of responses, and rapidity of response)</td>
<td>Rich</td>
<td>High</td>
</tr>
</tbody>
</table>

Figure 2. Characteristics related to the technical level.

Here indexability refers to the extent to which the knowledge is searchable and retrievable by other means than just browsing. From the theory of media richness (Daft and Lengel 1986), which relates to the capacity of the media for conveying shared understanding through distribution and interpretation of knowledge (Huber 1991), we adopt the characteristics of capacity for cues, language variety, and feedback. Cue capacity is the capacity of the media for transmitting different types of cues as defined by Daft and Lengel (1986). Language variety is the capacity of the media for conveying rich language instead of just numbers. Huber (1991), Goffman (1981), Rogers and Agarwala-Rogers (1976), and Daft and Lengel (1986) all examine the concept of feedback but from slightly different aspects and angles. Feedback concerns the capacity of the media used for distributing knowledge and to give immediate feedback (response from the receiver and proof of that the knowledge has been properly received and understood). Huber (1991), Goffman (1981), Rogers and Agarwala-Rogers (1976), and Daft and Lengel (1986) all examine the concept of feedback but from slightly different aspects and angles. Feedback at the technical level is an important characteristic for establishing shared understanding and enhancing learning. Interactivity, coming from Zack (1993) and Rice (1987), refers to the extent media support it in promoting shared understanding among those involved in the knowledge distribution, and bindingness refers to the extent media may bind or capture knowledge into more permanent records as opposed to oral communication in a face-to-face situation as defined by Innis (1972) and Ong (1982).

At the representational level we have characterized the knowledge distribution means as shown below in figure 3.
<table>
<thead>
<tr>
<th>Characteristics Means</th>
<th>Language</th>
<th>Structure</th>
<th>Communication context</th>
<th>Degree of interactivity or feedback</th>
</tr>
</thead>
<tbody>
<tr>
<td>FAQ</td>
<td>Technical and strict</td>
<td>Answer-question</td>
<td>One-to-many</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Stimulus-response</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Problem-solution</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Success/failure stories</td>
<td>Jargon and domain specific</td>
<td>Scenario or problem centered</td>
<td>One-to-many</td>
<td>None</td>
</tr>
<tr>
<td>Reviews</td>
<td>Pedagogical and broad and general</td>
<td>Topic centered</td>
<td>One-to-many</td>
<td>None</td>
</tr>
<tr>
<td>Step by step</td>
<td>Pedagogical and strict</td>
<td>Topic centered and criteria oriented</td>
<td>One-to-many</td>
<td>None</td>
</tr>
<tr>
<td>Subscriptions</td>
<td>Technical and domain specific</td>
<td>Topic centered</td>
<td>One-to-many</td>
<td>Can quit subscription</td>
</tr>
<tr>
<td>Bulletin boards</td>
<td>Any</td>
<td>Topic centered</td>
<td>Many-to-many</td>
<td>May post response</td>
</tr>
<tr>
<td>Discussion groups</td>
<td>Jargon, expert, and domain specific</td>
<td>Topic centered in a web or hierarchical</td>
<td>Few-to-few</td>
<td>Dialog process</td>
</tr>
</tbody>
</table>

Figure 3. Characteristics related to the representational level.

From the concept of genre (Yates and Orlikowski 1992) we get form, generated from recurrent situations of the knowledge distribution means. It deals with both the structure and language of the knowledge distribution means, i.e. the language used for representing knowledge and at the interpretive level conveying shared understanding, and the structure the distributed knowledge has or the structure of the knowledge distribution means. Structure refers not only to the structure as such but also to procedures, rules and norms for distributing knowledge. Common views of knowledge (in the form of common ways of structuring it and handling it as dictated by norms and rules) are important for the interpretation of knowledge because they facilitate the formulation of knowledge when contributing and the matching when adopting (Goodman and Darr 1998). Communication context refers to the type of communication context (Tubbs and Moss 1994) that the knowledge distribution means is situated in or related to. Communication context is one factor that affects the frames that individuals use for interpreting knowledge, which Huber (1991) among others discuss. Degree of interactivity and feedback, referring to the degree of interactivity, as both Zack (1993) and Goffman (1981) has defined it, and degree of feedback, such as Goffman (1981) talks about it, in the communication process that is supported by the knowledge distribution means.

Finally, at the knowledge level we have characterized the knowledge distribution means as shown below in figure 4. Here we have identified and used the following characteristics: knowledge transformation process, as adopted from Nonaka and Takeuchi (1995); distribution mode, coming from Angus and Patel (1998) who identified pushing as an activity related to knowledge distribution and pulling from information sources as an activity related to knowledge acquisition, but knowledge distribution mode could also be regarded in terms of adoption and contribution (Goodman and Darr 1998); acquisition mode, referring to the different ways of acquiring knowledge (c.f. Huber 1991 and Wijnhoven 1998); substance, adopted from the concept of genre (Yates and Orlikowski 1992) referring to the content of recurrent distribution means; and purpose, which underlies the knowledge distribution and transcends that of individual or organizational learning, and increasing the effectiveness of the organization as a whole.
<table>
<thead>
<tr>
<th>Characteristics Means</th>
<th>Knowledge transformation</th>
<th>Distribution mode</th>
<th>Acquisition mode</th>
<th>Substance</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>FAQ</td>
<td>Internalization</td>
<td>Active pulling (adopting)</td>
<td>Viciarous</td>
<td>Know-how or know-why Best practice</td>
<td>Service and problem solving</td>
</tr>
<tr>
<td>Success/failure stories</td>
<td>Internalization-externalization</td>
<td>Active pulling (adopting or contributing)</td>
<td>Viciarous or experimental</td>
<td>Know-how Problem scenario</td>
<td>Service and problem solving or idea generating</td>
</tr>
<tr>
<td>Reviews</td>
<td>Internalization</td>
<td>Active pulling (adopting)</td>
<td>Viciarous</td>
<td>Know-why Evaluation oriented</td>
<td>Service or commercial</td>
</tr>
<tr>
<td>Step by step</td>
<td>Internalization</td>
<td>Active pulling (adopting)</td>
<td>Experimental</td>
<td>Know-how Educational</td>
<td>Pedagogical or educational</td>
</tr>
<tr>
<td>Subscriptions</td>
<td>Internalization</td>
<td>Pushing</td>
<td>Viciarous</td>
<td>Know-how or know-why Any type</td>
<td>Service</td>
</tr>
<tr>
<td>Bulletin boards</td>
<td>Internalization-externalization</td>
<td>Active pulling (adopting)</td>
<td>Viciarous</td>
<td>Know-how or know-why Any type</td>
<td>Service</td>
</tr>
<tr>
<td>Discussion groups</td>
<td>Internalization-externalization-socialization</td>
<td>Active pulling (adopting)</td>
<td>Viciarous</td>
<td>Know-how or know-why Any type</td>
<td>Problem-solving, idea generating, pedagogical or educational</td>
</tr>
</tbody>
</table>

Figure 4. Characteristics related to the knowledge level.

5. Conclusions

There are two main conclusions that we derived from our study. The first one is that knowledge distribution is not an isolated phenomenon and need to be framed within a wider context such as organizational learning. We base this conclusion on the fact that we have found that it is difficult to study knowledge distribution means in isolation without touching on the other aspects or constructs of organizational learning, such as the knowledge acquisition, knowledge interpretation, and organizational memory. It may be due to that these are all integrated aspects of the organizational learning as Huber (1991) has defined it. Issues concerning the interpretation are intertwined with the distribution, which is reflected through our characterization. The same holds true for the other constructs. These do not occur as separate activities or entities within the frame of organizational learning. Therefore many of the characteristics that are identified and used also concerns these as well. However we do not regard this to be a problem or limit in our study. Quite the opposite, it contributes to a better understanding and richer picture of the different knowledge distribution means.

It is no secret that individuals distribute knowledge in order to promote learning and as we have seen organizational learning involves many integrated activities and aspects. Therefore it is only natural that our characterization has come to reflect these as well. Knowledge distribution is not an isolated phenomenon since it touches too much on other related phenomena such as knowledge interpretation, retention (organizational memory), and acquisition.

The importance of an organizational memory becomes apparent when one notes that many of the presented knowledge distribution means deals with a knowledge acquisition process directed towards learning from the experience of others, i.e. vicarious learning (Chew, Leonard-Barton, and Bohn 1991). It seems to be far easier to learn from the mistakes or experience of others than to reinvent the wheel, even though the danger of this type of knowledge acquisition is that knowledge may lack universal validity (Wijnhoven 1998). If this type of learning is to be effective then the knowledge, the experiences of others, must be retained in some form of organizational memory if it is to be made available to other members of the organization. Thus we once more must emphasize and draw the
conclusion that knowledge distribution as an activity cannot be studied separately but must be studied in a wider context such as the organizational learning as Huber (1991) has discussed.

The second conclusion is that the concept of genre is not only fruitful but an important concept to explore when studying, analyzing, or developing means for knowledge distribution. This conclusion is based on that the different knowledge distribution means that we have identified seem to represent each a category of specific types of distribution means. However, the comparative analysis has shown us that even though we see distinct features of both substance and form that suits generic activities or situations of knowledge distribution we cannot say that they are solely designed for a specific purpose alone. Each of the identified distribution means does not represent a specific category of distribution means that would be best for a specific type of knowledge distribution. We may only state that it seems that some are more appropriate for a specific task than others, e.g. discussion groups seems more suited for knowledge exchange occurring in teams and FAQ seems more suited for distribution of knowledge related to problem-solution situations. However, the characterization has shown us that we may talk about genre of recurrent knowledge distribution means. Here the concept of genre (Yates and Orlikowski 1992) suits us very well and we may talk about recurrent situations of knowledge distribution yielding what could be considered as a specific genre of knowledge distribution that have the same substance and form.

Through the characterization we have seen that the different knowledge distribution means seem to exhibit properties that are similar to the properties of a genre. There seems to be possibilities for identifying recurrent distribution means and to talk about genres of organizational knowledge distribution. The FAQ is one such instance of a genre of knowledge distribution. Whatever the actually content of the FAQ is they all seem to be exhibiting the same form and substance, i.e. the structure and content of question-answer or problem-solution pairs, and therefore we may say that the FAQ is indeed one genre of knowledge distribution. Clearly related to the FAQ is the "best practices" of Goodman and Darr (1998) since they exhibit the same form and substance. However both the FAQ and "best practices" may also be regarded as sub-genres (Yates and Orlikowski 1992) that inherits both the substance and form from what we call a "problem-solution" genre. Thus the concept of genre (Yates and Orlikowski 1991) is not only fruitful but an important concept to explore when studying, analyzing, or developing means for knowledge distribution. The concept of genres of knowledge distribution serves as a foundation for understanding and establishing shared frames of interpretations.

The concept of genre is indeed interesting since it creates possibilities for a shared context wherein the adoption and contribution processes of knowledge (Goodman and Darr 1998) are facilitated by giving common platforms for creating understanding, thus facilitating learning. Interesting to explore here is whether we may talk about genres of organizational learning. Is it possible to identify recurrent distribution means within each of the other constructs of organizational learning so that we may talk about genres of knowledge acquisition, knowledge interpretation, and organizational memory?
References


