Modes of Information Seeking: Developing personas of humanities scholars

Mohd Khaleed Al-Shboul and A. Abrizah
University of Malaya

Abstract
Persona is increasingly used to create a model that represents user behaviour. This requires a thorough understanding of users’ information-seeking behaviour, their goals, their expectations, their needs, and their forms of action. The objective of this study is to use personas to gain insight into the information seeking activities of humanities scholars. The humanities scholars at Yarmouk University Jordan, which is situated in an ICT-enriched setting, are selected as a case. Five models of information seeking behaviour are integrated to be the conceptual model of this study. Seven modes of active information seeking emerged from the research findings: a) decision to seek information by the scholars or intermediary, b) exploration, c) monitoring, d) accessing, e) categorization, f) purification, and g) satisfaction. The four personas uncovered in this study had different judgments of information seeking, depending on their computer literacy and the types and formats of information sources needed. Similarly, the personas had different priority lists on exploring, monitoring, accessing, categorizing and purifying information. However, the reaction of satisfaction after the search closure was similar in all personas. Using personas as a precise description of a typical library user and what he or she wishes to accomplish provides a clear picture of humanities scholars’ information seeking behaviour. This may lead to a better understanding of the information seeking activities and strategies they believe can address their information needs. Knowing users’ information seeking behaviour is crucial for librarians in order to provide suitable information sources and desirable library services. The library management can use the personas to focus on the unique goals of a specific person to develop a product and service that satisfies the needs of various library users.

Keywords
information seeking behaviour, information needs, personas, humanities scholars, Jordan

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The use of personas helps librarians to understand the real needs of humanities scholars in respect of library services and resources.

Introduction
The abundance of information on the Internet has changed the information environment in which humanities scholars work (Houghton, Steele and Henty, 2003; Tahir, Mahmood and Shafique, 2008; Tahir, Mahmood and Shafique, 2010; Quan-Haase and Martin, 2012). This will have affected the information seeking behaviour of humanities scholars and the way that academic libraries render resources and services to this research community. The field of information behaviour has changed in several major ways; to a large extent, these changes seem to be simultaneous.
with the emerging digital environment – the born digital, social media and new publishing models, such as open access – and are affected by the greater use of English on the Web-based platform. Past studies have provided significant evidence of differences between the information seeking behaviour of scholars in the sciences (Rafiq and Ammeen, 2009; Jamali and Asadi, 2009; Nor Liyana and Noorhidawati, 2014; Norbert and Lwoga, 2013; Sarkhel and Khan, 2014) and the social sciences (Bhatti, 2010; Al-Suqri, 2007; Kumar, 2013; Msagati, 2014).

This study focuses on humanities scholars – “intellectually able seekers who are not technical in orientation” (Buchanan et al., 2005: 218) – in developing countries, as limited studies have been conducted on how these scholars seek information (Al-Suqri, 2007; Tahir, Mahmood and Shafique, 2008; Bhatti, 2010; Mostofa, 2013). This study aims to reveal humanities scholars’ intentions in their information seeking behaviour, and the strategies or tactics that they believe will address their information needs. It specifically reflects the condition of humanities scholars in a non-English-speaking Arab nation, purposively sampling the humanities scholars at Yarmouk University, Jordan.

Before designing a product, service or system, most library institutions routinely gather information about the target users’ information behaviour (Pruitt and Adlin, 2006). Norman (1988) suggested that the understanding of users should be a vital part of the design process, which leads to the development of more usable and more satisfying systems (Abras et al., 2004). However, even though library organizations are aware of the expectations of their target users, library services still fail to understand the users’ information seeking behaviour (Pinfield, 2001; Baitelli and Litva, 1995) and the usability of library websites and systems is still extremely poor in many cases (Nielsen and Norman, 2000).

Various approaches have been used in information behaviour studies; however, most of these methods fail to make the users seem like “real people in the eyes of the individuals making design decisions” (Maness et al. 2008). The same may be applicable to the information service environment, i.e. when library users and their information seeking behaviour are “abstract and not life-like” (Maness et al. 2008), library service designers and other decision makers are more likely to use their own assumptions about the users to drive the library service design process. As a result, the library service design process may not reflect the actual users’ information seeking behaviour and the users’ information needs are not gratified.

This paper, with the aim of furthering earlier work on the information needs of humanities scholars in Jordan (Al-Shboul and Abrizah, 2014), discusses the information seeking practices of the humanities scholars in the active information seeking stage. Active information seeking refers to the systematic stages that scholars follow during the information seeking process, where they initiate this process by taking a decision to seek information, exploring, monitoring, accessing, categorizing, purifying and ending the process with satisfaction. These seven stages of active information seeking have been identified based on a synthesis of five information seeking behaviour models described by Ellis (1989), Kuhlthau (1991), Wilson (1997), Niedźwiedzka (2003), and Foster (2005). Ellis’ behavioural model of information searching strategies (1989) is concerned with six patterns in the actual search activity (namely starting, chaining, browsing, differentiating, monitoring, and extracting); however, Kuhlthau’s model of information search process (1991) presented six stages of activity (initiation, selection, exploration, formulation, collection, and presentation), within which the behavioural patterns may occur. Kuhlthau’s (1991) model complements that of Ellis by attaching to the six stages of the ‘information search process’ the associated feelings, thoughts and actions, and the appropriate information tasks. Wilson’s problem solving model (1997) pictures the cycle of information activities, from the rise of information need to the phase when information is being used, and the model includes various intervening variables (e.g. personal, role-related and environmental), which have a significant influence on information behaviour, and mechanisms which activate it. Niedźwiedzka (2003), who modified Wilson’s model (2003) shows two basic strategies of information seeking – from the perspectives of a fully independent user, or a user who is fully dependent on intermediaries. Foster’s non-linear model of information seeking (2005) illustrates the process of information seeking (namely opening, orientation, or consolidation) in a way that reflects the experience of information seekers, taking into account the interaction between the information seeker’s cognition, and their internal and external contexts. It is fairly obvious that these five models relate to the active search mode of information seeking behaviour and provide, in effect, a model of a set of
information activities. This justifies the focus on active information seeking because the active behaviour consists of specific, describable actions and hence lends itself to modelling in a clear, comprehensive manner. The inclusion of passive information-seeking activities such as participation in conferences, seminars, group meetings, and workshops, as well as meetings at the workplace, discussion at social events, and the supervision of students, is likely to make the model too complex and less purposeful.

Persona is used in this study as a method of design interaction that assists in knowing the information seeking activities of humanities scholars. Persona develops lifelike persons from the collected data of real persons. The ability of the persona method in making a software product has been proved in anticipating the response of users to excellent design (Goodwin, 2002; Pruitt and Grudin 2003). Seeing the potential and advantage of persona in understanding the need and behaviour of the users, this method is used to understand the information seeking activities of humanities scholars through development of the persona. Details about the persona method of analysis are available in Al-Shboul and Abrizah (2014). Specifically, the findings of this study are expected to assist academic libraries in their decision-making for resource and service provision to humanities scholars; and generally to be used to represent the modes of information seeking behaviour of humanities scholars in the Arab nation.

Literature review
A review of the literature indicates that there is no exact definition for the term ‘information seeking behaviour’. It is described as “any activity of an individual that is undertaken to identify a message that satisfies a perceived need” (Krikelas, 1983: 6). In other words, information-seeking begins when someone perceives that the current state of possessed knowledge is less than that needed to deal with some issue. It is also briefly stated as “the way people search for and utilize the information” (Fairer-Wessels, 1990: 360) or “identifying, locating and acquiring needed information” (King, Casto and Jones, 1994: 4). Marchionini (1995) defined it as a process in which humans purposefully engage in order to change their state of knowledge, and which is closely related to learning and problem solving. Wilson (2000) defined it as “the purposeful seeking for information as a consequence of a need to satisfy some goal” (p.49). Mostofa (2013) associated it to those activities a person engages with when identifying his or her own need for information, searching for such information in any way and using or transferring information.

The search skill in information seeking behaviour is important to be studied as it is the first step that the user embarks upon in information seeking, that has great influence on the consequences of the process (Hsieh-Yee, 1993; Wildemuth, 2004). Leckie, Pettigrew and Sylvain (1996) listed the factors influencing information seeking behaviour, which include personal reasons for seeking information, the kinds of information being sought, and the ways and sources with which needed information is being sought. A study by Ucak and Kurbanoglu (1998) on scholars in a Turkish university discovered that the field of research is the main reason that determines the type of information they seek. In seeking information, scholars prefer printed materials such as books as their informal channel, and they rely on catalogues. They monitor information seeking by seeking references in bibliographies. Other studies found that scholars prefer electronic journals (Brockman, et al., 2001), use of online abstract services, CD-ROMs and databases (Ellis and Oldman, 2004). In their survey on arts and humanities scholars at the University of the Punjab, Pakistan, Tahir, Mahmood and Shafique (2008) learned that the first two main sources of information were consulting the professionals in the subject field and consulting the invisible college. The main locations of their information sources were the departmental library and personal library or personal collection.

The information seeking behaviour of humanities scholars is changing with the abundance of electronic resources and rapid increment of information that can be discovered on the Internet (Tahir, Mahmood and Shafique, 2010; Mostofa, 2013; Abels, 2004). Studies on humanities scholars’ information seeking skills reveal that they use simple two or three keywords searches on the web. They do not use advanced search option such as Boolean logic (Jansen, Spink and Saracevic, 2000; Bussert, 2011). The importance of having more training in effective seeking through online resources was stressed by Talja and Maula (2003) and Gardiner, McMenemy and Chowdhury (2006).

Many methods of analysis for user behaviour studies have failed to make a comprehensive connection between the service provider and the users due to the lack of practical details on how the latter behave
(Miaskiewicz et al., 2008; Brickey, Walczak and Burgess, 2012). This shortcoming can be overcome through a clear and explicit semblance of the users using persona (Pruitt and Grudin, 2003; Ward, 2010). Persona is a relatively new method used in the identification of user behaviour and was created by Alan Cooper (Cooper 1999) as a user-centered design method to develop made-up user characters that represent several groups of users who share similar goals, needs and frustrations. Mulder (2006) suggests several approaches for creating personas, all involving qualitative research and “segmentation” of the users. Segmentation, explains Mulder (2006), is “the art of taking many data points and creating groupings that can be described based on commonalities among each group’s members”. For personas, the goal is to find patterns that facilitate grouping similar people together into types of users, typically based on their goals, attitudes, and/or behaviours. The assigned identity and character of the users help in learning the users accurately (Norman, 2004; Pruitt and Adlin, 2010) and is getting attention to be used in users’ behaviour study (Junior and Filgueiras, 2005). The detailed description of the users and how they act in their setting makes the finding of one case study of the persona transferable to another case study with a similar population of users (Rempel, Buck and Deitering, 2013).

A few studies illustrate how persona is used to identify users’ behaviour and practices in a library and information service setting. Miaskiewicz, Sumner and Kozar (2008) used persona in their study to describe different classes of potential institutional repository users on university campuses, which can be used to guide the developers in designing repositories that facilitate increased participation among faculty and students. Ward (2010) personified undergraduate and graduate students and faculty in order to understand the motivation and characteristics of library users. Five personas were created, namely Brooke the Beginner; Richard the Researcher; Sharon the Scholar; Paul the Professional; and April the Alumna (Ward 2010). Zoohorian-Fooladi and Abrizah (2014) explained how the persona method can be helpful to illustrate academic librarians’ social media presence with respect to how their social media awareness, practices and readiness determined the personas into which they were grouped: Skaters, Sliders, Shufflers and Starters. This stream of research on the persona method may provide library managers with results that can be useful to understand the behaviour of users or other librarians in order to better utilize technological tools in the library and information service environment.

However, there is little evidence of studies on the use of the persona method to study information seeking of humanities scholars. Al-Shboul and Abrizah (2014) illustrated how incorporating personas may lead to better understanding of the information needs of these scholars. The four personas uncovered in their study were given real names and faces to help better utilization of library sources and services that will address the information needs of humanities scholars and avoid hindrances in information seeking activities. This research is furthered in the present study, which demonstrates how persona is used in understanding the information seeking activities of humanities scholars. The concretization of personal characteristics into personas paves the way for a better understanding of humanities scholars’ information behaviour in an Arab nation.

Method

The objective of this study is to use the personas method of analysis to gain insight into the information seeking activities of humanities scholars at Yarmouk University (YU) in Jordan, one of the top universities in Jordan and in the Arab countries. Personas are used for the following reasons, as mentioned in Adlin and Pruitt (2010) and as affirmed by Al-Shboul and Abrizah (2014: 502): (a) personas are a highly memorable, inherently usable communication tool if they are communicated well, and (b) personas are shared ideas around which the users come to life in the mind of the people in an organization.

Although personas are typically used in practical contexts of user interface design, this work suggests that personas can also be helpful when defining a model of information seeking. Personas may be used to represent a group of humanities scholars that share some common characteristics, needs, and goals in information seeking. The personas uncovered in this study may be able to effectively communicate the actual information needs of the humanities scholars through the personal narrative, name, and face. This will allow the academic library to shift from talking about general users, to the understanding and identification of what the personas really want from library services and effectively address user needs. Rather than referring to users in an abstract form, references to personas enable the design of the model to better
capture the characteristics of the types of users that are actually taking part in the information-seeking process. Five (5) models of information behaviour by Ellis (1989), Kuhlthau (1991), Wilson (1997), Niedzwiedzka (2003), and Foster (2005), were adopted as the conceptual models to explore the information behaviour of the humanities scholars at Yarmouk University.

Yarmouk University has been purposively sampled as the case setting because it represents an ICT-enriched environment for the following reasons:

a) It is located in the YU Street, which was been recognized by the Guinness Book of World Records in 2008 as the most crowded Internet cafés street in the world (Rihani, 2008).

b) It is the first university in Jordan that has established the International Computer Driving License (ICDL) Centre, whose vision is to train scholars to be able to use the computer and electronic resources in university libraries.

c) It houses the Al-Husayniyyah Library, one of the best university libraries in Jordan. The library offers an off-campus theses search service, and is a repository centre for all journals published by universities in the Arab countries.

d) It houses the Centre of Excellence for Public University Library Services. The centre, which manages and coordinates the Jordanian public university library information network and services, was established in 2004 by the AL-Husayniyyah Library.

Past studies regard humanities scholars as incompetent users of electronic information (Bates, 1996; Delgadillo and Lynch, 1999; Massey-Burzio, 1999; Talja and Maula, 2003; Barrett, 2005; Buchanan et al., 2005; Tahir, Mahmood and Shafique, 2010). This case study involved 26 humanities scholars comprising 5 females (19%) and 21 males (81%) from 14 academic disciplines, who were purposively sampled. In-depth face-to-face interviews were conducted in Arabic from January to September 2011 at the participants’ preferred locations – Al-Husayniyyah Library, their office, or house. The interview comprised 19 open-ended questions, and each humanities scholar was interviewed at least twice or until data saturation. The interview took 50 to 60 minutes and was tape recorded for later transcription. Observation of how the humanities scholars seek information using their computing facilities was also recorded in written reports to support the interview data. About 200 pages of transcripts were produced after the manual transcription and English translation. Each interview answer was analyzed using a computer spreadsheet to ease the comparison of similar answers to particular questions.

Two methods of analysis were used, namely, thematic and persona analysis. First, the transcripts were thematically analysed and grouped based on similar themes that emerged. Next, the transcripts were analyzed to identify and create the personas. Development of personas was done through the identification of significant similarities in attributes that were shared by a number of humanities scholars. Each scholar was assigned a number from 1 to 26, and a pseudonym, to maintain their anonymity. Similar answers given by different scholars were grouped into similar “patterns” (Al-Shboul and Abrizah, 2014) of active information seeking activity. When similar patterns are shared by a number of humanities scholars, these scholars become the basis for a persona. Four to six answers that were most similar among the study participants were summarized and grouped into a persona. For example, one of the key similarities of the participants that compose the Abdullah Ayman persona (provided in Appendix A1) is reliance on their own book collections and limited online searching skills. Therefore, within Abdullah Ayman’s narrative, this specific user seeking behaviour is summarized by stating, “Abdullah relies on his own printed collection and track references (chaining citation) of author and publisher. He seeks information by himself as a fully independent seeker. He becomes an entirely dependent intermediary seeker when he starts looking for electronic resources. He often asks help from his children, who are all university graduates or other experts in electronic resources to search for specific Internet resources or send emails, whenever the needs of electronic information arise”.

Once the similarities were summarized, each of the personas was given a name and face to make the personas vivid and lifelike (Maness et al. 2008). A persona narrative that introduces who the persona is was written. Consequently, four distinct personas were developed (Abdullah Ayman, Bakeri Atief, Fatimah Muhamad and Ismail Faroog). Appendices A1-A4 provide the full description of the four personas in relation to their information seeking activities. Abdullah and Bakeri represent the senior personas, while Fatimah and Ismail represent the junior
personas. The senior personas are mainly Professors and Associate Professors having more than 20 years of teaching experience. The junior personas are on the other hand, younger lecturers in terms of age and years of teaching experience. Consent to use their photographs to identify the four personas was obtained from four individuals who were not part of the study participants. Member checking, primarily used in qualitative inquiry to improve the accuracy, credibility and validity of what has been recorded during a research interview, was used as a strategy to minimize the possibility of misinterpretation and was performed on a sample of ten (10) articulate and insightful participants.

Results
In an effort to understand how humanities scholars seek, locate and obtain information to satisfy a conscious or unconscious need in the emerging digital environment, this study highlights seven modes of active information seeking by scholars in relation to the five conceptual models used in this study. The seven modes are: (a) decision-making (where to seek); b) exploration, c) monitoring, d) accessing, e) categorization, f) purification, and g) satisfaction.

Decision-making: Humanities scholars have different starting points to initiate information seeking
The interview findings revealed that the personas should have different starting points for information seeking based on their preference for the types of information sources. This study identified that the scholars use either print or digital resources for seeking information. The scholars may present themselves as either fully independent seekers, semi-independent seekers, or entirely dependent seekers who transfer the tasks of locating resources to information intermediaries based on the type of source. The common activities involved are browsing the library, consulting informal mediators, using reference collections, and preliminary searching.

Fully independent seeker for print resources. All four personas are fully independent seekers when seeking for print resources. Abdullah and Bakeri seek for information on their own based on personal experiences using versatile repertoire of information seeking strategies. “I am like a hen when laying eggs, I mobilise all of my senses to find what I need from my own book collections” (Abdullah). “Normally, I start looking for texts and journals myself and browse the university library collection or my own [collection]. I am positive that I am able to get what I look for” (Bakeri).

Meanwhile both younger personas, Fatimah and Ismail, are optimistic that due to their ICT skills, they would discover what they look for, either in their own university library collection or at other university libraries. “I would start by dividing my topic into several areas that I will address; the Al-Husayniyyah library has many types of information resources; so I suppose to find that on my topic because I know how to search” (Fatimah). Ismail said: “I always search for the books by myself with confidence, I will find what I am looking for and my feeling is usually accurate”.

Semi-independent seeker for digital resources. Both junior personas, Fatimah and Ismail demonstrate their semi-independent information seeking when they are searching for online and electronic resources, especially those not available at the Al-Husayniyyah library. Fatimah, due to her inability to get the full text of resources, would ask her colleagues or librarians for help. In her words, “When I cannot get the full text of an article, this pushes me to ask for help from my colleagues or the library to provide me the article” (Fatimah). While Ismail, who has more contact with his significant network abroad, would ask them for the materials if he could not find them online: “I consult with my colleagues abroad, overseas supervisor and request them to find the article, and at later stage, I ask them to make a copy [of the article] when I cannot get it here [Jordan]”.

Entirely dependent seeker for digital resources. Both senior personas, Abdullah and Bakeri, are entirely dependent seekers when they decide to use digital resources, probably due to their inadequate skills and knowledge of how to search online. They would rely on others close to them for help: “If I fail to find certain information in my collections, then I ask my secretary for help, or one of my family members who has good knowledge about online search techniques” (Abdullah). “To get specific information within a huge database is not an easy task, so I always ask my colleagues and sometimes the librarians” (Bakeri).

Exploration: Personas exploration stages are in different order
To become informed about a topic, there is a need to explore the information found, identify possible foci,
and further express precise information needs. The common actions involved are: locating relevant information, reading to become informed, taking notes, making bibliographic citations. The personas differ in their exploration activities based on their experience, availability of own collection, availability of significant networks, ICT and language skills, format of resources they seek, and the level of complexity of the subject.

Senior persona Abdullah starts his exploration stage by browsing his own collection and tracking references (i.e. citation chaining) on relevant topics, and keeps in his mind the date of publication and author’s reputation, particularly on new subjects and topics. Apparently, he uses the classical approach of citation chaining as illustrated in his verbatim statement: “I find suitable articles within a topic when I scan the references, looking for some other interesting articles, I look for the articles backwards and forwards that are cited by and also that cite an article or resource you already have. Citations in the text that I read have always been very helpful”. However, as an independent seeker for print resources, Abdullah rarely asks his colleagues for the resources he needs; he would browse the library shelves, and even contact publishers and subscribe to the materials he required.

Bakeri would start his initial exploration stage by using the library OPAC, due to his familiarity with it, followed by browsing the library shelves where he could follow up the reference lists by taking into account the authors’ and publishers’ reputations, as well as the currency of the resources. Bakeri said: “I begin by browsing the online catalogue, when I am done with the book shelves, I start browsing the print journals and I normally have some specific resources to follow based on the reference lists”. Bakeri would then extend his search online using Google search engine. He would use more than one language in his search process: “I have extensive knowledge of French, German, and Spanish databases, so I use them frequently; due to the fact that I graduated from a European University. In fact, Proquest, Springer, Dialog, www.mecd.gob.es, Enesco and Emerald are among the most important databases that I use in my search process”.

Monitoring: Personas acknowledge the importance of monitoring stage

Another behaviour identified in this study is monitoring, where humanities scholars keep abreast of developments in their areas by regularly following or tracking specific resources. Humanities scholars monitor by concentrating on a small number of core resources, which vary between personas, and normally include key personal contacts and publications. Abdullah admits not tracking developments now, unlike when he was much younger. He relies on publishers’ catalogues to monitor specific authors and subscribes to book reviews and journals. His monitoring process is limited and is focused on his close contacts from similar fields. He prefers visiting bookstores and book exhibitions, browsing library shelves from time to time, and using indexes, abstracts and book reviews. Abdullah also considers attendance at conferences as a good platform for keeping up-to-date in his specialized field: “I love visiting bookstores, checking new titles and many times I refer to publishers [catalogue] and buy books and journals. I keep myself well-versed in my area when I go to conferences, and meet expert writers in my field”.

Bakeri regularly monitors the relevant information sources in his field. He demonstrates proactive
behaviour in the monitoring process, where he contacts publishers to subscribe to books and journals: ‘I have a list of important journals that I keep track regularly, and I contact the publisher to subscribe two journals in my field’. He also considers that attending conferences is a good source for keeping himself informed in his field.

Fatimah shows the importance of monitoring both print and electronic resources on an equal basis. When asked how she keeps herself informed in her field, she eagerly replied: ‘I check both print and electronic journals, search and browse online catalogues, use index, read abstracts, refer to reference lists of these journals. Google Scholar also keeps me updated. I do this frequently by googling the journals; see if there are new issues. I have around 10 journals, both in Arabic and English, that I regularly check. YU library databases also provide me with the current information in the field of my research. I also have membership with Questia. I also contact my colleagues and friends asking if there are new issues [of the journals]’.

Ismail indicates that monitoring is one of the most important stages in his information seeking process and he demonstrates similar behaviour to Fatimah. He has the tendency to focus more on the online tools and techniques while trying to be up-to-date. He narrates: ‘I do monitor the Internet and e-journals by making a regular check; what is available [on the Internet] and also check new issues of e-journals. I also check the table of contents, indexes, and review websites. Amazon.com for instance helps me to be updated on new books in my field. I check top journals and the most used databases, and I scan through media in my field, and sometimes I contact my previous supervisor and my colleagues abroad’.

**Accessing: Personas use different methods for accessing desired materials**

The accessing stage becomes necessary because without having the full texts of items identified through searching, scholars may not be able to go on to the processing stages (i.e. categorization and purification). The activity subsumed under this stage comprises methods and tools that the personas use to access the materials they need for their academic and scholarly tasks.

The oldest persona, Abdullah still demonstrates the orthodox way in accessing information, by browsing his own collection, contacting his colleagues, browsing library shelves and travelling to the location of the existing materials. He accesses the desired resources by writing down important notes on cards, making a copy of his colleagues’ resources, reading a free library copy, using inter-library loan request and making a copy of the resources he borrows. Bakeri has similarities with Abdullah regarding the tools and techniques used for accessing the desired materials. However, the difference lies in that that he uses OPAC before he browses the library shelves to read a copy or request a loan. He also extends accessing online: ‘When I am done with the print, I access the Internet and other electronic resources, if only there more information, I will print out those articles’.

Both junior personas, Fatimah and Ismail exhibit quite similar accessing behaviour. They access the online catalogue, read the abstracts and print them out. They also browse the Internet, in particular Google Scholar, read on screen, bookmark particular websites and if necessary print them out. Besides accessing online resources, they also refer to the Centre of Excellence website and other academic websites to read articles on screen, download to personal computers and portable data storage, or print them out: ‘I access online resources and a number of academic websites and Centre of Excellence website is one of them. (Fatimah). ‘If I want to access specific information and it is not available at Al-Husayniyyah Library, I would search online, it may be there, I browse various websites which can provide a reachable link to what I want, normally I read it directly on my computer and keep a copy in my PC or my pendrive and many times I print it out’ (Ismail). In addition, Ismail is the only persona who acknowledges that he is still in contact with his previous research supervisors abroad and browses public media websites to download desired resources to his personal computer.

**Categorization: Personas have similar methods for categorization of print, but different in electronic resources**

This is the activity of systematically sorting through particular sources in order to identify materials of interest. All four personas have similar categorization methods for print resources – they evaluate and classify the research papers based on relevance and usefulness to their subject areas. They organize the resources in physical folders or binders, by subject from general to specific. They label the folders based
on the subject headings they created and sort the resources according to author’s name, while retaining the chronological order of the sources. The folders are placed at their own home library or office. The older personas illustrate:

“I create huge folders for useful and quality papers at my office and home, and then I divide them into sub-files based on dates of publication. I put what I found in these files. I use a card and label each paper, based on the subject I create for each file, and after that I look for each author and I try as possible as I can to keep each one [author] in one sub-file” (Abdullah).

“I should first confess that I am not very good in organizing and saving online materials, so if I can, I copy and paste the materials or print directly and organize them under sub-headings, taking into account the when they are published and keep the materials in physical folders with bibliographic information. (Bakeri).

The younger personas, Fatimah and Ismail have slightly different approach to sorting electronic resources. They include two categorization procedures based on the format of resource (whether print or electronic), and the physical origin of the resource (from where they acquire the resource).

**Purification: Personas start with reading abstracts and end with full-text**

Purification involves reading and checking the accuracy of information obtained from various sources. All personas indicated that reading abstracts is the first task they perform in purification, while complete reading of a source is the last step in this mode of information behaviour. However, there are slight variations in certain purification steps between the senior and junior personas: Abdullah said: “My habit in evaluating a paper is by reading it in full, but when I don’t have enough time and need urgent information, I read the abstract first and the introduction, and then the conclusion. I read more relevant sections and identify the specific information” (Abdullah). Similarly, “I just read what is relevant by going through the abstract, and then I read the introduction which is very important to check, and then read the conclusion. When I have more time, I read it in full” (Bakeri).

The junior personas remarked: “Normally, after I read the summary, I review the table of contents, look for the main headings, then I start skimming the book for relevance points to read it later. Then, I start reading each chapter. When I find it useful, I browse the index for more relevant resources and then read the whole resource later” (Fatimah). “Initially, I start with reading the abstract or introduction and glance the table of contents for chapter titles. If I feel I can’t evaluate the importance of the book, I speed-reading the whole book for relevant information where many times it leads me to read particular parts of the book that are more related to my topic. When I have time, I browse the book index to gain more relevant information and few times I read it completely” (Ismail).

The amount of evaluation that takes place at the purification stage depends mainly on the time factor, and on the level of complexity of the resources, as well as the persona’s satisfaction with the usefulness of the resource, taking into consideration the persona’s knowledge and understanding of the topic of interest.

**Information satisfaction: Personas have a similar reaction of satisfaction after search closure**

This is the stage where personas ‘tie up loose ends’ through a final search. The information seeking tasks are complete and they have obtained the information required, thus satisfying their information needs. The study identified two reactions of information satisfaction from the senior and junior personas.

Senior personas directly obtain the resources and write down on a card or at the side margin of the resources. They directly acquire the resources and start generating thoughts and ideas and write them down on cards or annotate at the side margin of the resource.

“I request it directly and start formulating ideas accurately and professionally by writing down the important notes on special cards, I become as a professional builder who builds a wall where I put each card at proper places in the book I read” (Abdullah).

“I obtain the resource once I have the relevant information because I am not sure that I will find that resource again, so I print out the electronic texts to be read rather than reading it from the screen, black and white is a more comfortable read. I start highlighting the important information on cards special cards or at the margin of the paper” (Bakeri).

Junior personas directly obtain the resources and highlight the main points to be formulated and used later after they have finished the full search. ‘Highlight’, in this context, is an indication that text or another object has been selected with the mouse or keyboard.
“Normally, when I am satisfied with any resource, I start to read it directly online and highlight the important notes and keep a copy in my PC or my pendrive. Many times I print it for ease of reading later” (Fatimah).

“I will request or download the article so that I make good use of my time. Then, I start highlighting the most relevant notes. After I finish searching, I start formulating the highlighted notes and write my research paper” (Ismail).

Discussion

This section discusses the findings that show how the seven modes of active information seeking stage conform to humanities scholars’ information seeking activities. The main findings of this study are discussed based on the interaction of humanities scholars’ personas with their information tasks characteristics in their information seeking behaviour, and are summarized in Table 1.

In the decision making stage, the senior and junior personas demonstrate different behaviour as their decisions to seek information as fully independent, semi-independent or fully dependent seekers depend on their information seeking skills, knowledge and experience. The senior scholars, who have extensive personal experience in research and teaching, tend to rely on their personal collections. In contrast, the junior scholars who do not have enough research experience or knowledge on the topic, rely on their online searching skills to seek for unknown information. All personas act as fully independent seekers when it comes to searching print resources, regardless of resource location, either in their own collection or in the university library. Senior personas (Abdullah and Bakeri) demonstrate resourcefulness in searching based on their personal experience and personal information collections, whilst the junior personas (Fatimah and Ismail) rely on their online searching skills. Senior personas become entirely dependent information seekers when it comes to searching for and using online information. The junior personas become semi-independent information seekers when the electronic resources they need are not available in their university library or other local university libraries.

All personas, in the initial stage of the information seeking process, begin exploration in different orders of action, possibly based on their experience, own collection, ICT skills, format of resources they seek, the nature of the subject and the level of complexity of the subject. Senior personas still adhere to conventional search behaviour; they rely heavily on print resources and take into consideration the date of publication and the authors’ and publishers’ reputations. They tend to avoid electronic resources. Their information seeking behaviour is manifested by quiet exploration which may be due to their preference for solitude (Long and Averill, 2003) or feelings of uncertainty and doubt with information access systems itself (Kuhlthau, 1991). Unlike their seniors, the junior personas emphasize electronic resources and current information, and they have the tendency to consult colleagues and friends, who are informal mediators, as well as perform collaborative information seeking tasks, much as other similar studies have discovered (Mostofa, 2013; Tahir, Mahmood and Shafique, 2008; Bronstein, 2007; de Tiratcl, 2000; Wiberley and Jones, 2000).

Monitoring relevant resources is commonly undertaken by all personas. The sporadic and eclectic Internet usage that characterizes the senior and junior personas respectively explains the way they monitor information in their area of interest. The senior personas monitor printed resources more than electronic resources, Fatimah monitors print and electronic resources equally, and Ismail monitors electronic resources more than print. This finding indicates that humanities scholars use different tools and techniques to monitor information sources, unlike the findings by Al-Suqri (2007), where social scientists in Oman, another Arab nation, make increasing use of electronic resources but retain a preference for print resources and informal sources to monitor information.

In the accessing stage, all personas emphasized the need to have the full text of the desired information resources. However, in cases of unavailability of the full-text information from the library, personas used different tools and methods to obtain their desired materials. The senior personas read free library copies, travel to the location of the desired materials, contact publishers for individual subscriptions and contact their colleagues for further information. The junior personas browse the library’s electronic journals, subscribe to electronic databases, use other libraries and academic websites, and contact their significant network abroad. The versatility in information seeking between the senior and junior personas explains the way they access information in their area of interest.

It is expected that if the personas become more experienced, they will categorize the information in a more systematic manner, in a way that is...
Table 1. Interaction of personas with their information tasks in their mode of information behaviour.

<table>
<thead>
<tr>
<th>Mode of Information Behaviour</th>
<th>Information Tasks Characteristics</th>
<th>Persona</th>
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<tbody>
<tr>
<td><strong>Decision-making</strong>&lt;br&gt;(Starting point for information seeking)</td>
<td>Fully independent seeker when seeking for print resources&lt;br&gt;Semi-independent seeker when seeking for digital resources&lt;br&gt;Entirely dependent seeker when seeking for digital resources</td>
<td>All personas&lt;br&gt;Junior Personas&lt;br&gt;Senior Personas</td>
</tr>
<tr>
<td><strong>Monitoring</strong>&lt;br&gt;(Keeping abreast of developments in the area by regularly following or tracking specific resources)</td>
<td>Browse index, abstracts and references in reading materials – Talk to informal mediators&lt;br&gt;Book reviews and publishers catalogues – Monitoring specific authors’ works&lt;br&gt;Attend conferences – browse bookstores and book exhibitions – publisher – library shelves – Subscribe books and journals&lt;br&gt;Browse online catalogues&lt;br&gt;Search online (Google Scholar) – browse bookmarked websites, Centre of Excellence website &gt; search electronic databases&lt;br&gt;Communicate with significant networks abroad – media resources</td>
<td>All personas&lt;br&gt;Abdullah&lt;br&gt;Senior personas&lt;br&gt;Bakeri, Fatimah and Ismail&lt;br&gt;Junior personas&lt;br&gt;Ismail</td>
</tr>
<tr>
<td><strong>Accessing</strong>&lt;br&gt;(Reading and checking the accuracy of information obtained from various sources)</td>
<td>Borrow from colleagues, make copies&lt;br&gt;Buy resources or make copies when travel&lt;br&gt;Read own collection and make importance notes on cards&lt;br&gt;Buy the resource, subscribe from publishers&lt;br&gt;Read abstract from online databases, print the online articles&lt;br&gt;Read on screen, bookmark, download, subscribe to electronic databases and print a copy&lt;br&gt;Read on screen, bookmark, download and print a copy – Internet resources, Google Scholar, Centre of Excellence and other academic websites&lt;br&gt;Read on screen, bookmark, download and print a copy from personal information gateway,</td>
<td>All personas&lt;br&gt;Ismail&lt;br&gt;Ismail and Bakeri&lt;br&gt;Ismail and Bakeri&lt;br&gt;Bakeri, Fatimah and Ismail&lt;br&gt;Bakeri, Fatimah and Ismail&lt;br&gt;Fatimah and Ismail&lt;br&gt;Ismail</td>
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(continued)
considerably better organized. All personas use similar methods to categorize the print resources they obtain. Categorization is very important to junior personas in relation to the accessing mode, not only in terms of organizing online materials, but also in contributing to the overall efficiency of their research process. The less important materials can be skimmed and stored if necessary for retrieval in the future. Generally, using electronic tools allows the personas to perform more complex and flexible systems of categorization. For example, information could be stored in many locations such as the computer’s hard drive, desktop, USB memory drive or email folders.

Although the personas go through different purification stages, they all indicate similar initial steps of purification through reading the abstract, and the final step by reading the entire material. Variations are used in between the initial and final step which differ between the senior and junior scholars.

All personas express their satisfaction with the results of an information search by obtaining the desired resources directly and using them. It is evident from this study that the personas who have versatile information and ICT literacy skills and know more than one language have more opportunities to seek for information in various locations and formats. Consequently, they should be more satisfied with the information they obtain compared to other scholars.

**Conclusion**

The information behaviour of scholars has long provided a fruitful area of inquiry within library and information science research. Over decades of investigation, researchers have identified and analyzed the major information behaviour attributes of this community. Based on the five models of information behaviour along with seven additional attributes in the active seeking stage introduced in this paper, we are able to understand how humanities scholars seek for information. The modes of information seeking cover how they decide to seek information, how they explore, monitor and access the desired resources, how they categorize and access the desired resources, how they categorize and budget the desired information, and what they do with the information after the search closure. Developing a keen understanding of scholars’ actual information needs and seeking behaviour can help the library design systems and services that meet users where they are at, and support the emerging information practices of today’s scholars and learners.

The personas developed in this case study provide practical information that can assist the understanding
of the barriers to effective information seeking faced by humanities scholars in an ICT-enriched environment in an Arab nation. An advantage of having defined personas (Appendix A) is their ability to evoke a strong focus on intended users and elevate them above personal preferences to the actual needs of the humanities scholars the libraries mean to serve. In other words, personas provide the creation of empathy for the intended users (Norman, 1988) As the libraries know and understand more about the scholars’ information needs and seeking behaviour, the scholars will have a new lens with which to view their library. Therefore, whether the library is trying to improve an existing touchpoint or create a new service, referring back to attributes of each persona (Appendix A) is a strategy that will benefit the users and the library, and by meeting the users’ needs and helping them to succeed, the library will be important to them. Since there have been limited studies in the non-English speaking developing countries regarding this issue, libraries in these countries can take advantage of the findings of this study to leap forward for improvement in the delivery of information sources and services.

The study is not without limitations, and it cannot be assumed or guaranteed to what level its findings can be generalized to other humanities scholars in other universities. There is a need for further research to formulate and validate a detailed research design of the persona method which can be applied to other humanities scholars in other developing countries. Modifications of our persona method in terms of the geographical and cultural contexts of humanities scholars are encouraged to fully reflect the current persona of humanities scholars in their information seeking activities within an ICT-enriched environment. Without developing personas as representative of targeted population behaviour, the chance of misunderstanding the real needs of humanities scholars in respect of library services and resources is high. With personas, appropriate services and resources can be provided to fulfil scholars’ exact information needs.

This study also has shown that the persona method is appropriate and meaningful for the library management to adapt. This is because the development of the personas provides anecdotal evidence representative of the library users. It is hoped that the persona method explained above and the personas of the humanities scholars developed thereby are transferable and adaptable to be practiced by academic libraries. Some modifications of the research design might be needed according to the demographics and the context of other groups of scholars.

Appendix A

A1. Professor Abdullah Ayman Persona

<table>
<thead>
<tr>
<th>Name: Professor Abdullah Ayman</th>
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<tr>
<td>Represents five respondents of senior scholars from four human-science faculties.</td>
</tr>
<tr>
<td>Age: 61</td>
</tr>
<tr>
<td>Teaching: Bachelor, Master and PhD students</td>
</tr>
<tr>
<td>Supervision: Master and Doctoral students</td>
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Prof. Abdullah Ayman is a professor at four human-science faculties at YU, and has been a faculty member for 35 years. He is actively involved in his research on human sciences by using Arabic language for all of his research papers. He is one of the important social personalities in his society, so he spends a lot of his time to mend fences between the members of his society.

He is not aware about the electronic resources, which he has never been able to follow with the breath of information resources that are available on the Internet nowadays. Therefore, for his research, initially he makes an exploration by relying on his own printed collection and track references (chaining citation) of author and publisher. He seeks information by himself as a fully independent seeker. While he became an entirely dependent intermediary seeker when he started looking for electronic resources, he is not explicitly aware of the concept of digital libraries and open access repositories. Due to his inadequacy of searching skills he often asks help from his children, who are all university graduates or other expert in electronic resources such as databases, to search for specific Internet resources or send emails, whenever the needs of electronic information arise.

(continued)
Appendix A1. (continued)

<table>
<thead>
<tr>
<th>Name: Dr. Bakeri Atief</th>
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<tr>
<td>Represents five respondent senior scholars from three human-science faculties.</td>
</tr>
</tbody>
</table>

**Age:** 52  **Year of Expertise:** 23  
**Teaching:** Bachelor, Master and PhD students  
**Supervision:** Master and Doctoral students

Dr. Bakeri is an associate professor at three human-science faculties at YU, and has been a faculty member for 23 years. He is actively involved in research on human sciences using Arabic and other languages. He actively volunteers with a variety of services in the Irbid City (where he lives) after the lectures - environmental preservation and drug awareness. On the weekend, he likes gardening.

He relies on his collection and contacts with his colleagues to fill his information gaps. He does not have any computer or searching skills training, but recently he has become partially aware of information search methods. He learned by himself a few skills through trial and error, asking his colleagues and family members. However, he tries to avoid using the electronic resources for his research papers and ask his students to avoid it also. This is due to his misconception on the uncertainty and inaccuracy of the electronic resources. He believes there is no control, particularly of the Internet.

As a fully independent seeker, his personal experience is the starting point of his research. But, as entirely dependent seeker, he asks his colleagues for help in collecting information, particularly the electronic resources and suggestions about certain issues. He still uses the old card method, but he is also capable of using the computer facilities. He also does not have a research network with others. He initially explores the information by using the OPAC and the library shelves where he could follow up with the citations of references. He showed some proactive behaviour in monitoring the new information. He contacts the publisher to subscribe to printed books and journals. He also considers attending conferences as a good source to be updated. In accessing the information materials, he relies on the library collection - free library copy and inter-library loan request. Then, he classifies the resources by subject and organizes them in physical folders. He purifies each resource by reading the abstract and introduction and checks the table of contents to read the main points. After he is satisfied, he stops searching and obtains the resources to save his time and effort. His biggest frustration was the lack of desired information, inaccurate information, not confident in using the electronic resources. He also wishes that Al-Husayniyyah offers more printed materials.
A3. Assistant Professor Dr. Fatimah Mohammad persona

Name: Dr. Fatimah Mohammad  
Represents nine assistant respondents of junior scholars from three human-science faculties.  
Graduated: Arab countries  
Age: 40  
Year of Expertise: 8  
Teaching: Bachelor and Master students  
Supervision: Bachelor and Master students

Dr. Fatimah is a lecturer and assistant professor at three human-science faculties at YU, and has been a faculty member for 8 years. She is actively involved in human sciences research using Arabic language. She is newly married and seeks for self-independence with two children. She enjoys cooking traditional Jordanian food and likes to swim and play chess during free time. She is also a member of YU Club.

She adopted the electronic information technology significantly; around half the respondents of this Persona had attended computer searching skills training and have ICDL. She likes to use the electronic resources; respondents from the faculty of Shari‘a of this Persona have their own gate of an online database collection (Al Maktabah Al Shamilah). She does not rely on her collection because she does not have extensive collections, difficult to find specific resources and expensive cost.

She begins her exploration stage by consulting her colleagues to locate the information, and then uses the OPAC system and the search engine (Google) to narrow down her search. This allows her to track references (chaining citation) and follow bibliographic references. Often this leads her to subscribe to certain academic electronic databases. She gives equal attention to both printed and electronic resources in the monitoring stage. Her monitoring process involves searching index and abstracts, searching and browsing online catalogues, citations and references in reading materials, browsing table of contents of journals, communicating with colleagues and friends, browsing Internet and search engine (Google Scholar), revisiting preferred websites and Center of Excellence website, and subscribing the electronic databases.

She favours accessing the online catalogue, reading the abstract and printing the resource. She categorizes the information into a selected topic of folders in the computer. Then, reads the abstract and starts skimming the main points for purification. After being satisfied, she gets the resources and highlights the important information to be used later. Her biggest frustration is when she does not have access to the full text from the Al-Husayniyyah databases, restrictions to some resources and lack of specified information.

A4. Assistant Professor Dr. Ismail Farooq persona

Name: Dr. Ismail Farooq  
Represents seven respondents of associate and assistant junior scholars from four human-science faculties.  
Graduated: European countries  
Age: 45  
Year of Expertise: 10  
Teaching: Bachelor and Master students  
Supervision: Master students

Dr. Ismail is an associate and assistant professor at four human-science faculties at YU and has been a faculty member for 10 years. He is actively involved in human science research using Arabic and other languages. He lives in the YU staff hostel with his wife and three children. He likes to cycle and jogs in the YU campus to stay healthy and fit, and he also likes to watch the news and foreign movies.

He has attended computer searching skills training and has ICDL. Thus, he prefers to use the electronic resources than the printed ones, which provide variety and current information, flexibility, and save time. He finds 70% of his resources online. He is fully aware of the changing of information search methods. He is a competent Google and Google Scholar user and is always looking for new courses and updating the existing course knowledge.

He is a fully independent seeker in printed materials, but a semi-independent seeker in online resources and resources that are not available in Jordan universities' libraries. Thus, he asks for help and exchange in collecting information and

(continued)
Appendix B: Interview Protocol (English)

**SECTION 1: Demographic Information**
1. Could you please introduce yourself, (take note also of respondent’s gender, department, research areas, mother tongue/first language, language respondent use in reading, writing, and teaching, and other related information)

**SECTION 2: Types of Information Resources Used to Satisfy the Information Need**
2. Could you please describe the types of information resources that are available to you at both the Al-Husayniyyah library and Centre of Excellence?
3. What is the type (form/format/language) of information resources you need for your academic tasks? (teaching, research and publication)
4. Which types of information resources you normally use for your academic tasks? And what are the advantage/disadvantage of using these resources?

**SECTION 3: Information Seeking Process**
5. How have library research and information access changed since you first begun researching? And how have these changes impacted your research?
6. How do you keep on top of developments in your academic field? What specific information services or resources you use? What especially attract your attention to seek information to keep well?

**SECTION 4: Barriers and Factors influence Information Behaviour**
8. When you begin with an exact idea, do you expect to find something on that specific topic or just something similar?
9. When you collect information, how do you organise and store them in the course of your research?
10. When you find useful sources of information, such as journal articles or books, how do you generally locate relevant information in them? (for example, do you usually just skim them reading relevant parts only, or read the whole resource) Please describe the process you normally undertake?
11. Could you please describe the steps that you use to obtain information when you begin searching for information for research and teaching purposes, if they are different between them? Do you have any idea of what information you require, or are you scanning in your field (for new information)?
12. What is the action that you usually take to obtain/gain relevant sources when you find them (e.g. ordering books or articles or printing them, probe further)?
13. Do you regularly monitor newspapers, journals and other sources (print or electronic) for information relating to your specific areas of research? How? (Probe further)
14. Do you generally print electronic/web resources for use in your research, or save or read them in electronic format? (Probe further)
15. What are the barriers/problems/issues you face when you try to locate and find information relevant to address your information needs? (for example, not knowing how to use the library resources; not sure where can
locate sources, availability, accuracy and keeping up-to-date... etc)

16. What do you do regarding the barriers or problems that you face when trying to obtain materials relevant to address your information needs?

17. How comfortable do you feel when you using the library resources/services? What skills, training and knowledge do you need in order to help you to improve your access to and use of library resources, particularly electronic resources?

18. Do you need to be trained to use the current library services? What level (basic or advanced training) and which training methods do you prefer also? (for example, one to one, print instructions/manuals, group sessions, etc.)

SECTION 5: Perception and Satisfaction

19. How has your information needs and seeking experience satisfied from the resources and services at Al-Husayniah library and Centre of Excellence? Describe how worthwhile it has been.

20. What could Al-Husayniah library and Centre of Excellence do to make their resources more valuable and information seeking a more satisfying and enjoyable experience to you and other users?

Note: Respondents are free to add any additional comments or opinions regarding their information needs, use, and information-seeking behaviour, with respect to resources and services of Al-Husayniah library and the Centre of Excellence.

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We sincerely thank all the research participants for their precious time and valuable insights. We acknowledge funding received from the University of Malaya (UMRG-RP005C-13ICT), which made it possible to undertake this research. We deeply acknowledge the following Jordanians for granting us the consent to use their photographs as image in their personas: Ahmad Qasim Al Shboul, Yasin Al Issa, Suzan Khaled Al Shboul, and Ibrahim Al Jurishe.

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About the authors

Mohd Khaleed Al-Shboul is from Jordan, and is currently a doctoral student at the University of Malaya, Kuala Lumpur, working on his research on information needs and seeking behaviour of humanities scholars. Contact: Department of Library and Information Science, Faculty of Computer Science and Information Technology, University of Malaya, Kuala Lumpur, Malaysia. Email: alhareth8@gmail.com
Abrizah Abdullah is a Professor at the Department of Library and Information Science University of Malaya, Kuala Lumpur. Her research interests focus on digital library for education, Open Access Initiatives, information behaviour, bibliometrics and scholarly communication. She is at present the editor of the Malaysian Journal of Library and Information Science and a research fellow at the Malaysian Citation Centre Ministry of Education Malaysia. Contact: Department of Library and Information Science, Faculty of Computer Science and Information Technology, University of Malaya, Kuala Lumpur, Malaysia. Email: abrizah@um.edu.my