Finding to Keep and Organize: Personal Information Collections as Context

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INTRODUCTION

Our personal collections of information continue to grow. We keep information because we find it relevant to task at hand, because we foresee its future usefulness, or just because we can do so. The accumulated information however is not only valuable for its own sake. It can be useful in on-going information finding.

This paper proposes to look at personal information collections as *context* for information finding, keeping and organizing. It is suggested that personal information collections contain information that could be useful in these information activities.

MOTIVATION

An individual can be thought of as moving in-between public and personal space of information (Figure 1). The public information spaces consist of all information resources and channels out there. The personal information space contains information collected by the individual. It can contain many personal information collections.

These information spaces influence each other. Frequently however they are not considered in relation to each other. Models of information seeking from information science [11] typically focus on interaction of individual searchers with public information resources and ignore information keeping and personal information spaces.

The emerging models of PIM [5] include information activities in both public information spaces and personal spaces. However, public and personal spaces of information are either considered separately or lumped together, when they are viewed through the lens of common information activities (such as re-finding).

There is a need for a perspective that considers relations between external and internal information spaces.

RECONSIDERING INFORMATION FINDING, KEEPING, AND ORGANIZATION

The position taken here is in the spirit of external cognition, in which human cognitive processes are viewed as shaped and supported not only by what's in the head, but also by external artifacts. That is, an individual uses external resources to support his/her cognition [8] [9].

We seek and keep information to bridge the gap between what information we have (and know) and what we need to have (and know) [10]. The gap is shaped by the state of our knowledge, by what we need, by what we anticipate we will need, but also by what we have in our personal information collections.

The need to seek information in public spaces should be considered by us in the context of what we already have in our personal information collections.

The process of finding and encountering (new) information involves constant evaluation of this information with respect to current information needs, but also with respect to anticipated information needs [1]. The relevancy to our needs can be informed by the content and structure of our information collections.

As discussed by Jones et al. [4] [5], once the information is deemed worth keeping, we need to decide where and how to keep it. Here again the content and structure of our information collections informs how we organize new information.

These processes can be facilitated by accessing personal space of information to answer several types of questions (based on [6]), such as: do I need this information? is this information relevant? what do I need it for? when do I need it? what project (activity) do I need it for? if I need it, do I need to keep it? how do I keep it? do I already have it? and where? how long would I need it for? do I need to continue looking for more information? do I have enough information now? how much of the information item to keep? what is the relation to the information I already have? if I keep it, how does it affect what I already have? will keeping this info, affect current structure of my personal space of information? how do I keep it to be able to find it later? These are just few examples of questions one might possibly ask of his/her personal space of information.

Finding, keeping, and organizing information in public spaces can benefit from accessing personal space. In general, personal information collections can play a role in :

- shaping information needs
- determining organization of retrieved information
- informing keeping decision
    - why to keep the new information

- influencing relationships with new information
    - where to keep the new information
    - how to categorize the new information

Scenario

Let's illustrate how a person may be moving between the two information spaces, the public and the personal.

Jane is preparing a grant proposal to be submitted to a private funding agency. Her personal information collection contains papers written by her, as well as relevant papers written by others.

She starts by creating a folder for materials related to this grant. The new folder is parallel in the hierarchy to other folders where she stores information related to her grant activities.

She searches for the call for proposals (CFP) on the funding agency's website. As she reads the proposal, she looks for key phrases. She selects some and saves these phrases into a new text file, which she creates in the folder dedicated to this grant. She will use this file later to remind herself to use similar wording in her proposal.

After she is done reading, she gets an idea how she might extend her research and fit into this CFP. She now has to check state-of-the-art in the research direction she plans to pursue. She examines the folder where she keeps related papers. She finds the names of the three most important authors who worked on related projects in the past. Next she goes to her favorite search engine and looks up their web pages and checks what these researchers have been working on recently. She looks for new project descriptions and publications. She retrieves full text of the recent articles and saves them into the "related-papers" folder structure on her laptop, so that she can continue reading while she is on the plane next day.

She notices that one of the articles cites a dissertation by an unknown person. The title looks quite similar to what she thought of proposing to the agency. She then searches for the department, where the Ph.D. thesis was completed. The student does not have a web page anymore. Jane finds however that an old colleague of hers is now on the faculty. She emails him right away, asking for help in getting the dissertation's copy, preferably in a digital format.

This is only a partial account of activities that may go into preparation of a grant proposal. This short example shows a few different roles that information stored in personal collections can play as context for searching and organizing new information.

ROLES OF INFORMATION COLLECTIONS AS CONTEXT

Jane's need to find the latest work in her research area is translated into extracting the names of renowned authors from papers stored in her information collection. The selected names help to express and refine the information need by becoming part of search queries. The context

provided by these names also serves to establish authority of the retrieved information sources. In a similar way, dissertation cited in one of the newly found articles provides context for further information search

The existing structure of personal folder system provides context in two ways. It provides context for extending the structure, since it indicates where a new element can be added to the structure – the folder for keeping information related to the new grant. The existing structure also characterizes a possible relationship between the new and existing information in that it suggests a folder into which the newly found information can be saved – the new relevant papers.

In the latter cases, context is provided (more or less) explicitly by the structure existing in the personal space of information. In the former cases, context is implicit. It is embedded in the collected information. Interpretation of this information and its use in shaping the search process is situated in the current task of a person.

Personal information collections as context can play several distinct roles. Gwizdka [3] categorized roles of context (in a sense of input to an information processing system) into four classes:

1. Context as additional input;
2. Context that modifies input;
3. Context in the user-system feedback loop;
4. Context as trigger.

Let's look at examples from PIM that illustrate these four types of context. The author names, in the above scenario, played a role of context as an additional input into the search process. Search that is sensitive to the content of information collection is an example of context that modifies input. For instance, such search could retrieve only those documents that do not yet exist in the personal space. Making use of structure embedded in the personal space of information to group public information search results and to suggest a folder in which these results could be stored (as in the above scenario) are examples of context in the user-system feedback loop. Information from personal collections can remind us of an information need and thus trigger an information search action. This is an example of context that acts as a trigger.

These four classes of context help to view person's actions in a systematic manner. They are not exhaustive and as PIM activities become better understood their list will likely be extended.

CONCLUSIONS

Personal space of information can provide useful kinds of context for finding information in public spaces and for keeping and organizing the found information. While there are systems that make use of personal information collections as context, the potential is not yet fully utilized by current tools and technology. One difficulty in the use of

personal information collections as context is the situated nature of their use. A suitable context cannot always be easily extracted by an information system, hence the mixed-initiative systems [3] could be the right approach here.

This position paper aimed to suggest personal information collections as context as a perspective on PIM behavior. Such approach can help in systematizing our understanding of individuals engaging in PIM activities and of rationale lying behind these activities. It can also inform the design of new PIM systems and tools.

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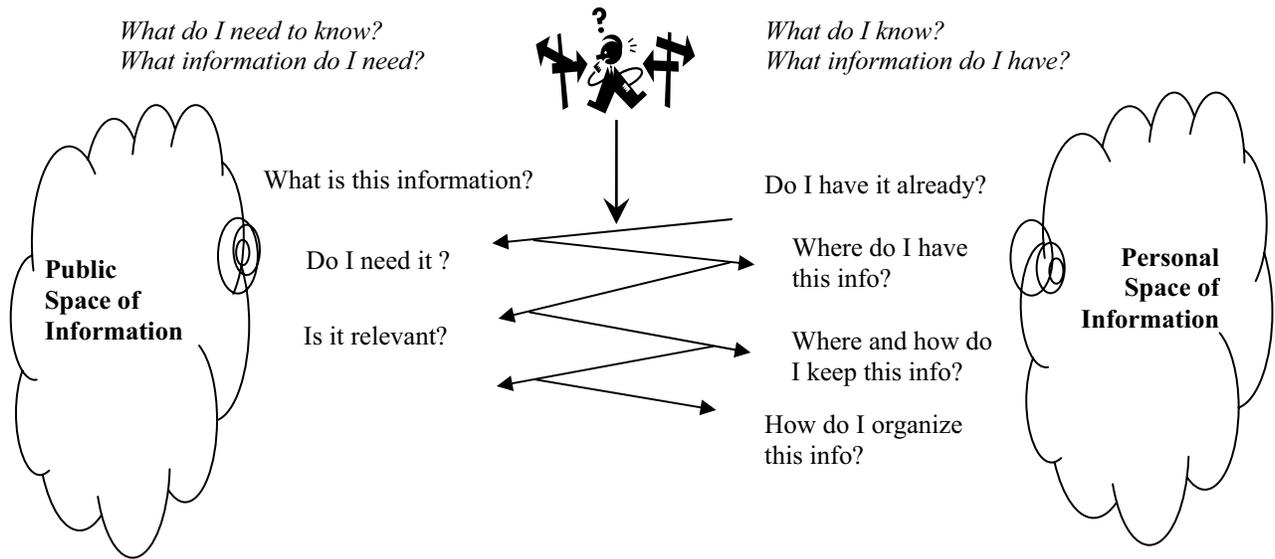
Figure 1. An individual moving between public and personal spaces of information.