Loughborough
University

This item was submitted to Loughborough's Institutional Repository (https://dspace.lboro.ac.uk/) by the author and is made available under the following Creative Commons Licence conditions.

For the full text of this licence, please go to:
http://creativecommons.org/licenses/by-nc-nd/2.5/

Information Seeking and Sharing Behaviour of a UK Police Force

Sara Tedmori[1], Dr. Thomas W. Jackson[2], Chief Inspector Mark Newcombe[3], Prof. Dino Bouchlaghem[1]

[1] Centre for Innovative Construction Engineering, Loughborough University, Loughborough, Leicestershire, UK

[2] Research School of Informatics, Loughborough University, Loughborough, Leicestershire, UK

[3] Leicestershire Police, Leicester, Leicestershire, UK

S.M.J.Tedmori@lboro.ac.uk
T.W.Jackson@lboro.ac.uk
mark.newcombe@leicestershire.pnn.police.uk
N.M.Bouchlaghem@lboro.ac.uk

Abstract: We have reached an age of information overload. It is also an age of information empowerment, an age where people are regularly bombarded with information. People have access to far more information than they can possibly handle. Information plays a vital role in people's lives, as they are constantly challenged to locate the right information that they need in order to make decisions and to complete their tasks. Unfortunately, people often have difficulties in locating relevant information. Early studies on information seeking behaviour show that people searching for information prefer asking other people for advice than searching through a manual. The issue becomes then a matter of searching for the right person. This has led to interest in systems, which connect people to others by making people with the necessary expertise available to those who need it, when they need it. This study aims to undertake a baseline review of how UK police force employees work and in turn provide a better understanding of how to develop IT systems that will support employees in their daily activities. It documents the analysis of a questionnaire survey that looks at how individuals at Leicestershire Constabulary seek information and how they share information once it's located, in order to determine if an expert locator system would work at their organisation. Results show that officers have difficulties when searching for information. The results give an estimate of the amount of searching time that officers think could be saved by officers if they know where to look for the relevant information and the reasons behind the time being wasted. Moreover, results show that email remains to be the most intensely utilised communication medium, used to help generate, organise, share, or leverage knowledge within the organisation. Although specific websites and online databases were the first sources to be consulted by most officers when searching for information, officers frequently query other peers for references.. The overall results suggest that embracing the concept of an expertise locator at Leicestershire Constabulary could lead to positive outcomes.

Keywords: Information seeking, information sharing, information behaviour, information technology, expertise discovery

1. Introduction

We are living in an information-flooded society, a society characterised by a high level of information intensity. Workers depend on access to information in order to perform their work. They try to obtain the information that they need by using conventional tools of information technology (IT) such as search engines in which information is stored, transmitted and processed. Cutting through the clutter and selecting from the information sources returned in order to get to the right content can be both daunting and time consuming. In order to perform better, workers are increasingly relying on gaining additional knowledge and experience from other people or sources. Thus, it is essential for them to know where to seek advice and how to access additional expertise from other professionals whilst doing their job. A common way for employees to acquire the needed expertise is to locate internal experts willing to share their specialised knowledge (Ackerman et at 2003). Employees ask others they know for referrals or recommendations, following pointers until the right person is found (Campbell et al 2003). The speed of locating the right expert is important to both the individual worker and the company. When employees gain rapid access to experts, organisational performance can increase (Dooley et al 2002). Therefore, many organisations try to provide employees with help in relation to timely identification and location of expertise as a key part of organisational knowledge management. Expertise locating systems, also known as expertise recommender systems, have emerged for that purpose.

The study presented in this paper, and which was conducted through a questionnaire survey targeting individuals at Leicestershire Constabulary, provides a useful snapshot of the force's views,

experience and practical usage in relation to various aspects of information searching and sharing. Moreover, it sheds light on barriers to sharing knowledge, key issues of concern that waste the respondents' time while searching for necessary information, and the respondents views on the authors' latest research.

2. Information Seeking
Information seeking can be described as a reaction to the recognition of an information need (Case 2007). For example, Tom Wilson (2000) has said that information seeking is "the purposive seeking for information as a consequence of a need to satisfy some goal".

Information is increasing, as is the difficulty of finding the required information. Approximately 70% of business professionals responding to a Delphi (2002) survey agree that finding information is difficult. The study also reported that most employees working at large enterprise organisations spend more than two hours a day searching for information necessary to complete their jobs (Delphi, 2002). This calculates to 25% or more of an 8 hour working day. This result is consistent with the results obtained from the IDC study reporting that information workers spend 15% to 35% of their work time just searching for information (Feldman and Sherman 2003). Furthermore, many other studies have reported similar findings. For example, Davenport and Prusak (1997) report that managers spend 17% of their time (6 weeks a year) searching for information.

Outsell's (2001) survey (a survey of US information users carried out in 2001 which surveyed 6,300 people across 20 different industries) found that employees were spending an average of 8 hours a week looking for and using external information content. In 2005, Outsell conducted another study to measure how information users have changed their behaviours over the four years (Outsell, 2005). Comparing the new research with results from 2001, the study found that knowledge workers now spend 11 hours per week searching for information, versus eight in 2001. In addition, the time they spend analysing versus gathering information has changed. In 2005 professionals seemed to spend most of their time (53%) seeking out information. In 2001 however, professionals spent 56% of their time analysing and applying what they had found. The time wasted searching for information results in a significant organisational productivity cost. The International Data Corp. (IDC) estimates that an enterprise with 1,000 knowledge workers loses a minimum of $6 million a year in time spent searching for and not finding the information needed for knowledge workers to complete their tasks.

Even with the vast array of existing information management tools (such as search engines, document management systems, databases, and the web), knowledge workers are still finding it difficult to locate the needed information to perform their jobs, resulting in an increase in time and money wasted. The concept of an expert locator system emerged as an attempt to contribute towards overcoming these difficulties. Expert locator systems connect people to people rather than people to information. The Email Knowledge Extraction (EKE), a tool the authors are developing, is an example of such a system. It tries to uncover "who knows what" in an organisation by using email content as evidence of expertise.

3. Study Methodology
The data needed for the study was collected through an online questionnaire survey that was completed by individuals at Leicestershire Constabulary during March/April 2007. A questionnaire was used because it enabled the authors to gather anonymous information in a relatively easy manner.

3.1 Questionnaire Structure and Content
The questionnaire consisted of 31 questions divided into 6 sections. A brief introduction about the research, along with instructions on how to complete the questionnaire were presented at the beginning of the questionnaire. No deadline was set for the respondents to complete the questionnaire. Respondents were informed that the completion of the questionnaire was expected to take 10-15 minutes and were assured that all responses would be treated with strictest of confidence. A successful pilot study for the questionnaire was undertaken.

The first part of the questionnaire asked respondents to provide general information about themselves (e.g. gender and number of working years). The second part of the questionnaire asked the respondents about their searching experience. This included questions relating to the number of hours they spend searching for information or advice related to their work, and the amount of time

which could be saved if they knew where to look for the information or advice. It also included questions focusing on the respondents' frequency of use of various sources when searching for information, ease of finding information, how often they consult their colleagues for information, and how often they know who to contact when they need information.

The third part seeks to obtain the extent of the respondents' agreement or disagreement with statements relating to their information sharing experience. This included asking the respondents about the most important barrier that hinders them from sharing knowledge. In part four, respondents were asked questions regarding their usage of different types of mediums, with a particular focus on emails.

Questions in part five try to obtain the respondents' views regarding the Email Knowledge Extraction application (EKE) that the authors are developing. The sixth part of the questionnaire allowed the respondents to add any comments they would like to make.

3.2 Questionnaire Sampling, Distribution, and Response

In this study, convenience sampling was used. Such type of sampling may not be optimal for making generalisations (Bryman and Bell 2003), however it was seen appropriate to adopt for the purposes of the study and for accessibility reasons. The study does not aim to make generalisations about employees' information seeking and sharing behaviours. Rather, it aims to obtain better insights of employees' information behaviour and in turn improve understanding of how to develop IT systems that will support employees in their daily activities. With regards to accessibility, contacts developed previously by the authors have facilitated accessing Leicestershire Constabulary to conduct the study.

The questionnaire was sent out to 150 employees working at Leicestershire Constabulary. Two weeks later, a follow up email reminder was sent. Finally, by end of April, 44 responses were received. This presented a response rate of 29%. In relation to the audience, the questionnaire was sent to all Chief Superintendents, Superintendents, Chief Inspectors as well as a police staff head of business.

4. Analysis of the Survey Data

The quantitative data from the survey was analysed using statistical software package SPSS. The analysis carried out was based on obtaining frequencies and conducting non-parametric statistical tests. The first type of analysis (frequencies) was used to obtain percentages of scores in each category. The second type of analysis (non-parametric tests) was used to explore the relationship between two or more categorical variables (particularly this involved conducting chi-square test and fisher's exact test). Conducting the chi-square yielded invalid results due to small sample size. Categories had to therefore be collapsed into two categories in order to provide an appropriate basis for performing the Fisher's exact test (a two-sided probability less than .05 was considered to be statistically significant).

4.1 General Information about the Respondents

Table 1 also shows the general characteristics of the sample that responded; 68.2% of the respondents were male and 31.8% were female, with 84.1% of the respondents have been working at Leicestershire Constabulary for six years or more. This indicates that the respondents involved have generally a significant working experience. Most of the respondents (95.4%) have been working within their current job role for five years or less.

Table 1: General Information

Gender	Male			Female	
	68.2%			31.8%	
Working Years at Leicestershire Constabulary	**Under 1 year**	**1-5 years**	**6-10 years**	**11-20 years**	**Over 20 years**
	2.3%	13.6%	11.4%	29.5%	43.2%
Working Years within current job role	**Under 1 year**	**1-5 years**	**6-10 years**	**11-20 years**	**Over 20 years**
	31.8%	63.6%	2.3%	2.3%	0%

4.2 Respondents' Searching Experience

Regarding searching experience, results show that 45.5% of respondents spend between one and five hours per week searching for information or advice relevant to their work (See Table 2), a figure lower than IDC's (Feldman and Sherman 2003) and Delphi's (2002) research. Table 2 also shows that 59.1% of the respondents believe that a minimum of 21% of their time could be saved if they knew where to look for this information and that only 18.2% believe that no time is wasted as a direct result of not knowing about information that was available within their organisations.

Table 2: Searching Experience

Number of hours spent per week searching for information/ advice	1 hour or less	1-5 hours	6-10 hours	11-20 hours	over 20 hours
	18.2%	45.5%	20.5%	11.4%	4.5%
Time saved if you knew where to look for this information/ advice	**0-20%**	**21-40%**	**41-60%**	**61-80%**	**81-100%**
	40.9%	27.3%	13.6%	15.9%	2.3%
Days wasted within the past year as a result of not knowing about available information	**None**	**Up to 5 days**	**6-10 days**	**11-20 days**	**Over 20 days**
	18.2%	52.3%	15.9%	6.8%	6.8%
Frequency of finding the information needed	**Never**	**Rarely**	**Sometimes**	**Frequently**	**Always**
	0%	0%	38.6%	59.1%	2.3%
Frequency of having difficulties identifying resources for new information	**Never**	**Rarely**	**Sometimes**	**Frequently**	**Always**
	4.5%	20.5%	54.5%	20.5%	0%
Frequency of consulting colleagues for information before conducting a search	**Never**	**Rarely**	**Sometimes**	**Frequently**	**Always**
	0%	9.1%	43.2%	47.7%	0%
Frequency of knowing who to contact when you need information	**Never**	**Rarely**	**Sometimes**	**Frequently**	**Always**
	0%	4.5%	54.5%	38.6%	2.3%
Rank of the task of locating information within another department	**Very Easy**	**Easy**	**About Average**	**Difficult**	**Very Difficult**
	0%	11.4%	61.4%	27.3%	0%

Moreover, a significant association was noted between the time the employees report that they spend searching for information relevant to work and the time the employees report that they waste due to not knowing about information available within the company (p=.001, Fisher's exact test). Table 2 also shows the frequency of finding the needed information when searching. The analysis reveals that only a small proportion of respondents (2.3%) always find the information they need while 97.7% of them sometimes/frequently find the information they seek. Moreover, the majority of the respondents (75%), when searching for information that is new to them, sometimes/frequently have difficulties identifying resources for new information. This shows us that almost all officers are unable to always find the information they need to perform their jobs. Accordingly, a large proportion (90.9%) admitted that they sometimes/frequently consult their colleagues before conducting a search. This concurs with other studies showing that employees prefer asking others for expertise rather than searching documents or electronic knowledge repositories (EKR) (Swaak et al 2004) Moreover, results illustrate that a large percentage of the respondents (93.1%) sometimes/frequently know who to contact when they need information. Analysis of results showed that 88.7% of the respondents do not think that the task of locating information within another department is easy (61.4% think of this task as "about average" and 27.3% think of this task as "difficult").

In order to investigate the time wasted by employees as a direct result of not knowing about information that was available within the company, respondents were asked to provide examples to

help better understand the issue. The examples that the respondents provided could be classified into the following categories: Information overload, problems with the search facility, inappropriate titling/labelling, constant change within the force, unpublished material, folder organisation issues, repetition and replication of work, and problems with policies and protocols.

Furthermore, in relation to the sources of information that are difficult to locate, there seemed to be a general consensus among respondents that these include policy and procedures, in addition to persons with expert knowledge. Some respondents stated that it is often difficult to locate persons with expert knowledge of a particular subject.

Table 3: Frequency of use of sources when searching for information

Order of frequency of use when searching for information or advice						
Ranking	**1st**	**2nd**	**3rd**	**4th**	**5th**	**6th**
Search Engines	15.9%	6.8%	6.8%	70.5%	0%	0%
References from peers	11.4%	43.2%	18.2%	15.9%	2.3%	9.1%
Online databases	20.5%	11.4%	6.8%	11.4%	13.6%	36.4%
Intranet …	15.9%	18.2%	25%	0%	9.1%	31.8%
Mailing lists	13.6%	15.9%	36.4%	2.3%	11.4%	20.5%
Specific Websites	22.7%	4.5%	6.8%	0%	63.6%	2.3%

In relation to the frequency of sources utilised when searching for information (see Table 3), specific websites and online databases were ranked as the most frequently utilised sources by 22.7% and 20.5% of the respondents respectively. It can be noticed that a considerable percentage of the respondents (43.2%) indicated that references from peers was the second most frequently utilised source. Such results could be explained by the respondents searching behaviour. They start searching for the information using the traditional information retrieval tools (e.g. databases). If they fail to locate the required information, they then revert to gaining the required information from their peers.

4.3 Respondents' Information Sharing Attitudes
Table 4 summarises the respondents' information sharing attitudes. It is notable that the majority of respondents (77.3%) widely share the information which they consider useful or interesting. This result is consistent with the finding which shows that 72.7% of respondents disagreed with the statement, "I only share on a 'need to know basis' or if I am told to do so". This gives an indication of the Leicestershire Constabulary's positive information sharing culture.

A majority of the respondents (90.9%) believe that the knowledge they have is of value to the Force. On the other hand, only half of these (45.5%) believe that the Force fully utilises their knowledge.

Table 4: Information Sharing Experience

I widely share the information which I consider useful/ interesting	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
	15.9%	61.4%	13.6%	9.1%	0%
I only share on a 'need to know basis' or if I am told to do so	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly disagree**
	0%	15.9%	11.4%	65.9%	6.8%
The knowledge I have is of value to the Force	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly disagree**
	22.7%	68.2%	9.1%	0%	0%
The Force fully utilises my knowledge	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly disagree**
	2.3%	43.2%	29.5%	25.0%	0%

In order to investigate barriers to sharing knowledge, respondents were asked to select the most important barrier that hinders them from sharing knowledge. They were given six options from which they had to select the most important one. The options they were provided with were:
- 'If I share knowledge I will lose some of my power' (not selected by any of the respondents),

- 'I am insecure about the value of my knowledge' (selected by 9.1% of the respondents),
- 'I lack trust in my colleagues' (selected by 2.3% of the respondents),
- 'I am afraid of negative consequences' (selected by 2.3% of the respondents),
- 'If others do not share, why should I?' (selected by 2.3% of the respondents), and
- 'Other' (selected by 84.1% of the respondents).

If they opt for the 'Other' option, they have to enter in their own words what stops them from sharing knowledge. The majority of the respondents (84.1%) chose the 'Other' option. The comments they provided were grouped into the following categories given their responses: time constraints, sensitivity of position/ information, information overload, lack of systems and mechanisms to sharing knowledge, lack of knowledge among people regarding possessing that expertise, individuals not asked to share, lack of gratitude and feedback, lack of confidence about the value of the knowledge possessed, unutilised shared information, and lack of knowledge regarding the needs of others.

4.4 Respondent's usage of different types of mediums

It was important to understand how employees use different media to generate, organise, share, or leverage knowledge within the organisation, because it gives an indication on whether email is actually used for those purposes. To address this question, responses to the questionnaire instrument of frequency of use of different mediums were examined (See Table 5).

Table 5: Individual's usage of different types of mediums

Frequency of use of various media to help generate, organise, share, or build upon the knowledge with the organisation						
	Daily	**Weekly**	**Monthly**	**6 monthly**	**Yearly**	**Never**
Face-to-face	88.6%	9.1%	0%	0%	2.3%	0%
Telephone	79.5%	20.5%	0%	0%	0%	0%
Email	93.2%	6.8%	0%	0%	0%	0%
Online	2.3%	9.1%	9.1%	4.5%	0%	75%
Memos	11.4%	43.2%	25%	6.8%	0%	13.6%
Intranet	40.9%	13.6%	31.8%	4.5%	4.5%	4.5%
Chatting over lunch/ tea breaks	50%	20.5%	11.4%	2.3%	4.5%	11.4%

Results show that email is the most frequently used medium; it is used by 93.2% of respondents on a daily basis. This is followed by "face-to-face" which is used daily (88.6%) and then the "telephone" which is used daily by 79.5% of the respondents. Such results seem consistent with previous findings by the authors in which results showed that on a daily basis, email was the most frequently used medium, followed by the face-to-face medium and then by the telephone medium (Tedmori et al 2006). Nevertheless, when enquired about the communication medium that one could not do without (Table 6), half of the respondents selected "face-to-face". Email was selected as the second most important medium (favoured by 27.3%). The medium "Telephone" remains the third most favourite medium (ranked by 18.2%).

Table 6: The medium an individual can not do without

The medium that you can not do without	Face-to-face meetings	Telephone	Email	Online	Intranet	Chatting over lunch/ tea breaks
	50%	18.2%	27.3%	0%	2.3%	2.3%

Respondents were asked to indicate what they mostly use email for. The choices were: to ask questions, to answer questions, or both equally. This intended to uncover whether the respondents tend to share knowledge, seek knowledge or use it for both purposes. The findings indicate that 68.2% of employees selected the third option (i.e. both equally), while 6.8% and 25% of employees selected the 'to ask questions' option and the 'to answer questions' option respectively. Table 7 summarises the number of knowledge related emails sent and received per day.

Table 7: Number of knowledge related emails sent and received per day

Number of knowledge related emails sent a day	0-5 emails	6-10 emails	11-20 emails	21-40 emails	More than 40
	50%	34.1%	11.4%	2.3%	2.3%
Number of knowledge related emails received a day	0-5 emails	6-10 emails	11-20 emails	21-40 emails	More than 40
	43.2%	31.8%	13.6%	6.8%	4.5%

4.5 Respondents' views regarding EKE

Results show that more than half of the respondents (52.2%) believe that EKE would benefit their organisation (See Table 8). The promising response was that if their organisation was using EKE, 88.7% are willing to make their interest/knowledge/expert areas public. 9.1% expressed neutral views and only 2.3% indicated that they were not willing to publicise their knowledge areas. Table 8 also shows the number of enquires that respondents are willing to deal with per week. These enquires that could possibly be generated by EKE are not part of an employee's normal workload. They are additional enquiries that the employee is willing to reply to. The result could indicate that employees realise the importance of sharing knowledge to improve their working day by helping their colleagues. The results reported in table 8 indicate that the officers realise the benefits of the system and demonstrate the potential for it to be used.

Table 8: Respondents views regarding EKE

The force would benefit from using this software	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
	4.5%	47.7%	34.1%	9.1%	4.5%
I would be willing to make my interest/ knowledge/ expert areas public	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
	20.5%	68.2%	9.1%	2.3%	0%
Number of enquires you would be willing to reply to per week	None	1-3	4-7	8-10	More than 10
	0%	15.9%	34.1%	9.1%	40.9%

Table 9 shows the mediums the respondents prefer to be contacted through by their colleagues. Comparing these results with the results shown in table 5, it can be noted that email, the most frequently used medium, is not the respondents' preferable way of being contacted by co-workers for help. Results show that officers at Leicestershire Constabulary prefer "face-to-face" communication. Telephone and email were ranked as the second and third most favorite mediums respectively. This is also consistent with previous research reported in Tedmori et al (2006).

Table 9: Preferable way of being contacted

Preferable way of being contacted by co-workers for help						
	1st	2nd	3rd	4th	5th	6th
Face-to-face	47.7%	27.3%	25%	0%	0%	0%
Telephone	20.5%	50.0%	20.5%	0%	4.5%	4.5%
Email	20.5%	13.6%	40.9%	0%	18.2%	2.3%
Online	6.8%	4.5%	11.4%	2.3%	43.2%	31.8%
Memos	0%	4.5%	2.3%	11.4%	29.5%	52.3%
Intranet	0%	0%	0%	86.4%	4.5%	9.1%

5. Concluding Discussion

This paper presents a snapshot of a UK Police Force's information seeking and sharing behaviour. Results in Table 2 show that 59.1% of the respondents believe that a minimum of 21% of their time could be saved if they knew where to look for necessary information. Analysis of results show that the amount of time wasted can be attributed to information overload, problems with the search facility, inappropriate titling/ labelling, constant change within the force, lack of publication, folder organisation issues, repetition and replication of work, and problems with policies and protocols. Furthermore,

there seemed to be a general agreement among respondents that the sources of information that were difficult to locate included policy and procedures, in addition to persons with expert knowledge.

As shown in Table 3, specific websites and online databases were ranked as the most frequently utilised sources when searching for information. This result may be an indication of how EKE might help employees search for the right expert. Results presented in Table 2 show that when searching for information, the minority of respondents (2.3%) always find the information they need, while the majority of them (75%), sometimes/ frequently have difficulties identifying resources for new information. This could explain why a large proportion, 90.9% sometimes/ frequently consult their colleagues before conducting a search.

Fisher's exact revealed a significant relationship between the frequency of knowing who to contact when you need information and the number of years working at Leicestershire Constabulary (P = .022). The higher the number of years an employee has worked at the constabulary, the higher the probability of knowing who to contact. The people who found it difficult to locate expert knowledge are mostly likely to be new to the organisation.

This was reinforced by one of the participants who said, *"As a new person to the Force I believe that this system would be very useful. I often am unaware of who I need to ask in relation to specific topics, having this would aid this and also cut out time asking the wrong person."*

In summary, the survey results showed of the amount of searching time that could be saved by officers if they know where to look for the relevant information and the reasons behind the time being wasted. The overall results suggest that the embracing the concept of an expertise locator at Leicestershire Constabulary could lead to positive outcomes as the majority of officers realise the benefits of the system and are willing to use it. This finding will be further explored by the deployment of EKE at Leicestershire Constabulary.

6. Acknowledgement

References
Ackerman, M., Pipek, V. and Wulf, V. (Eds.) (2003) *Sharing Expertise: Beyond Knowledge Management*, Cambridge, MA: The MIT Press.
Bryman, A. and Bell, E. (2003) *Business Research Methods* Oxford University Press
Campbell, C.S., Maglio, P.P., Cozzi, A. and Dom, B. (2003) "Expertise Identification Using Email Communications", in *Proceedings of CIKM*, Louisiana.
Case, D.O. (2007) *Looking for information: a survey of research on information seeking, needs, and behavior.* 2nd ed. Amsterdam: Academic Press.
Davenport, T.H. and Prusak, L. (1997) Information Ecology Mastering the Information and Knowledge Environment, Oxford University Press, New York, NY.
Delphi Group. (2002) "Taxonomy and Content Classification", Market Mileston Report.
Dooley, K.J., Corman, S.R. and McPhee, R.D. (2002) "A knowledge directory for identifying experts and areas of expertise", *Human Systems Management*, Vol. 21, No. 4, pp. 217-228.
Feldman, S. and Sherman, C. (2003) "The high cost of not finding information", IDC Report #29127.
Outsell (2001), "Outsell, Inc. Releases Findings Analyzing Content Habits, Preferences and Budgets of More than 6,300 Information End Users", press release, available at: http://findarticles.com/p/articles/mi_m0EIN/is_2001_May_3/ai_74003361 (accessed 16 July 2007).
Outsell (2005), "HotTopics: 2001 vs. 2005: Research Study Reveals Dramatic Changes Among Information Consumers", available at: http://www.outsellinc.com/store/products/219
Swaak, J., de Jong, T., and van Joolingen, W. R. (2004) "The effects of discovery learning and expository instruction on the acquisition of definitional and intuitive knowledge", *Journal of Computer Assisted Learning*, Vol. 20, No. 4, pp. 225- 234.
Tedmori, S.M., Jackson, T.W., Bouchlaghem, N.M., Adelmann, H. and Nagaraju, R. (2006) "EXPERTISE PROFILING: IS EMAIL USED TO GENERATE, ORGANISE, SHARE OR LEVERAGE KNOWLEDGE", Proceedings of the *11th Int'l Conf. on Computing in Civil and Building Engineering (ICCCBE-XI)*, Montreal, Canada.
Wilson, T.D. (2000) Human information behaviour, *Informing Science*, Vol. 3 No. 2, pp. 49-55.