Collaboration and Personal Information Management (PIM)

Ina Fourie
Department of Information Science, University of Pretoria, Pretoria, South Africa

Abstract

Purpose – The column explores the potential of personal information management (PIM) and reference management. This contribution focuses on collaboration: the issues that need to be addressed in planning, the human component in collaborative information seeking, and issues for research by librarians.

Design/methodology/approach – The column is written against the background of research from information behaviour, PIM, collaborative information seeking and collaborative work.

Findings – There is growing emphasis on collaboration in information seeking, learning and work. PIM and reference management practices and their supporting software can greatly support this. There are, however, many planning / conceptual issues as well as the human component to recon with.

Originality/value – Although much has been published on developments in PIM and reference management, there is limited coverage of collaboration and PIM and reference management.

Keywords – Collaboration, Computer software, Information, Information seeking, Information management

1. Introduction

In previous contributions Fourie (2011a, b, c) sets the tone for the importance of exploring the use of personal information management (PIM) and reference management and the role of librarians, as well as the use of alerts and mind maps in this regard. Although touching on the need for collaboration, it is now time to explore collaboration and its complexities in more detail.

This contribution will focus on collaboration and PIM and reference management: the features and support offered by software, the human component in collaborative information seeking, work and learning, the pitfalls, and issues for research. For purposes of convenience I will mostly refer only to PIM where PIM can include the use of reference management software such as EndNote, RefWorks or Reference Manager, and where there can be one or multiple databases at stake. The discussion is offered against the ideal of PIM: "... that we always have the right information in the right place, in the right form, and of sufficient completeness and quality to meet our current needs" (Jones 2007:453). In the same vein there is the ideal of collaboration and the benefits it will bring: "Scientific collaboration continues to increase in importance because it can uniquely address complex, critical problems" (Sonnenwald 2007:672). "It has the potential to solve complex scientific problems and promote various political, economic, and social agendas, such as democracy sustainable development, and cultural understanding and integration" (Sonnenwald 2007:643).

Both PIM and collaboration, including collaborative information seeking, however, brings with them their own complexities, intricacies, stumbling blocks, frustrations, uncertainties, etc. These are adequately discussed in many scholarly manuscripts – although these are often still (as can be expected) – marked by their search for answers and solutions. (Finholt 2002; Foster 2006, 2010; Jones, 2007, 2008; Jones and Teevan 2007; Hansen and Järvelin 2005; Prekop 2002; Sonnenwald 2007; Whitaker 2011). There are many more texts that can be consulted and cited to ensure that librarians taking on the challenges of collaborative information seeking in addition to the challenges of PIM have some idea of what they are letting themselves in for. On the other hand if not getting actively involved and experimenting, the great ideas and suggestions from such publications may stay theoretical. Technology may improve and offer more opportunities for instant access e.g. through tablets or interaction through many social networks, systems for collaborative writing, or opportunities to stay in touch, but our information practices (Savolainen 2005) and information behaviour (Wilson 2000) and productivity and creativity may stay more or less the same. We will not truly benefit from the "wisdom of crowds". From the literature on collaborative information seeking, it is also clear that a wider spectrum of topics need to be covered such as collaborative information retrieval (Karamuftuoglu 1998), communities of practice, virtual communities and virtual learning environments (Ellis, Oldridge & Vasconcelos 2003), tasked-based information seeking (Vakkari 2003), collaborative information behaviour in large groups (Richter, Bray & Dutton 2010), information seeking in order to produce information (Hirsh & Dinkelacker 2004), group communication theory and research (Frey 1999), social intelligence (Cronin & Davenport 1993), collaboratories (Finholt 2002), workplace studies and technological change (Garcia *et al* 2006), the importance of trust (Marsh & Dibben 2003), scholarship and disciplinary practices (Palmer & Cragin 2008), collaborative tagging (Hunter 2009) – and the realities of emotion and affect (Nahl 2007). The latter is raising interest in studies of information behaviour but not necessarily with regard to collaboration (Nahl & Bilal 2007). These are but a few of the related fields and topics of interest to study and monitor when seriously taking on a study and practice of collaborative PIM or group information management (GIM) as described by Lutters, Ackerman and Zhou (2007). In fact such a study would justify the use of a PIM system! Especially if noting Sonnenwald's (2007) remark that scientific collaboration need to be studied with insight from a variety of disciplines including Information Science, Psychology, Social Studies of Science, Computer Science, Sociology, Research Policy, Management Science and Philosophy.

2. Clarification of concepts and setting the scenario

As in previous contributions a widely cited definition of PIM by Jones and Teevan (2007:3) is accepted: "Personal information management or PIM is both the practice and the study of the activities people perform to acquire, organize, maintain, retrieve, use, and control the distribution of information items such as documents (paper-based and digital), Web pages, and email messages for everyday use to complete tasks (work-related and not) and to fulfil a person's various roles (as parent, employee, friend, member of community, etc.) (It does not specifically mention collaboration). In another publication by Jones (2007:453) he also adds the activities of creation and storing.

According to Shah (2010:142): "... collaboration is an active, interactive, and usually a mutually beneficial process". With regard to collaboration there are three issues to consider: collaborative learning, collaborative work and collaborative information seeking/searching. Like with other concepts, many definitions can be found for each in the subject literature, and the final word certainly has not been spoken. For purposes of this paper only collaborative information seeking will be considered in more detail. It can be seen as a field of study or as a process. Foster (2006:330) explains: "Depending on the discipline, a definition may emphasize information handling, search and retrieval, interaction, or the seeking and retrieving of information in support of collaborative work tasks".... He continues to define

collaborative information seeking as "...the study of the systems and practices that enable individuals to collaborate during the seeking, searching, and retrieval of information" (Foster 2006:330). As a process it would include amongst other things the selection of information resources, the identification of search terms, the formulation of search strategies, assessment of the relevance of entities, the selection and finding of entities, repeating searches, information monitoring and subscribing to alerting services – to name but a few. Technology has eased collaboration in terms of PIM, information use and knowledge creation: "People connected by technology enable active examination of data, information sharing, and the creation of new knowledge, permitting teams, groups, and organizations to make more informed decisions" (Reddy, Jansen & Spence 2010:82).To fully benefit from this, a deep and critical look is required on what need to be contributed by each participant and ongoing reflection to ensure improvement.

Collaborative information seeking and shared use of PIM can be ad hoc (e.g. a group of researchers or students working on one or more project), or planned and structured e.g. PIM for a research group, or academic or research department, or a PIM system designed and managed by one person (owner) with the intention to share with others on a "need-to-basis" and with specific intentions according to individual incidents e.g. to support the study of post-graduate students to collaborate on an article or to plan a training intervention.

3. Searching the literature

A quick title search on databases such as ISI Web of Science, Library and Information Science & Technology Abstracts (LISTA), Library and Information Science Abstracts (LISA), ACM Digital Library, and Google Scholar revealed limited coverage of collaboration (using search terms such as *collaborative*, *collaboration*, *cooperative*) in combination with *PIM*, *personal information management* and *reference management*. The same applies when searching for *group information management* or *GIM*. Although there is an extensive body of related literature as can be seen from the list of reference, there is thus considerable scope for librarians to get involved in studies of a practical and eventually also more theoretical nature. Some of the issues at stake are raised in this paper.

4 Issues to consider in collaborative information seeking and PIM

One can collaborate with different people in different contexts and on different projects. One can also collaborate with different groups across different disciplines. This is important in establishing whether more than one PIM system will be needed (e.g. each collaborator maintaining his/her own PIM sharing with different people; such a PIM may include multiple databases) or one PIM with multiple databases that is shared for different reasons with different people.

This section will briefly capture key issues regarding the planning of PIM and collaborative information seeking as well as the need to consider issues flowing from *human* collaboration. For both, the issues addressed are intended as examples only, and not as exhaustive.

4.1 Planning, maintenance and use

• Purpose of PIM and collaboration.PIM can be to the benefit of a once-off project to ensure that it is easy and convenient to create and share a bibliography and references, or it can be to benefit from a long term project that will require the frequent use of references and PIM for different purposes such as contributing to the theory of a field, finding solutions to practical problems or contributing to practice, stimulating innovation, contributing to education and training, doing empirical research or getting involved in community work. Depending on the purpose the use of content fields will differ when preparing references. To support empirical research it would e.g. be important to focus

on research methods, methods of data collection, the sampling of populations to participate and methods of data analysis. As said before, there can be multiple collaboratories – each with a different purpose in mind. Another question related to the purpose: is it only about sharing information as captured in references or also about sharing knowledge and expertise e.g. as captured in annotations? As for the value of annotations and how they can be used, Hunter (2009:187) cites Marshall who observed the following about annotations: "... they may be used to provide procedural signals, as placemarkings to aid memory, to support problem solving, to record interpretive creativity, or to track a reader's attention".

- Frequency of use: how often will the PIM be used? Will it become part of everyday's work routine or only every now and then when writing an article?
- Information resources to search and who will search (e.g. mapping access to information resources of collaborators; complimentary coverage to ensure an as wide as possible scope, is especially useful). People have different search and learning styles as well as experiences, will follow different strategies for the same topics, and will differ in their decisions on the relevance of references and which to include in a PIM. Such decisions may be influenced by perceptions of the tasks at hand (Vakkari 2003:413). Search skills and strategies should be exploited to get the best result and it might be worthwhile to have more than one person searching the same information resources for the same topic. Inconsistency will also apply when more than one person is working on the references and content related fields e.g. annotations, keywords.
- Type of entities to include (e.g. articles, research reports, newspaper clippings, websites).
- Medium that will be used for the PIM e.g. laptop, desktop, tablet, and on the ease of access to the medium.
- Compatibility of software if references and information is shared between different software and different versions of the software, as well as the ease of sharing files e.g. bibliographies or groups of references. The ease of creating groups of references for collaboration with specific people or for specific purposes is also important. (Practical issues regarding PIM and reference management software that impact on collaboration will be considered in the next contribution.)
- Collaboration as focus: will it be an *ad hoc* collaboration on a "when needed bases" or will there be a deliberate effort to improve and monitor the collaboration? In other words, will the collaborative use of a PIM be used to cultivate a culture of collaboration? If it is an ongoing collaboration for joint purposes and objectives it is important to ensure collaboration in the development of the structure (i.e. the fields to use and how), standardisation of the input, and regular and ongoing maintenance. Perhaps role allocation as shown through studies of collaborative information seeking (Prekop 2002) can be considered. Also, who will collaborate on a specific database and how will they collaborate?

4.2.   Human components and issues

There are many issues related to human nature that can impact on collaborative use of PIM and information seeking. There are issues of trust, willingness to share, reliability, thoroughness, personalities, learning styles and experiences. There are also differences in disciplines and scholarly practices that must be understood (Palmer & Cragin 2008). As Cronin (2008:viii-ix) puts it in an introduction to *Annual Review of Information Science and Techonology*: "It behooves us as information scientists to familiarize ourselves with the nature of disciplines and the ways in which different material culture shape knowledge production processes. The texts we handle, physically and virtually, emerge from a rich variety of epistemic cultures; they are imbued with the values and norms of those cultures and both reflect and shape prevailing discursive practices. To understand academic writing it is first necessary to understand the nature of academic disciplines. The doing and the writing

of science are not disjoint activities...". Often, in the end, the use of PIM is for the very purpose of writing and creating new knowledge. As Whitaker (2011:9) explains, it is all about the exploitation of information. "If we cannot successfully exploit the information we preserved, then keeping decisions and management activities would be futile".

4.3 Suggestions for further research

As pointed out earlier collaborative information seeking and thus also collaboration regarding the use of PIM can be studied from various perspectives and disciplines: Information Science, Information Retrieval, Human-Computer Interaction and Computer-Supported Cooperative Work. At the same time it would be influenced by insight, findings and theories from these disciplines. Foster (2006, 20101) report on a variety of studies of collaborative information seeking in academia as well as other industries. In preparing this paper I did not come across any studies specifically from the perspective of LIS or by LIS professionals in attempts to enhance their services and support to users. In addition to the wealth of information offered by the sources in the list of references, I here want to offer suggestions to librarians on a more practical level. Determine
- who in an institution, department, etc is using PIM, which software they are using and for what purpose they are using PIM.
- if they are collaborating with others in using PIM, and if so, with whom, for what purpose and on what bases (*ad hoc* with individuals, long term collaboration with a specific person/group, or both).
- which problems they experience on a practical level as well as conceptual level.
- their wish list: how would they like to use PIM and benefit from it?
- the nature of their information seeking: who is seeking information and who decides what will be added?

Once the nature and scope of PIM and collaborative information seeking practices have been determined, it might be time to move on to studies on interventions such as training and work on the conceptual (mental) models library users may have of PIM and collaborative information seeking.

5 Conclusion

The value of PIM and collaboration each has been well argued. Combining the two holds many benefits as well as frustrations. The collaborative use of PIM must be considered on more than a technical level; it should be aligned with the challenges of scientific collaborations to address complex problems of critical importance. The collaborative use of PIM must be brainstormed; it must become part of everyday life and work practice. "As fresh challenges emerge and introduce new goals for science and as the contexts in which science takes place continue to evolve, new collaboration strategies will be required. The need to discover new strategies and to address the many currently unanswered questions illustrates the importance of continuing and expanding research on scientific collaboration" (Sonnenwald 2007:672). I would like to add collaborative PIM to this.

Although the suggestions for further research is on a very practical level aimed at librarians, I hope they would move on to more theoretical studies such as aligning PIM and collaborative information seeking with task-base information seeking/searching (Vakkari 2003), and focusing on the mutual benefits to be gained (Shah 2010:142). The importance is to develop and cultivate a culture of collaboration and understanding of the issues at stake. This can be aligned to studies on information behaviour (Wilson 2000) and information practice (Savolainen 2005). Along this line it is interesting to note the advice offered by Richter, Bray

and Dutton (2010) arguing for *indirectly* influencing and cultivating desired behaviour and activities that can encourage the expansion of productive networking. They were referring to collaborative information behavior in large groups such as Collaborative Network Organizations (CNOs).

References

Cronin, B. & Davenport, E. (1993), "Social intelligence", *Annual Review of Information Science & Technology*, Vol. 29, pp. 3-44.

Ellis, D., Oldridge, R. & Vasconcelos, A. (2003), "Community and virtual community", *Annual Review of Information Science and Technology,* Vol. 38, pp.145-188.

Finholt, T.A. (2002), "Collaboratories", *Annual Review of Information Science and Technology*, Vol. 36, pp. 73-108.

Foster, J. (2006), "Collaborative information seeking and retrieval", *Annual Review of Information Science and Technology*, Vol. 40, pp. 329-356.

Foster, J. ed. (2010), "*Collaborative information behavior: user engagement and communication sharing*", Hershey, Information Science Reference.

Fourie, I. (2011a), "Librarians alert: how can we exploit what is happening with personal information management (PIM), reference management and related issues? *Library Hi Tech*, Vol. 29 No. 3, pp. 550-556.

Fourie, I. (2011b), "Personal information and reference management: librarians' increasing creativity", *Library Hi Tech*, Vol. 29 No. 2, pp. 387-393.

Fourie, I. (2011c), "Personal information management (PIM), reference management and mind maps – the way to creative librarians?", *Library Hi Tech*, 29(4):764 -771.

Frey, L.R. (ed.) (1999), "*The handbook of group communication theory and research*", Thousand Oaks, CA, Sage.

Garcia, A., Dawes, M.E., Kohne, M.L., Miller, F.M. & Groschwitz, S.F. (2006), "Workplace studies and technological change", *Annual Review of Information Science and Technology*, Vol. 40, pp. 393-437.

Hansen, P. & Järvelin, K. (2005), "Collaborative information retrieval in an information-intensive domain", *Information Processing & Management*, Vol. 41, pp. 1101-1119.

Hirsh, S. & Dinkelacker, J. (2004), "Seeking information in order to produce information: an empirical study at Hewlett Packard Labs", *Journal of the America Society for Information Science and Technology*, Vol. 55 No. 9, pp. 807-817.

Hunter, J. (2009), "Collaborative semantic tagging and annotation systems", *Annual Review of Information Science and Technology*, Vol. 43, pp. 187-240.

Jones, W. (2007), "Personal information management", *Annual Review of Information Science and Technology*, Vol. 41, pp. 453-504.

Jones, W. (2008), "*Keeping found things found*", Elsevier, Amsterdam.

Jones, W. and Teevan, J. eds. (2007). "*Personal information management*", University of Washington Press, Seattle.

Karamuftuoglu, M. (1998). "Collaborative information retrieval: towards a social informatics view of IR interaction", *Journal of the American Society for Information for Information Science*, Vol. 49 No. 12, pp. 1070-1080.

Lutters, W.G., Ackerman, M.S. & Zhou, X. (2007). "Group Information Management", In: *Personal information management*. Edited by. W. Jones & J. Teevan. Seattle: University of Washington Press, pp. 236-248.

Marsh, S. & Dibben, M.R. (2003), "The role of trust in information science and technology", *Annual Review of Information Science and Technology,* Vol. 37, pp. 465-498.

Nahl, D. (2007), "The centrality of the affective in information behavior", In *Information and emotion: the emergent affective paradigm in information behavior research and theory*. Edited by D. Nahl & D. Bilal. Meford, NJ: Information Today (ASIST Monograph Series), p. 3-38.

Nahl, D. & Bilal, D. (2007), "*Information and emotion: the emergent affective paradigm in information behavior research and theory*", Meford, NJ: Information Today (ASIST Monograph Series).

Palmer, C.L. & Cragin, M.H. (2008), "Scholarship and disciplinary practices", *Annual Review of Information Science and Technology,* Vol. 42, pp. 165-212.

Prekop, P. (2002), "A qualitative study of collaborative information seeking", *Journal of Documentation*, Vol. 58, pp. 533-547.

Reddy, M.C., Jansen, B.J. & Spence, P.R. (2010), "Collaborative information behavior: exploring collaboration and coordination during information seeking and retrieval activities", In, Foster, J. ed. *Collaborative information behavior: user engagement and communication sharing*, Hershey, Information Science Reference, pp. 73-88.

Richter, W.R., Bray, D.A. & Dutton, W.H. (2010), "Collaborative information behavior in large groups", In Foster, J. ed. *Collaborative information behavior: user engagement and communication sharing*, Hershey, Information Science Reference, pp. 1-15.

Savolainen, R. (2005), "*Everyday information practices: a social phenomenological perspective*. Lanham, Maryland: The Rowman & Littlefield Publishing Group.

Shah, C. (2010), "Designs for systems to support collaborative information behavior", In Foster, J. ed. *Collaborative information behavior: user engagement and communication sharing*, Hershey, Information Science Reference, pp. 141-158.

Sonnenwald, D.H. (2007), "Scientific collaboration", *Annual Review of Information Science and Technology,* Vol. 41, pp. 643-682.

Vakkari, P. (2003), "Task-based information searching", *Annual Review of Information Science and Technology*, Vol 37, pp. 13-464.

Whitaker, S. (2011), "Personal information management: from information consumption to curation", *Annual Review of Information Science and Technology*, Vol. 45, pp. 3-62.

Wilson, T. (2000), "Human information behavior", *Informing Science*, Vol. 3 No. 2, pp. 49-56.

Corresponding author
Ina Fourie can be contacted at: ina.fourie@up.ac.za