This is the author-created version of the following work:

Sayyad Abdi, Elham, Partridge, Helen, and Bruce, Christine (2013) *Website designers : how do they experience information literacy?*. **The Australian Library Journal, 62 (1) pp. 40-52.**

Access to this file is available from:

https://researchonline.jcu.edu.au/55430/

Please refer to the original source for the final version of this work:

Website designers: How do they experience information literacy?

Elham Sayyad Abdi, Helen Partridge and Christine Bruce

Abstract

This paper presents the findings from the first phase of a larger study into the information literacy of website designers. Using a phenomenographic approach, it maps the variation in experiencing the phenomenon of information literacy from the viewpoint of website designers. The current result reveals important insights into the lived-experience of this group of professionals. Analysis of data has identified five different ways in which website designers experience information literacy: problem solving, using best practices, using a knowledge base, building a successful website and being part of a learning community of practice. As there is presently relatively little research in the area of workplace information literacy, this study provides important additional insights into our understanding of information literacy in the workplace, especially in the specific context of website design. Such understandings are of value to library and information professionals working with web professionals either within or beyond libraries. These understandings may also enable information professionals to take a more proactive role in the industry of website design. Finally, the obtained knowledge will contribute to the education of both website design science and library and information science (LIS) students.

Implications for best practice
- Understanding the widening picture of information literacy in the workplace provides important evidence for information literacy advocacy. This may also contribute to the curriculum design for the education of Library and Information Science (LIS) professionals;
- A clearer picture of website designers' engagement and interaction with information in their job may assist information professionals to serve them more purposefully;
- Information professionals play roles in web design teams, especially as information architects. A deeper understanding of different experiences of information literacy in designing websites may help them to practice in a more informed manner;
- An understanding about the variation in experiencing information literacy among website designers may provide a significant contribution to curriculum design of website design science education;
- A clear understanding of the character of website designers' information literacy

could assist in professional development of both website designers and the information professionals who work closely with them.

Introduction

Since the term 'information literacy' was first introduced by Paul Zurkowski (1974), it has extensively been researched. Each new study has added further insights to previously undertaken attempts (Bruce 1997, 2008; Doyle 1992; Lloyd 2004). This study will contribute to this growing research base by exploring information literacy within a new context, website design. In this paper, 'website design' is used as a general term that encompasses the whole process of designing, developing and maintaining websites. Moreover, 'website designers' refers to all people involved in the process regardless of their position titles.

We adopt the view that website designers' information literacy is about their effective information use (Bruce 1997) in building web environments. The importance of this group of professionals' information literacy lies behind their role in developing and forming the World Wide Web. They are the builders of an extensive virtual information world or at least its frameworks or infrastructures. Therefore, from the nature of their critical mediatory role in linking websites to users, it is conceivable that *their* information literacy might be of great importance. It may even be possible that the more effectively they use information, the more usable the products (i.e. websites) they produce. Although there has been a significant amount of research exploring information literacy, there have been no studies that have investigated website designers' understandings or experiences of information literacy. The study outlined in this paper will fill this gap.

This paper discusses the findings of a preliminary study which investigates how website designers experience information literacy. The outcome of this pilot study can be used in developing an agenda for educating website designers and promoting information literacy among their communities of practice. Moreover, the outcome will widen the picture of workplace information literacy. This new picture may be of interest to those information professionals who work closely with website designers or play roles in web design teams. The findings will also add value to the education and training that library and information science (LIS) students receive about information literacy and its application in different contexts.

Information literacy in the workplace

In the last ten years, information literacy research has begun to extend beyond the educational environment. This extension, however, has occurred slowly. So far, very little research has been conducted into the workplace information literacy context (Bruce 2000; Edwards, Bruce, and McAllister 2004; Hughes et al. 2005; O'farrill 2008).

Findings from the small number of workplace studies that have been undertaken have demonstrated the importance of researching this context as well as the value of familiarising workers with the concept of information literacy. In the previous studies,

information literacy has been identified as a 'significant part of the character of learning organisations as well as a key characteristic of the organisation's employees' (Bruce 1999b, 33). It was also introduced as 'one of the top five essential competencies for solid job performance' in the workplace context (Cheuk 2008; Kirton, Barham, and Brady 2008; O'Sullivan 2002). Moreover, the financial implications of information literacy in organisations has been highlighted by researchers (Cheuk 2002; Macoustra 2004). However, the primary stimulus for undertaking research into workplace information literacy derives from the need to transfer students' understanding of information literacy from the educational context to different workplaces. In recent years, researchers have started to consider whether teaching students information literacy within their university studies will enable them to become successfully involved in the information practices of their future workplaces. In this regard, concerns have been raised about the applicability and appropriateness of applying the conceptual understandings of information literacy derived from studies conducted within the educational context to the workplaces setting (Cheuk 2008; Lloyd 2005; Mutch 2008). This has led to a number of studies exploring information literacy in a range of different workplaces (Cheuk 2002, 2008; Hepworth and Smith 2008; Macoustra 2004; Rosenberg 2002). However, to develop a rich understanding of the many layered concept of information literacy, current research needs to not only explore different contexts, but must also do so using different theoretical lenses and drawing upon different research approaches.

So far, most information literacy studies have been undertaken from a behavioural point of view, with information literacy seen as a set of information skills. However, there are two other perspectives for viewing information literacy, especially in the workplace, introduced by Anne-Maree Lloyd and Christine Bruce. Lloyd (2004, 2007) examined information literacy of firefighters and ambulance workers. Drawing on a socio-cultural perspective, she (Lloyd and Williamson 2008) described information literacy as 'a complex and holistic socio-cultural practice, which requires a person to experience information in a range of different ways in order to know the setting and its practices'. With the similar aim of reconceptualizing information literacy, but coming from a different theoretical approach, Bruce (1997) identified seven different ways of experiencing information literacy in terms of complexity and from a relational viewpoint. Her model, Seven Faces of Information Literacy portrayed the different ways in which information literacy is experienced by higher educators. These ways included using information technology for information retrieval and communication, finding information located in information resources, executing an information process, controlling information, constructing knowledge, extending knowledge and using information wisely for the benefit of others. The relational view towards information literacy introduced by Bruce (1997) was then adopted further, but mostly in educational (Boon, Johnston, and Webber 2007; Edwards 2006; Lupton 2008) and community settings (Gunton, Bruce, and Stoodely 2012; Yates, Partridge, and Bruce 2009; Yates et al. 2012). The current study is also using the relational perspective. However, the explored context in this research is the less-researched context of workplace. Choosing the workplace context has also been due to the emphasis on the necessity for exploring information literacy in different workplaces (Lloyd and Williamson 2008). Bringing all these together, this study aims to uncover variations in experiences of information literacy by a rarely-researched group of professionals: website designers.

An investigation into the information literacy of website designers will add new insights into the very small number of studies that have explored the role of information within the work practices of this group of professionals. For example, website designers are said to find it challenging to follow existing guidelines (Kim 2010; Tao 2008). Tao (2008) related this issue to a gap between designers' knowledge and their application level and Kim (2010) related it to the usability problems of guidelines which prevent web designers from accessing and retrieving these information resource effectively.

Research approach

The research approach adopted for this study is phenomenography. This is an approach which 'map(s) the qualitatively different ways in which people experience, conceptualise, perceive, and understand various aspects of, and the phenomena in, the world around them' (Marton 1986, 31). Phenomenographic research is interested in 1) how people experience the same phenomena in critically different ways and 2) how these conceptions are related and therefore mapped. This variation is finally demonstrated as a set of different categories.

Focusing on peoples' experiences, phenomenographers adopt a second-order perspective through which they try to see the phenomena through the eyes of other people (Marton 1981). Phenomenographers explore and analyse the relationship between the research participants and the phenomenon under investigation. Data about these relationships are collected via a series of open and explorative interviews (Svensson 1997).

The phenomenography approach has been used to explore information literacy since the 1990s (Bruce 1997, 1999a; Limberg 1999). In recent years, it has been used to explore health information literacy of aging Australians (Yates et al. 2012), the online searching experiences of university students (Edwards 2006) and the religious information literacy experienced in the churches (Gunton 2011). The current work will add to this emerging phenomenographic portrait of information literacy.

Participants

The participants in this research project were four website designers. This included an information architect, a graphic designer, a consultant and a developer. As mentioned earlier, 'website designer' in this research refers to all people engaged in the whole/or parts of the process of design, development and maintenance of websites regardless of their position titles (such as consultant, graphic designer, interface designer, user experience designer, programmer, developer and etc.). Participants were recruited through snowball sampling which is a referral process in which the existing interviewee refers or introduces future interviewees. Phenomenographic analysis based on small sample sizes has also been conducted in other studies such as in Demasson, Partridge and Bruce (2010), McCosker, Barnard and Gerber (2004), McMahon and Bruce (2002) and Yates et al. (2009).

Data collection

The material to be analysed for this study was collected by conducting semi-structured interviews. During the interview, participants were encouraged to refer to and work with the websites they were discussing, if required. For this purpose, interviewees were provided with a laptop/iPad at the interview. Each participant was asked six questions during the interview. The interview questions are as follows:

Describe how you design a website according to your whole job experience in the website design area.

Describe how you understand website design.

Describe a time that you used information effectively for designing a website.

What informs you during the design process?

How do you use information effectively to design a website?

How do you know when you have used information effectively to design a website?

Besides the main interview questions, several follow-up questions such as 'Could you tell me more about that?', 'What do you mean by that?' or 'Could you give me an example' were also asked where there was a need to help the interviewee talk more in detail about underlying meanings. These types of questions are often used to help the interviewee to reflect on their experiences of the phenomenon as fully as possible to illuminate any unclear and vague area of disclosure (Barnard, McCosker, and Gerber 1999).

It should be acknowledged that the term 'information literacy' is an abstract term and therefore, might not be readily understood outside the field of information studies. Therefore, in order to be able to communicate clearly with the research participants, the term of 'effective information use' was used during the interviews. This term has been used for data collection in previous phenomenographic studies exploring information literacy as well (e.g. O'Farrill 2008; Bruce 1997). It was also pilot-tested for this study.

Data analysis

The major goal in analysis was to identify a set of distinctly different ways of experiencing the phenomenon under investigation. Each resulting way of experiencing is depicted as a 'category of description'. Each category is described in terms of its meaning and its 'structure of awareness'. The structure of awareness shows individuals' point of focus when experiencing the phenomenon in question as well as their marginal thoughts and any consideration which may exist in that specific way of experiencing. The entire analysis attends to collective understanding rather than the individual experiences.

The data analysis process resulted in five categories of description which portray the variation in experiences of information literacy by website designers. These categories of description are discussed in the following section.

Ways of experiencing information literacy among website design

The process of data analysis revealed five different ways in which website designers experience information literacy. The five categories of description are as follows:

Category 1: Problem solving

Category 2: Using best practices

Category 3: Using a knowledge base

Category 4: Building a successful website

Category 5: Being part of a learning community of practice

These categories of description are discussed below, separately. The meaning and a point of focus for each category is provided followed by a brief description about each category and illustrative quotes from interviews. The numbers in brackets show the interview number and transcript page number from which the quote has been extracted.

Category 1: Problem solving

Meaning: Website designers experience effective information use as solving problems.
Focus: Fixing a particular technical problem
In this category, the stimulus that makes website designers engage with information is a problem, or more specifically a technical problem that needs a solution. In order to provide a solution for the problem, the designer, such as the one in the quote below, is aware of and performs a process of looking and seeking for information:

> A good programmer would know 'Should I try this problem myself? How long should I try it? When do I give up? When go to Google? When do I ask somebody else?' These are the characteristics of a good programmer (I.5, P.8).

Although, the focus of individuals in this category is not on information resources, they are aware of the different types of available sources of information and their characteristics to a certain degree. For instance, they prefer the most recent, available, accessible or powerful sources in terms of content delivery. The quotes below demonstrate awareness of information resources:

> If I have a question and I have asked everyone in the office, nobody in the office has seen this before, we've looked at our previous projects, we've never encountered this before, again these are all also sources of information.... Once I've exhausted everything, finally the last resort is 'Plone' which is our content management system….that's the most time-consuming; so we use that as our last resort. But it's at least guaranteed that succeed (I.5, P.7).

Information in this category has mainly a technical sense. In this regard, the outcome of effective use of information is experienced simply as a solved problem which is objective and 'obvious' from the viewpoint of one of the participants:

> A technical problem is usually very obvious if you've solved it. If you are noticing a technical problem, you're getting some error message or some functionality's

broken, something's not working. So it's very obvious when you've solved it (I.5, P.9).

Category 2: Using best practices

Meaning: Website designers experience effective information use as using best practices.
Focus: Following best practices
Effective information use among designers is experienced as referring and applying facts, established guidelines, standards or accepted efficient ideas within the community of practice which are generally called best practices. These best practices are either resulted from the research efforts within the industry or built upon experiences and activities of and the interactions among the practicing community. Therefore, the designer uses best practice to be assured of a potential support from the collective intelligence of the website design community. In fact, having this support and taking advantage of the quality of the evaluated, tested and valid information are the main stimuli that engage the designer with information in this specific way. A 'website that just works' in the quote below, is a good example of following practice:

> In terms of information, I like to learn from best practices. Certain websites are just working in a specific context. You can just analyse what works very well ... That will help you to determine what sort of interact of elements or features you can include in your website to make it work as well (I.4, P.5).

Website designers who experience effective information use as using best practices believe in user satisfaction and a successful website design as a result of this experience. In return, not following these facts could lead to an inverse result:

> There are guidelines, for example the Nielsen web guidelines. Think things not to do, think things to do. It can be quite specific things like blinking! People would perhaps go crazy. So, making a blinking website is not the best idea. Stuff like that which is just clear facts. If you know them, then you won't make these mistakes (I.4, P.5).

Category 3: Using a knowledge base

Meaning: Website designers experience effective information use as building a knowledge base for using at a later time which is based on the designer's or the design team's experiences.
Focus: Storing information
In this category effective information use is experienced as creating a knowledge base. This knowledge base is gradually built as storage that contains potentially useful information that has been evaluated by the designer. The information-encounter-evaluation might occur when the designer is doing activities to stay informed about what is happening in the community. Through this process, website designers experience information, recognise its value for probable future use and consequently store it in their knowledge base:

> One thing is just keeping track of what's going on in the community as a broad thing; not specifically when you're working on something; but just something that keeps you going. You subscribe to a blog of someone who develops websites regularly and posts about his experiences. This is something that I would probably read in the evenings; ... just browsing through. I'm not developing something. I just want to know what's going on. Just to keep it … then you actually have a job to develop a website. You have these things all back of your mind and you know 'Ok! That's a problem and I read about this in a blog … where someone did the same thing'. So, I can easily go back and take a look at … what he did and how he implemented it (I.4, P.7).

However, there is also a chance that this knowledge base is created jointly among a group of people (e.g. a design team) through collective practices within a single organisation. For example, in the quote below, the participant talks about a knowledge base which is built upon previous projects, and acts as a source of information for future projects:

> We keep a copy of all of our previous projects. In case we encounter the same difficulties, we saw how we solved it before (I.5, P.7).

It is also important to note that the knowledge base may exist physically, for instance as a collection of bookmarked links, or virtually, within the memory of the designer. The quotes below illustrate a physical and virtual knowledge base respectively:

> I have a 'Delicious account'- ... If I see stuff on the web, I just bookmark the link and just put in a keyword. I have a keyword for 'web stuff', 'web development', 'web design' .... So whenever I need to re-find something, I just type in the web and I just see all my links. I can go back to it and look closer to it (I.4, P.7).

> I think in terms of using information effectively, it's about knowing what is out there; not specifically how it's done; but how it can be done and who has done before and way to find information ... You develop this catalogue in your brain, knowing of what sort of techniques people use and knowing where it is (I.4, P.7).

Category 4: Building a successful website

Meaning: Website designers experience effective use of information as creating a website that meets both clients' and users' needs
Focus: meeting the purpose of the website provided by the client/user
In this category, effective information use is seen as building a website that satisfies the client and/or users. This also could be considered as the main goal sought by most website designers in the design practice. Specifically in this category, this does not happen unless information is understood and used effectively. Primary sources of information in this category are the client and/or users. Individuals who see effective information use in this particular way have a strong focus on attempting to understand the client's needs and/or the users' characteristics. They mention the importance of 'establishing effective communication with the client' as well as 'obtaining a clear image from the users' in using these information sources effectively:

> One of our particular projects was for an oil and gas company and the project was a big time success. The reason it was a success is because we had excellent communication with the client (I.5, P.7).

> So what does the site need to get across to the user? That's the information or content – really – that then goes out to them. Then, that information for example, helps me with 'Do I make this a busy site visually?' Or 'I'm going to make this incredibly lean and empty site visually?' (I.2, P. 8)

When designing a website, it is often the client who helps the website designer to identify the target users. Therefore, it seems fair to consider the user as a secondary source of information in comparison to the client.

For achieving a clear understanding about these two main sources of information, designers take advantage of different technologies, tools, methods and approaches in different levels. Examples are:

> We are lucky here at organisation X. We've got this marvelous thing called 'Google Urchin Analytics' which lets you track how many hits you are getting a day, who your users are, where they are coming from, whether they've come from Google, whether they've come from another page in the organisation X (I.2, P.5).

> We have high-level business discussions and low-level technical discussions. As far as how we communicate with the client, we have a very rich set of tools. At the beginning of every project, we create a mailing list and on this mailing list, [there are] all of the stakeholders in the project (I.5, P.3).

Through this process, website designers gain other forms of information such as client feedback or details about users' characteristics. Although this information acts as a constraint, it refines the website's message and in this way, guides and modifies the design practice. The quotes below illustrate this point:

> I can translate [my website] into German; I'm noticing a lot more traffic [users] is coming from Germany (I.5, P.10).
> There have been examples where I developed a website that I thought was absolutely beautiful. Then you show it to the client and the client hates it. This is that feedback loop from the client which is really the only way that I can figure out if the work that I've done has been successful. This is how we evaluate success (I.5, P.9).

Category 5: Being part of a learning community of practice

Meaning: Website designers experience effective use of information as information sharing or simply 'information give and take'.

Focus: Collaboration in sharing and using information in the website design community that leads to development in the field.

In this category, website designers engage themselves actively into a community of practice to teach and to learn. Therefore, their main focus remains on information sharing and information use within that community. In fact, information sharing and information use are two main components of this category which are simultaneously necessary and interdependent. Therefore, the information is either internal to be shared or external to be used. The stimulus that engages the designers with sharing information is the desire to contribute to a community of practice by responding to other community members' problems, issues or thoughts, reflecting their own knowledge or simply 'getting out there' (I.4, P.3). Through information sharing, subsequent discussions and feedback, learning opportunities for community members are provided, and new knowledge or best practices are created. These types of activities in the communities of practice lead to advancement in the field of website design and accelerate its progress. A good example of this is creating tutorials in which designers inform the community of their knowledge, understandings or recent findings:

> People creating tutorials with video and showing you 'how to actually make this graphics in Photoshop' … [It] is a very powerful tool and you see multiple things coming together there. Underneath the video, we have discussion 'You used that? Why don't you use this tool?' And someone else creates a response video referring to the first video 'Well... that's a good technique, but this is how you actually do it better' It's not a competition; but it's sort of connected videos that discuss a particular topic and sort of collaborative come up to a solution which works best. That solution is then accepted by their community as sort of the model to go with (I.4, P.13).

This is while the stimulus that engages them with information use is not only finding the answer to a specific problem (like in category 1: problem solving), but also achieving insight towards a solution. This is where information appears in the form of the collective intelligence (or collective awareness) or the activities and evaluations conducted by the community of practice:

> This documentation of people collaborating becomes a document of people cross posting answers and questions or answers to one's questions. Sometimes it's just like years and years where such knowledge has developed. It's like a couple of web pages you just get forward and forward and in ten minutes you get the entire notion of specific answers that people give to one guy's question (I.4, P.8).

The involvement in and being part of the learning website design community of practice that is both teaching and learning will be assisted by further technological advancement. One of the participants believes that sharing information with other community members will become easier with technological advancement in this area:

> It has become very easy to share things and I think it can become even easier. Right now, you still need to know how blog works [and] what an html code is. There's a lot of manual things involved. But what I would like to see is like a common interface which makes it just easy; just drag and drop things. So you find it an easier way to share such information (I.4, P.14).

Discussion

This paper presents the preliminary findings of a study exploring how website designers experience information literacy. As a result of a phenomenographic research approach, five qualitatively different ways of experiencing information literacy were discovered which are ranged from using information to solve a particular problem to using information for the benefit of others and developing the field and promoting its relevant practices. The outcome of this research contributes to the existing body of knowledge in several ways. First of all, it sheds new light on one specific aspect of website designers' world: information literacy. Secondly, it adds to our understandings of workplace information literacy. Finally, it provides insights into the professional practices in both areas of website design and information literacy. These are discussed below.

New preliminary insights into website designers' information literacy:

Whilst much research has explored the different components of the broad area of website design such as standards, usability, human-computer interaction issues and etc., little research has been carried out into the professional practices and experiences of website designers. This is an interesting omission given that previous studies have shown the critical role and influence of website designers in the production cycle of websites (Kim 2010; Moss, Gunn, and Heller 2006; Tao 2008). This research, therefore, sheds light on the rarely-explored world of practice of web designers, however, from a specific aspect (i.e. their information literacy).

A contribution to the information literacy research:

The outcome of this research adds to the growing information literacy research base. More specifically, it contributes to the evolving concept of workplace information literacy by providing insight into a new work context (i.e. website design) and using a different theoretical lens (i.e. relational approach). A growing body of evidence supports the necessity of exploring information literacy in different context and from different theoretical lenses (Lloyd and Williamson 2008).

Contribution to professional practice:

The outcome of this study will have benefits to professional practice. The work will be of interest to information professionals working within the website design industry. Understanding the different ways that website designers' experience information literacy will help information professionals to modify the services and support they provide this group of professionals. It will also help those information professionals that are members of a web design team (e.g. information architects) to be more effective in their role and working relationships with web designers. Additionally, available evidence of the character of website designers' information literacy could assist in professional development of both previously mentioned website designers and the information professionals who work closely with them.

There are also two other groups of practitioners who benefit from the findings of this study. The first group is website design educators. They can draw upon the outcome of this study to inform the design of their curriculum to ensure that current and future website design education is developing and promoting the information literacy of new

website designers. The second group is LIS educators. They may use the result of this study in the education and training of LIS students. Understanding the emerging theoretical basis for information literacy, and learning how to support the information literacy needs of different individuals and communities is a core part of many LIS education programs. The result of this study will be relevant to current and future LIS curriculum.

Future directions

As mentioned above, the findings presented in this paper are the outcome of an initial analysis conducted on data gathered from a small number of interviews. To establish a more integrative and comprehensive portrait of the different ways of experiencing the phenomenon under investigation, more data must be collected and analysed. In studies using a similar approach, this normally happens when 15-25 interviews have been conducted.

Further detailed analysis might uncover other different ways of experiencing the phenomenon of information literacy within the context of website design. In addition, the result of a phenomenographic study also illustrates a more detailed structure in each category along with the relationships between the categories. The attempt to explore and disclose this structure and the existing relationships will also be the subject of further analysis. Moreover, for the purpose of sampling for the main study, the largest possible variety in the rest of the sample population will be included. This will enable the researchers to assure that the ultimate result is representative of the possible existing variation in experiencing the phenomenon of information literacy.

Conclusion

This interdisciplinary study spans two domains of interest: information literacy and website design. From the information literacy viewpoint, the lack of research into workplace information literacy prioritises the need for further exploration of this area. In spite of a robust body of knowledge about information literacy in the educational context, experts of this area still believe that implementing research in individual different workplaces is also required (Lloyd and Williamson 2008). This is mainly due to impropriety of applying findings from the educational settings into different workplaces. From the website design perspective, the industry of web design which is emerging at a fast pace is lacking much needed research into the work practices of website designers. This group of professionals plays an important role in pushing forward the development of the World Wide Web. Bringing this together, the present research will provide an initial insight into the different ways in which website designers experience information literacy.

References

Barnard, Alan, Heather McCosker, and Rod Gerber. 1999. 'Phenomenography: A Qualitative Research Approch for Exploring Understanding in Health Care.' *Qualitative Health Research* 9: 212-226. doi: 10.1177/104973299129121794.

Boon, Stuart, Bill Johnston, and Sheila Webber. 2007. 'A Phenomenographic Study of English Faculty's Conceptions of Information Literacy.' *Journal of Documentation* 63: 204-228. doi: 10.1108/00220410710737187.

Bruce, Christine. 1997. *The Seven Faces of Information Literacy*. Adelaide: Auslib Press.

Bruce, Christine. 1999a. 'Phenomenography: Opening a New Territory for Library and Information Science Research.' *New Review of Information and Library Research* 5: 17.

Bruce, Christine. 1999b. 'Workplace Experience of Information Literacy.' *International Journal of Information Management* 19: 33- 47. doi: 10.1016/S0268-4012(98)00045-0.

Bruce, Christine. 2000. 'Information Literacy Research: Dimensions of the Emerging Collective Consciousness.' Australian *Academic and Reseach Libraries* 31 (2): 91-109.

Bruce, Christine. 2008. *Informed Learning*. Chicago: Association of College and Research Libraries.

Cheuk, Bonnie. 2002. 'Information Literacy in the Workplace: Issues, Best Practices and Challenges.' White Paper Prepared for UNESCO, the US Natioanl Comission on Libraries and Information Science, and the National Forum on Information Literacy, for use at the Information Literacy Meeting of Experts, *Prague, The Czech Republic*. http://www.nclis.gov/libinter/infolitconf&meet/papers/cheuk-fullpaper.pdf.

Cheuk, Bonnie. 2008. 'Delivering Business Value through Information Literacy in the Workpalce.' *Libri* 58: 137- 143. doi: 10.1515/libr.2008.015.

Demasson, Andrew, Helen Partridge, and Christine Bruce. 2010. 'How do Public Librarian Constitute Information Literacy?' Paper presented at 5th *International Conference on Qualitative Research in IT and IT in Qualitative Research (QualIT), Brisbane, November 29-30, 2010. http://eprints.qut.edu.au/39896/*

Doyle, Christina. 1992. Outcome Measures for Information Literacy within the National Education Goals of 1990. Final Report of the National Forum on Information Literacy. Summary of findings. Washington, DC: Department of Education.

Edwards, Sylvia. 2006. *Panning for Gold: Information Literacy and the Net Lenses Model.* Adelaide: Auslib Press.

Edwards, Sylvia, Christine Bruce, and Lynn McAllister. 2004. 'Information Literacy Research: The Consolidation of a Theme.' Paper presented at the *Research Applicaitons in Information and Library Studies: A Pre-ALIA 2004 Conference Event*, *Queensland University of Technology, September 20, 2004.* Brisbane, http://eprints.qut.edu.au/997/

Gunton, Lyndelle. 2011. 'Religious Information Literacy: Using Information to Learn in Church Community.' *Australian Library Journal* 60: 155-164.

Gunton, Lyndelle, Christine Bruce, and Ian Stoodely. 2012. 'Experiencing Religious Information Literacy: Informed Learning in Church Communities.' *Australian Library Journal* 61: 119-132.

Hepworth, Mark, and Marian Smith. 2008. 'Workplace Information Literacy for Administrative Staff in Higher Education.' *The Australian Library Journal* 57: 212-236.

Hughes, Hilary, Michael Middleton, Sylvia Edwards, Christine Bruce, and Lynn McAllister. 2005. 'La Chereche Australienne En Maitrise de l'information 2000-2005.' *Bulletin des Biblitheques de France* 50 (6): 45-55.

Kim, Huhn. 2010. 'Effective Organization of Design Guidelines Reflecting Designer's Design Strategies.' *International Journal of Industrial Ergonomics* 40: 669- 688. doi: 10.1016/j.ergon.2010.08.002.

Kirton, Jennifer, Lyn Barham, and Sean Brady. 2008. 'Understanding and Practice of Information Literacy in Australian Government Libraries.' *The Australian Library Journal* 57: 237-256.

Limberg, Louise. 1999. 'Experiencing Informaiton Seeking and Learning: A Study of the Interaction between Two Phenomena.' *Information Research* 5 (1) http://informationr.net/ir/5-1/paper68.html

Lloyd, Annemaree. 2004. 'Working Information: Developing a Grounded Theory of Information Literacy in the Workplace.' PhD diss., University of New England.

Lloyd, Annemaree. 2005. 'Information Literacy: Different Contexts, Different Concepts, Different Truths?' *Journal of Librarianship and Information Science* 37: 82- 88. doi: 10.1177/0961000605055355.

Lloyd, Annemaree. 2007. 'Recasting Information Literacy as Sociocultural Practices: Implications for Library and Information Science Researchers.' *Information Research* 12 (4). http://informationr.net/ir/12-4/colis/colis34.html

Lloyd, Annemaree, and Kirsty Williamson. 2008. 'Towards an Understanding of Information Literacy in Context: Implications for Research.' *Journal of Librarianship and Information Science* 40: 3- 12. doi: 10.1177/0961000607086616.

Lupton, Mandy. 2008. 'Information Literacy and Learning.' PhD diss., Queensland University of Technology.

Macoustra, Jane. 2004. 'Information Literacy: Organisational and Law Firm Perspectives.' *Legal Information Management* 4: 130-135.

Marton, Ference. 1981. 'Phenomenography: Describing Conceptions of the World around Us.' *Instructional Science* 10: 177-200.

Marton, Ference. 1986. 'Phenomenography: A Research Approach Investigating Different Understanding of Reality.' *Journal of Thought* 21 (2): 28- 49.

McCosker, Heather, Alan Barnard, and Rod Gerber. 2004. 'Phenomenographic Study of Women's Experiences of Domestic Violence during the Childbearing Years.'

Online Journal of Issues in Nursing 9 (1).
http://www.nursingworld.org/MainMenuCategories/ANAMarketplace/ANAPerio
dicals/OJIN/TableofContents/Volume92004/No1Jan04/ArticlePreviousTopic/Chil
dbearingDomesticViolence.html

McMahon, Camile, and Christine Bruce. 2002. 'Information Literacy Needs of Local
Staff in Cross-cultural Development Projects.' *Journal of International
Development* 14:113- 127. doi: 10.1002/jid.864.

Moss, Gloria, Rod Gunn, and Jonathan Heller. 2006. 'Some Men like it Black, Some
Women Like it Pink: Consumer Implications of Differences in Male and Female
Website Design.' *Journal of Consumer Behaviour* 5 : 328-341. doi:
10.1002/cb.184.

Mutch, Alistain. 2008. *Managing Information and Knowledge in Organisations: A
Literacy Approach*. New York, London: Routledge.

O'farrill, Ruben Toledano. 2008. 'Conceptions of Effective Information Use and
Learning in a Tele-health Organization: A Phenomenographic Study of
Information Literacy and Knowledge Management at Work.' PhD diss., The
Robert Gordon University.

O'Sullivan, Carmel. 2002. 'Is Information Literacy Relevant in the Real World?'
Reference Services Review 30: 7- 14. doi: 10.1108/00907320210416492.

Rosenberg, Victor. 2002. 'Information Literacy and Small Business.' White Paper
Prepared for UNESCO, the US Natioanl Comission on Libraries and Information
Science, and the National Forum on Information Literacy, for use at the
Information Literacy Meeting of Experts, *Prague, The Czech Republic*.

Svensson, Lennart. 1997. 'Theoretical Foundations of Phenomenography.' *Higher
Education Research and Development* 16: 159-171. doi:
10.1080/0729436970160204

Tao, Yu-Hui. 2008. 'Information System Professionals' Knowledge and Application
Gaps toward Web Design Guidelines.' *Computers in Human Behavior* 24: 956-
968. doi: 10.1016/j.chb.2007.02.020

Yates, Christine, Helen Partridge, and Christine Bruce. 2009. 'Learning Wellness: How
Ageing Australians Experience Health Information Literacy.' *The Australian
Library Journal* 58: 269-285.

Yates, Christine, Ian Stoodley, Helen Partridge, Christine Bruce, Helen Cooper, Gary
Day, and Sylivia L. Edwards. 2012. 'Exploring Health Informatoin Use by Older
Australians within Everyday Life' *Library Trends* 60: 460-478. doi:
10.1353/lib.2012.0004

Zurkowski, Paul. 1974. *The Information Service Environment Relationships and
Priorities. Related Paper No. 5*. Washington, D.C: National Commission on
Libraries and Information Science.
http://www.eric.ed.gov/contentdelivery/servlet/ERICServlet?accno=ED100391.

Elham Sayyad Abdi e.sayyadabdi@qut.edu.au

PhD Candidate, School of Information Systems
Science and Engineering Faculty, Queensland University of Technology
2 George St.
Y Block, Level 7, Gardens Point Campus
Brisbane, QLD 4000

Elham Sayyad Abdi is a PhD candidate in Information Studies at Queensland University of Technology. Her research interest focuses on the workplace information literacy. Elham is a qualified librarian.

Helen Partridge h.partridge@qut.edu.au

Professor, School of Information Systems
Science and Engineering Faculty, Queensland University of Technology
2 George St.
Y Block, Level 7, Gardens Point Campus
Brisbane, QLD 4000

Professor Helen Partridge is the Coordinator of Library and Information Science Education at the Queensland University of Technology. Helen has received over $1million in research funding; her work focuses on the interplay between information, learning and technology.

Christine Bruce c.bruce@qut.edu.au

Professor, School of Information Systems
Science and Engineering Faculty, Queensland University of Technology
2 George St.
Y block, Level 7, Gardens Point Campus
Brisbane, QLD 4000

Christine Bruce is Professor in the Information Studies Group, Science and Engineering Faculty, QUT. She is chair of the QUT Higher Education Research Network and HDR Coordinator for the Information Systems School. Christine is especially interested in the application of learning theory and qualitative research to understanding peoples' information and learning experiences.