

INFORMATION-SEEKING BEHAVIOUR OF IN-SERVICE SECONDARY LEVEL GEOGRAPHY TEACHERS IN LESOTHO

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ABSTRACT

This article is part of a doctoral study undertaken in the Department of Information Science at the University of Pretoria. It describes a now-completed investigation of the information-seeking behaviour of secondary level in-service geography teachers in Lesotho using focus group discussions. There were 82 participants in this sub-study teaching in various schools that offer geography both at junior and senior secondary levels in Lesotho. The study used Leckie, Pettigrew and Sylvain's (1996) model of the information seeking of professionals as its framework. Although Leckie et al's (1996) model identifies five work roles that trigger information needs, the empirical component this study identified three work roles: educator role, administrative role and non-academic role. In addition, the secondary geography teachers who were studied tend to use syllabus documents, learners' textbooks and colleagues as predominant information sources. They prefer information that will be easily understood by their learners and go to great lengths to seek information related to what they will deliver in class. This article offers a descriptive report of some key results.

KEYWORDS

Geography, information behaviour, information needs, information-seeking, information sources, Lesotho, teachers

1 INTRODUCTION

In Lesotho, secondary education is part of formal education following seven years of basic primary education. Learners start primary education at the age of six. The entry requirement into secondary education is the primary school-leaving certificate. Secondary education is divided into three years of junior secondary – which is often called junior certificate (JC) because the learners write JC examinations – and two years of senior secondary education that end with Cambridge Overseas School Certificate (COSC) examinations. Secondary education subjects include Mathematics, English Language, English in Literature, Sesotho, Science and Geography. However, Geography is not offered in every school and some schools offer it only at junior secondary level. This article reports some descriptive results of a study which involved in-service geography teachers in schools that offer geography both at junior and senior secondary levels. It was crucial to work with teachers in these schools because, while the JC geography syllabus is formulated in Lesotho, the COSC geography syllabus is formulated by the University of Cambridge. The differences between these two syllabi might trigger different information needs that have to be addressed through an information service.

Most secondary level teachers in Lesotho attain their teaching credentials after completing a three-year diploma at the Lesotho College of Education (LCE) or a four-year degree at the National University of Lesotho (NUL). The teacher training is meant to provide the fundamental knowledge and information required for teaching.

Teachers are described as ‘the population group that is active, experienced and critical users of information’ (Taylor 1991:219). Therefore, it is important to study their information-seeking behaviour. While the field of education demonstrates a substantial amount of literature about teachers, the field of information science has yet to publish much with regard to teachers’ information behaviour (Mundt et al 2006:1). Literature on teachers’ information-seeking behaviour emanates mostly from developed countries such as the United States of America (US), the United Kingdom (UK) and China. A few examples are Conroy et al (2000), Lan and Chang (2002), Pattuelli (2008), Perrault (2007) and Williams and Cole (2007). Often, it concerns only the teachers’ use of the Internet and other information and communication technologies such as computers and online resources in teaching (e.g. Barker 2009; Madden et al 2005; Noh et al 2004; Tahee et al 2004; Twidle et al 2006). Information-seeking behaviour studies on teachers in Africa are still limited, with exceptions including Nwokedi and Adah (2009) and Snyman and Heyns (2004). At the time of writing, there had not been any study reported on the information-seeking behaviour of teachers in Lesotho.

The importance of understanding users’ information needs and information-seeking behaviour in order to point the way to innovations in information services (Hepworth 2007; Kerins et al 2004; Wilson 2006) led to an investigation of the information needs and information-seeking behaviour of secondary level geography teachers in Lesotho. According to Bronstein (2010:61), understanding information-seeking behaviour can

result in the development and provision of information services that better serve the users' information needs.

1.1 PURPOSE OF THE STUDY

This article is part of a study, the purpose of which is to investigate the information-seeking behaviour of in-service secondary level geography teachers in Lesotho, in order to improve information service for these teachers. It was instigated after an observation that the majority of secondary level geography teachers in Lesotho graduate from the NUL with a BSc Ed, BA Ed, or B Ed. At NUL, BSc Ed teachers study mostly physical geography, while the rest study mostly human geography. This creates a disparity in knowledge content regarding these two major geographical spheres, yet both groups are expected to teach both spheres in schools. It is envisaged that this disparity might be addressed through the delivery of an appropriate information service. The study used the Leckie et al (1996) model (henceforth the Leckie model) of the information-seeking of professionals as its theoretical framework. The focus of this article is only on the information needs and information-seeking of in-service secondary level geography teachers in Lesotho, based on the Leckie model. The objectives of the study addressed in this article are:

- To ascertain the information needs of in-service secondary level geography teachers in Lesotho.
- To determine the information-seeking practices of in-service secondary level geography teachers in Lesotho.
- To identify the information sources preferred by these teachers.

2 CLARIFICATION OF KEY TERMS

It is important to clarify concepts such as information behaviour, information need, information-seeking, information source and secondary geography teacher, because of their relevance in this study.

2.1 INFORMATION BEHAVIOUR

In recognition of other definitions of information behaviour by Ingwersen and Järvelin (2005), Case (2007), Wilson (2000), and Fisher and Julien (2009), information-seeking behaviour is interpreted as human behaviour dealing with the generation, communication, seeking and sharing of information pertinent to their information needs.

2.2 INFORMATION NEED

Information need may be understood, in the context of Belkin's "anomalous state of knowledge", as that knowledge gap or uncertainty existing within the individual that triggers information-seeking, either immediately or at a later stage in an attempt to address uncertainty (Belkin et al 1982:62). An information need may also be the

recognition of the existence of uncertainty in the personal or work-related life of the individual (Ingwersen & Järvelin 2005; Kuhlthau 2004). The information need may be expressed, unexpressed, dormant (Krikelas 1983) or passive, not necessarily leading to information-seeking (Wilson 1996).

2.3 INFORMATION-SEEKING

Information-seeking is considered the purposive acquisition of information from selected information carriers; these include information sources and channels for communicating information (Johnson 2003:737). Information-seeking includes examining the ways in which people find information they require, such as how and where people look for solutions to information problems (Burke 2007:679). Although everyday-life information-seeking (Savolainen 2005, 1995) and non-work related information-seeking also feature strongly in the literature (Case 2006; Courtright 2007), the study does not focus on it.

2.4 INFORMATION SOURCE

The information source is a medium in which knowledge and/or information is stored (Nikalanta & Scamell 1990:25). In the workplace, Byström and Järvelin (1995:193) mention that from the workers' point of view an information source contains (or is expected to contain) relevant information. In this study, an information source is an item that has information relevant to in-service secondary level geography teachers.

2.5 IN-SERVICE SECONDARY LEVEL GEOGRAPHY TEACHER

In-service secondary level geography teacher is a person who teaches geography at the secondary education level in Lesotho and who is typically associated with high schools.

3 TEACHERS' INFORMATION-SEEKING BEHAVIOUR LITERATURE

To gain insights into the information-seeking behaviour of teachers, relevant literature on the teachers' information needs and information-seeking, including their preferred information sources, was reviewed.

3.1 TEACHERS' INFORMATION NEEDS

Pattuelli (2008) indicates that pedagogical, institutional and personal aspects of contexts may trigger the information needs of teachers. According to Pattuelli (2008), the pedagogical aspects relate to the way teaching and learning is done; institutional aspects are associated with national curriculum standards, including national examinations for testing whether standards have been met; and personal aspects pertain to individuals' characteristics such as attitude toward technology, ability to manage time, knowledge

of and experience with the subject matter to be taught. Mardis (2009:1) maintains that teachers have very specific information needs relating to mastering the curriculum content and the behavioural structure of their classrooms for a diverse range of learners. Perrault (2007) adds that teachers need information for curriculum content, presentation materials, personal knowledge and learning materials (for the learners). Mundt et al (2006:9) point out that teachers have three major roles for which they often need information. These are lesson planning and content, teaching methods and student evaluation. Likewise, Snyman and Heyns (2004:212) identified that the teachers' information needs in their study pertained to classroom activities, curricula and supportive study material. Similarly, Lan and Chang (2002) found that biology teachers' information needs included information pertaining to students, subject matter and pedagogical content. These scholars reveal an important issue related to knowing more about the students one teaches. In addition, Conroy et al (2000) indicate that secondary school teachers' information needs include social and cultural information, information resources that are tailored for teachers and learners, as well as current information.

3.2 TEACHERS' INFORMATION-SEEKING

Tanni et al (2008) found that teachers' information-seeking processes were influenced by their subject knowledge because this determines what to search for, what to deliver during the lesson, and where to search for more information. Their study revealed that teachers often start by reading the textbooks to familiarise themselves with the topic and, mainly, to compare different views. Depending on the outcome, they search for more information on the web using Google. In their study, the Internet was mainly used if the information from the textbooks was inadequate or conflicting. The information found was used in the lesson plans to complement textbooks, to exemplify, illustrate, maintain interest or raise discussions in class. Moreover, Tanni et al (2008) found that when processing information, teachers chose only those parts of a document that will be understood by their learners. As such, they simplified the vocabulary and reduced and synthesised information. This is affirmed by Sánchez and Valcárcel (1999:509) when they state that teachers take the students into account when preparing for lessons. They consider the level of the learners, their age and their general knowledge of the subject in question. When seeking information, teachers often consider materials that will be understood by their learners (Lundh 2005).

According to Tanni et al (2008), it is important to find appropriate ways of presenting information to the learners in a limited time, while still maintaining their interest in the topic. It is evident that the teachers bear the learners in mind when they are seeking information for teaching purposes. Lundh's (2005) study indicates that teachers consider it more important to find material that is useful in classroom situations, than information that is scientific. The most important criterion for the selection of materials is its applicability in the classroom. Wu et al (2005) found that teachers' choice of resources on the Internet was attributed to the accuracy and currency of information as well as to the attractiveness of a website. Here, one gathers that teachers opt for information that

is not only accurate, but also current and attractive. Attractive information is bound to catch the eye of the learners, thereby drawing their attention.

3.3 TEACHERS' PREFERENCE FOR INFORMATION SOURCES

Lundh (2005) found that, during training, teachers mostly used scientific material available through their academic libraries, but that as they started their practice, their information-seeking became more related to their pupils; colleagues are mostly used as information sources. Shanmugam (1999) reveals that teachers prefer informal and interpersonal sources of information. Williams and Cole (2007:816) found that teachers tend to rely on readily available resources, particularly those available in their schools. Their frequently used information sources were mostly colleagues, in-service events, newspapers and reports available in the schools. Tanni et al (2008) reveal that information sources used by trainee teachers comprised both print and electronic documents such as textbooks, books, magazines, newspapers, compact discs, websites and videos. Moreover, teachers often used Google to search the Internet. Wikipedia was another source that was often used by these teachers instead of printed encyclopaedias. Landrum et al (2002) studied teachers' perceptions of the trustworthiness, usability and accessibility of information from different sources. They found that teachers generally rated colleagues, workshops and in-service presentations as accessible, trustworthy and usable sources of information. In essence, professional journals were found to be less trustworthy, less usable, and less accessible when compared to information from colleagues. Perrault (2007) stipulates that sources that teachers consult for planning purposes include personal notes and handouts, audio-visual materials and tests from previous years. Nwokedi and Adah (2009) found that teachers prefer textbook information to any other source of information.

4 THEORETICAL FRAMEWORK

4.1 SYNOPSIS OF RELATED INFORMATION-SEEKING BEHAVIOUR MODELS

Although there are various information behaviour-related models – and their critical analysis and contribution to studies of information-seeking behaviour is crucial – owing to the specific limited focus of this article, such analysis is not provided. However, one may point out that general information behaviour models include Dervin (1998, 1983), Wilson and Walsh (1996) and Wilson (1981). Information search and retrieval models include Ellis (1993, 1989), Ingwersen (1996) and Kuhlthau (1993, 1991). Information-seeking models include Byström and Järvelin (1995), Krikelas (1983), Leckie et al (1996) as well as Savolainen (1995) for everyday life and Choo et al (2000, 1999) and Marchionini (1995) for electronic environments. There is also Taylor's (1991) model on information use. Leckie et al (1996:161) maintain that their model is applicable to all professionals and, therefore, it was used in this study of teachers even though Case (2007) criticises it

for restricting itself to the workplace. In the southern African context, the suitability of the Leckie model for professionals has been reported by Du Preez and Fourie (2009) and Du Preez and Fourie (2010) in respect of consulting engineers in South Africa.

4.2 THE LECKIE MODEL OF INFORMATION-SEEKING OF PROFESSIONALS

The Leckie model has six components: work roles, tasks, characteristics of information needs, awareness of information, sources of information and outcomes. Some of these components, such as information sources and information needs, are also eminent in other models, e.g. Kriekelas (1983) and Wilson (1996). From the Leckie model, one gathers that work roles lead to certain tasks that trigger information needs and, depending on the nature of the information need, information-seeking then occurs. The information needs determine the information sources to be used and also influence awareness of information. The information-seeking process results in outcomes. These outcomes provide feedback about the information-seeking process, including the information need, the sources of information as well as awareness of information. "The basic assumption of the model is that the roles assumed by professionals in their work and associated tasks give rise to certain information needs, which in turn initiate information-seeking" (Kostiainen et al 2003:162). Niedzwiedzka (2003:9) indicates that certain roles such as a mother, leader, manager, doctor, teacher or member of a particular group, indicate specific information needs. For instance, the information needs of a medical doctor are different from those of a nurse, because their roles differ. While a teacher requires information for lesson planning (Mundt et al 2006), a doctor needs information related to new techniques for patient care (Landry 2006).

Du Preez and Fourie (2009) used the Leckie model to study the information-seeking of consulting engineers in South Africa. Landry (2006) used it to study the information-seeking behaviour of dentists and Mundt et al (2006) used the model to frame questions around the characteristics of teachers' information needs and incorporated the 'work roles' component from the Leckie model into their new model. Drawing on the Leckie model, Mundt et al (2006) identified that teachers' information needs were related to planning lessons; evaluating pedagogy and understanding new resources for teaching and assessing students. In addition, Mundt et al (2006) found that teachers use various resources to address their information needs. However, these resources have not been designed with a study of teachers in mind, and therefore do not have the potential to serve the teachers' information needs. Baker (2004) used it on female police officers involved in undercover prostitution, while Kerins et al (2004) used it for engineering and law students. Kostiainen et al (2003) applied it in pre-trial police investigation. Wilkinson (2001) developed an information-seeking behaviour model of practising lawyers and tested it against the Leckie model.

5 METHODOLOGY

The participants of the doctoral study relevant to the focus of this article were the in-service geography teachers who participated through focus group discussions because it was easier to assemble them into groups in their respective schools. The findings presented in this article emanate from their data. Owing to many schools being in disparate locations in the districts of Lesotho, purposive sampling was used. Sampling considered the schools' location and proprietorship, such that each district would be fairly represented and schools with different proprietors within one district would be included. In addition, the selection of schools had to be done with care to include schools in rural and urban settings, as well as lowlands and highlands regions within one district.

Fifty-one schools formed the population of this study, given that only schools offering geography at both junior and senior secondary level and already participating in national examinations in 2008 were considered. A total of 28 schools participated in the study in seven out of ten districts of Lesotho. The other three districts did not participate because they did not have schools offering geography at both junior and senior secondary levels during data collection. The number of geography teachers in all the schools that were visited was 122 and, of this total, only 82 teachers participated in the study.

5.1 DATA COLLECTION

Data were collected from secondary level geography teachers in January–March 2010. The intention was to collect data using focus group discussions only. However, the number of participants in the focus groups was determined by the number of teachers who were willing to participate in the study in each school. As a result, there were three incidences of one teacher being available to be interviewed – hence making it an individual interview, eight cases of two people in a focus group and 17 focus groups with the number of participants ranging from three to five. This article only offers a description of some key results focusing on data collected from in-service geography teachers. The major doctoral study also included observation of school libraries, administration of questionnaires on prospective secondary level geography teachers at the National University of Lesotho and individual interviews with officials in institutions directly involved in secondary geography education in Lesotho.

6 DATA ANALYSIS AND INTERPRETATION

Data from the focus group discussions were analysed by examining themes in such a way that common trends were established. Narratives were compared with each other throughout the entire data-processing stage. Both the data analysis and the interpretation of the data were guided by the Leckie model and are presented in the subsequent sections.

6.1 DEMOGRAPHICS

The length of service of the participants ranged from less than six months to 31 years of service. The least qualified teacher had a diploma while the majority (87.9%) had bachelor's degrees and a few (10.9%) had postgraduate qualifications in the form of postgraduate diplomas, Honours and Master's degrees. They were qualified professionals with ample geography teaching experience and were therefore in the best position to provide accurate information pertaining to this study, and also to advise on the elements essential for their information service. The participants were class teachers (48.8%), heads of department (24.4%), ordinary teachers (22%), deputy principals (3.6%) and principals (1.2%).

6.2 WORK ENVIRONMENT

The participants' work environment was characterised by constraints such as lack of finances, teaching materials and facilities such as libraries, and over-crowding in classrooms. Moloi et al (2008:613) note "over-sized classes, a scarcity of resources and a lack of trained teachers as an outstanding problem in Lesotho". Teacher access to information remains a problem in Lesotho with the in-service geography teachers reporting that their school libraries are stocked with outdated information bearing no relevance to geography. While in some instances the school libraries are managed by incompetent people unqualified in library and information science, in other instances libraries have no personnel.

Although most of the schools (22 out of the 28) that participated in this study had libraries, few schools in Lesotho have libraries, as noted by Kakoma (1999), IFLA/FAIFE World Report (2007) and Lesotho IFLA World Report (2010). Only four of the 22 school libraries visited were purpose-built libraries. The rest were libraries in rooms meant to be either classrooms, store rooms or offices. In Lesotho, where school libraries exist, they are inadequately equipped given that they lack reading materials, particularly related to geography. There is no evidence that these libraries are treated as an important component of the school curriculum as they are often manned by unqualified library assistants or professional teachers with no librarianship qualification (Kakoma 1999:121). Mafube (2005) indicates a lack of school libraries and information resources in secondary education in Lesotho, while Kakoma and Mariti (2008) emphasise a lack of information resources in tertiary education.

Most of the teachers who participated in this study (70%) had 25–30 periods per week. In Lesotho, a period is a 40-minute lesson. The average class size ranged from 40–70 learners. There was no single participating school that reported fewer than 40 learners in a class and a majority of the teachers reported between 50 and 60 learners. Another distinct feature was the heavy workloads due to the number of teaching periods per week and the number of learners in a class.

The teachers generally expressed the following dissatisfactions with regard to information provision:

- The information that they have is mostly outdated, consisting chiefly of books that were published a number of years ago. It does not satisfy their information needs because they need current information.
- There is a shortage of information generally to compare authors' views, clarify some topics and to supplement textbook information where necessary.
- The teachers sorely need teaching materials and technologies (audio-visual aids) that will help them to teach geography better.

The following responses support the points above. In this article, some statements have been transcribed verbatim while others have been translated from Sesotho to English. The remainder have been lightly edited for grammar where necessary.

“Truly speaking this is an old school that should be having a TV, DVD machine, projectors. If we can afford these things in our homes, why can't the school provide? There are times when I get videos from my daughter, but it becomes a problem to use in class. I find myself borrowing TV and machines from teachers who live here on campus.”

“The books do not provide enough information; we need to supplement them with other information from other books, sources. Some of the books we have are outdated and we need the latest editions, publications.”

“Really we lack resources, we lack current books, the type of books that we use recently do not provide adequate information. You know lately, even the students' textbooks lack adequate information; it is as if they are rushed into publishing so that the publishers and the authors get their money. I am really concerned about the latest books.”

6.3 WORK ROLES, ASSOCIATED TASKS AND CHARACTERISTICS OF INFORMATION NEEDS

According to Leckie et al (1996:181), professionals may have work roles such as service provider, administrator/manager, researcher, educator and student. Leckie et al (1996:181) indicate that, within the professionals' roles, there are tasks such as assessment, supervising, counselling, report writing, etc. Three work roles were identified in this study and they are discussed below: the educator role, the administrator role and non-academic roles.

6.3.1 Educator role

This is the core academic role of teachers and it is related to pedagogy and the development of learning skills for learners. It involves daily interaction with learners and encompasses tasks such as acquiring the content to be taught, deriving appropriate teaching methods for delivering the content, finding teaching aids that will be used to enhance understanding, managing the classroom so that all that is planned is achieved

in reasonable time, assessing the teaching and learning process and keeping up to date with the syllabus and curriculum objectives. The tasks that trigger information needs are related to content, teaching methods, teaching aids, assessment and classroom management, and this is evident in the following two statements:

“Content ... every day I go to class, I do preparation, I have a preparation book where I have to gather information, I have to outline the content, the teaching methods, the way I will motivate them, even all the activities including how I will assess the class. Every day I go to class I have to prepare for each and every class, and gather all the information and outline it appropriately.”

“I need information every day because I have to deliver information every time I go to class I have to equip the learners with the necessary information. When I go to class, I have to give these kids the correct content and also enough content as required by the government.”

It was found that the content has to be accurate, current and also adequate for the standards set by the national curriculum and syllabus.

6.3.2 Administrator role

There are five administrative roles that teachers in Lesotho may assume, namely those of being an ordinary teacher, class teacher, head of department, principal or deputy principal. It was found that all the secondary geography teachers filled one of these administrative roles in addition to teaching. An ordinary teacher is responsible for the subjects that he or she teaches and has no responsibilities other than teaching, testing, marking, and report writing for his or her subject only. A class teacher, in addition to an ordinary teacher's tasks, manages his or her classroom facilities, supervises learners, is responsible for their welfare and prepares comprehensive reports for their overall performance. A head of department has teaching tasks, supervises teachers, manages the resources of the department, is responsible for the welfare of the teachers in his or her department and allocates classes and workload to the teachers. A principal has teaching tasks, supervises both academic and non-academic staff, manages all the school's resources, administers the school's policies and regulations, writes reports and takes care of the welfare of students and staff. He or she has to be aware of national examinations, curriculum development issues, legislation governing education and schools, and has to bring all these to the attention of the teachers. A deputy principal assists the principal in his or her tasks. It was evident that the administrative role also demands information and this is affirmed by this statement from one head of department:

“Yes, there is a need for information in order to perform my role as the HOD. There are times when the teachers in my department may come with problems that require me to go and find more information in order to solve them. For instance, there could be a troublesome boy who frustrates a young inexperienced teacher, and obviously such a teacher will report the matter to me first, and I have to find more information about the

problem, find more about the boy from his friends and even other teachers. Sometimes, I have to find more information about his parents as well and find out how the boy is generally behaving at home."

It was noted that the head of department searches for information in the learners' files and in minutes of meetings for general staff, departmental or even disciplinary committees.

6.3.3 Non-academic roles

The study found that non-academic roles are related to extramural activities and the social, spiritual and emotional development of the learners. Teachers perform their non-academic roles through committees. Depending on the committee and on the issues that arise in the schools, this role may involve investigating issues, organising meetings, writing minutes, coaching, managing resources, decision making and policy and regulation development, among others. It also transpired that the non-academic role also requires its own information due to the issues that the committee faces. The following three statements bear testimony to this:

"You know, being in the disciplinary committee requires information outside the school. This is because one sometimes has to refer to policies on how to discipline the learners and the teachers alike in order to avoid breaking the law. It is also important to adhere to the right procedure when taking disciplinary action against people. This is one area which needs information, in particular policy documents, teaching regulations, legislation such as Labour Code and many others."

"Disciplinary committee requires us to gather information from different sources, those who are complaining and those who are 'perpetrators'. It is important to establish the facts, so that you do not wrongly punish somebody. It is also important to find out if such an incident ever happened before and how the student was punished. What are the school regulations saying about such a case? What is the fair punishment to give in that case? We have to try to find information so that at the end we give a fair punishment that will make students [to] refrain from such actions. We should also try to avoid humiliating students."

"Being in the committee that is concerned with the orphans, I need information about how they can be helped. We need to know more about the bursaries available for orphans, feeding schemes, sponsors, orphanage homes and many other societies that are out there to help out orphans."

6.4 AWARENESS OF INFORMATION

The teachers who participated in this study indicated that, at the beginning of lesson planning and preparation, they started with the syllabus and then the learners' textbooks. They reported being confident in using the syllabus documents as well as their books and in what to look for. It was evident that they did not rely on one source of information – they used a variety of sources such as colleagues, past examination question papers, the

Internet, farmers and miners in the community for topics related to farming and mining respectively. The need for different viewpoints was strongly emphasised.

"Often I take various books and go through them and make notes and compare the different view-points from different authors. I cannot work with one book. But mainly I use books."

From the responses, it appeared as if the teachers already knew reputable books. They also used their personal knowledge and experience to assess the authenticity of the information from the sources that they did not know.

"You know at JC level, the textbooks are shallow, they have conflicting information to what we know and to other books that we have. They are also failing to address the information that is required by the syllabus. At COSC level, there is no single book that addresses that syllabus adequately. A learner needs more than two or even three books, they are very expensive and we live in poverty-stricken areas. So it is a big challenge to be teaching geography."

The awareness of information among the participants was generally high. It was evident that, as they gained experience, they became more aware of the information around them. This was similar to the findings by Kostiainen et al (2000:169) who mention that work experience seems to broaden the awareness of information and sources. These statements bear testimony to this:

"One has to have up-to-date information. Moreover, when I gained experience, I gained more confidence, and became aware that I did not cover enough information for certain topics. Actually I should have gone deeper, and that requires more intensive reading."

"I think teaching with experience calls for more research because the geography subject keeps on changing and also the syllabus and the examiners' expectations keep on changing. Much as I just came out (of training) I felt I had enough information for these kids. You might find that when I started teaching I used to give them conflicting information, or inadequate information and soon realised that teaching is a job that requires information, therefore I have to look for more and more information."

The teachers were generally aware that they had a shortage of information and lacked various sources of information and they therefore made an effort to access it: *"I run all over, I go to all the schools here and find information mainly because there is nothing here."*

There was awareness of a need to verify the information they were getting from the learners.

"We sometimes bring some situation to the students so that they relate it to the new topic. I may even start by presenting a situation to them and ask them to go out and research more. However, as a teacher I always have to verify their information."

6.5 SOURCES OF INFORMATION

The main sources of information of the participants were the syllabus documents, books, colleagues in their schools and neighbouring schools as well as other colleagues in their professional associations. Colleagues teaching subjects such as development studies, agriculture and natural sciences (biology and physics) were reported to be another source that is often consulted. Personal knowledge and experience were used as the source of information to guide the process of teaching and also to guide the information-seeking process. The teachers also indicated that they frequently used the media (newspapers, TV and radio). It was evident that TV was the most predominant among the three media sources, especially among female teachers. Younger teachers in urban areas reported that they used the Internet. In some rural schools, farmers and miners in the communities were consulted for information on topics relating to farming and mining respectively. Seemingly, rural schools have a working relationship with their communities.

6.6 INFORMATION-SEEKING

Information-seeking seemed to differ amongst the participants. Some teachers (mostly inexperienced) indicated that they started with the syllabus to establish all the details that needed to be covered for the new topic, and then moved on to books. Other teachers started with books, then went to colleagues within the department, then to teachers of subjects such as science, agriculture and development studies if the topic was related to any of these subjects.

“When starting a new topic ... I look at the syllabus first ... if I have to start a new topic ... we look at the topic from the syllabus. Then we get to the students' textbooks to find how much information they have for learners, then we consult our teachers' books, until we get what we want and build a clear picture and comprehensive notes. Sometimes we go to the Internet to get more information, more examples and more activities until we feel somehow happy.”

Williams and Cole (2007) found that teachers tend to rely on readily available resources, particularly those available in the school. Similarly, some of the participants relied on the information sources that were available in their schools. By contrast, other teachers indicated that they went all out to find information; even beyond their school premises. The reason was their awareness of the lack of sources in their schools and the fact that they had established networks through their associations and these provided the information that they needed.

Factors that teachers have to consider when selecting or seeking information have been articulated by scholars such as Mundt et al (2006:11) and Perrault (2007). The participants reported that they considered the following factors when selecting and seeking information:

- The contents of the document had to address the topics on the syllabus adequately.

- The language level of the book/document, bearing in mind their learners. They preferred information that was presented in simple language and that discussed the concepts clearly and concisely.
- The document should have colourful illustrations – not only to capture attention, but also to enhance understanding of the abstract features. It was mentioned that colours were important in geography because they represented features. For instance, blue means water, brown means land and green means vegetation.
- The learners' activities included in the book were also important because they enhanced understanding.

Teacher testimony for the points outlined above is reflected in the following three statements:

"Often we check the syllabus; the contents of the book should address the syllabus. Diagrams are important in geography. The pictures should be in colour."

"Physical geography needs colourful diagrams because some earth features are easily identified through colours. It is known that blue symbolises water, green vegetation and brown land. So, colours really help more than black and white."

"At the end of each chapter, the book should have questions that learners have to answer to enhance their understanding of the chapter. You know the books that have questions at the end are useful in challenging the students and also help me out for assessment."

6.7 CHALLENGES IN INFORMATION-SEEKING

The teachers were asked to narrate the challenges that they encountered while searching for information and to suggest possible solutions. They indicated the following challenges:

- Lack of resources such as time and money.
- No access to the school's resources such as telephones and the Internet.
- Heavy teaching loads and too many learners in a class.
- Lack of a variety of sources of information in their schools.

The above points are captured in the following statements:

"Challenges here at school are time, we never have enough time. Funds also are a restriction. Lately it has become a great problem to go out and find information, or even to take the learners to go out on an excursion to find information. It is also difficult to bring guest speakers as they usually mention that they do not have time."

"We don't have a reliable variety of sources of information. If we had various books, old and new books, it would help because we would at least compare more books and old and new publications. We would consider the information from new books."

"The loads of the classes and also all these other responsibilities make us to fall for the resources that are readily available and [we] fail to seek more resources out there that we know and are aware of. You find that you are quite limited in exploring other areas."

6.8 OUTCOME AND FEEDBACK

The outcome and feedback of information-seeking for the participants depended on the role and tasks that led to the need for information. For instance, the educator role involved teaching with its possible outcome being the successful ending of a topic. This meant that the essential elements of the topic, as required by the syllabus, had been clearly delivered to the learners. This was usually identified through the testing and evaluation given to the learners at the end of the topic, with a topic being covered over a number of lessons. During marking, the teacher would get some feedback of the outcome. The desired outcome was for the learners to have understood the topic, acquired knowledge and mastered the associated skills. Some feedback may also have been realised immediately at the end of the lesson, as teachers may have evaluated the lesson by asking a few questions to assess if the learners had grasped the lesson objectives.

Some teachers saw the outcome of their information-seeking reflected in the final result at the end of the national examinations if the information-seeking and information delivery had been successful. If the outcome was positive it meant that the learners had passed well. The teacher would therefore know that his or her information-seeking had been effective in the sense that the right information had been acquired and had been delivered appropriately to the learners.

The administrative role and committee role usually required information when there was a problem to be solved and/or when there was a need to address some issues. For instance, if a teacher was on the orphans committee, then such a person had to constantly know his/her orphans and look for organisations that assist orphans. When the orphans and organisations were found, information-seeking ended. If there was a teacher or student who required to be disciplined, then information on the procedures was sought and when the disciplinary action had been taken then information-seeking ended.

7 DISCUSSION

This section is a discussion of a limited scope of findings focusing on information needs and information-seeking in teaching using the case of in-service secondary level geography teachers in Lesotho. While the previous section outlined the findings of the study according to the components of the Leckie model, this section is an interpretation of the findings based on Leckie et al (1996). Information-seeking in teaching is, in some respects, similar to other professions. This is because all the various components of the Leckie model could be identified: the teachers' work roles and associated tasks, information needs, sources of information, awareness of information, information-seeking process and the outcomes and feedback mechanisms. Wilkinson (2001:274) mentions that the five roles described by the Leckie model may not be the only roles that the professionals have; it might be that the professionals have fewer roles – or totally different roles. This study identified educator, administrator and committee

member roles. To some extent, the various committees could actually be perceived as administrative. Therefore, considering the data from the focus group discussions, one may even conclude that the teachers actually had two roles: educator and administrator, even though the Leckie model initially outlined five roles.

According to Leckie et al (1996:182) information needs arise out of situations pertaining to a specific task that is associated with one or more of the professionals' work roles. The information needs are not constant and can be influenced by intervening variables such as age, profession, specialisation, career stage and geographic location. It transpired that the teachers' ages affected their use of information sources such as the Internet. Geographical location and age also had an impact on the choice of information sources in that the rural schools used farmers and miners in their communities. While younger teachers used the Internet, older teachers did not use it. Career stage also influenced information-seeking, given that inexperienced teachers started by consulting the syllabus document while experienced teachers went straight to the books as they probably knew what the syllabus required.

According to Leckie et al (1996:183–187) sources of information and awareness of information are factors that affect information-seeking. Firstly, professionals seek information from various sources such as colleagues, librarians, handbooks, journals and their own personal knowledge and experience. Personal knowledge and experience are important to professionals because they have to master an advanced body of specialised knowledge before practising. In addition, personal knowledge and experience also entail the different ways in which work is conducted or practice is done within a profession. There was some evidence that the teachers consulted colleagues in the same field and in other subject areas such as the sciences, agriculture and development studies. They consulted their teachers' guides and learners' textbooks. Personal knowledge and experience were used as their source of information to guide the process of teaching and also to guide the information-seeking process. The journals and the librarians were not used by the teachers because most of the schools had neither journals nor qualified school librarians. A few schools that had libraries lacked current information related to geography. Where libraries existed they were manned by unqualified people who were not capable of providing a pertinent information service.

Leckie et al (1996:185) point out that knowledge of various information sources and the perceptions formed about the information retrieved play a crucial role in the overall process of information-seeking. They argue that knowledge and awareness of information, in particular content, can determine how the information-seeking will take place. They also mention that professionals will consult sources that they are familiar with and with which they have had prior success in filling an earlier information need. Professionals consult sources that they trust will provide accurate information in a preferred format. Furthermore, professionals use sources that they know will deliver the information on time and are accessible in terms of distance and costs. It transpired from the participants that they use sources that they are familiar with and that they trust will provide the accurate information.

In the model that was guiding this study the outcomes are the results of the information-seeking process. It may be considered as the end result of the work-related requirements of specified work roles and tasks (Leckie et al 1996:187). In this model, the optimal outcome is when the information need is met and the professional has accomplished his/her task. However, it is possible that the outcome does not meet the information need, such that the task is not accomplished and therefore further information-seeking is pursued. This has been outlined as the feedback loop on the model (Leckie et al 1996:187). When the teachers start their information-seeking process, they start with the syllabus, then books (textbooks and teachers' guides). If the information is not enough or is unsatisfactory, then more sources such as colleagues, additional books and the Internet are consulted. There is evidence that the teachers go all out to find information and only rest when they feel they have some information to accomplish the tasks.

Baker (2004:11) indicates that the Leckie model does not address information giving in the information-seeking process of professionals, and yet some professionals have the task of information sharing and giving. There was considerable evidence of information sharing and giving in the study. This is done through the work of the professional associations, where planning of the work is done together. In the association, common internal examinations are prepared, questions set and marking schemes prepared. In the schools, evidence of information giving and sharing occurs in meetings, informal chats with colleagues and through team teaching.

The Leckie model was helpful as a framework guiding the doctoral study. The work roles and associated tasks of the secondary level geography teachers, their characteristics of the information needs, and the information-seeking patterns of the teachers (including the challenges that affect their information-seeking as well as the information sources that they use) were identified, as seen by them.

8 CONCLUSION

The intention of this article was to report on some of the descriptive results of the information-seeking behaviour of in-service secondary level geography teachers in Lesotho using the Leckie model as the theoretical framework. This flows from a doctoral study in progress which investigates the information needs and information-seeking patterns of these teachers, in order to guide the design and implementation of their information service. In comparison to the five roles identified in the Leckie model, this study identified three work roles: educator role, administrative role and non-academic role from focus group discussions with in-service secondary level geography teachers. In addition, the participants tend to use syllabus documents, learners' textbooks and colleagues as predominant information sources. They prefer information that will be easily understood by their learners and go to great lengths to seek information related to what they will deliver in class.

The work environment of the participants is characterised by a lack of teaching materials, with heavy work-loads due to the number of teaching periods per week as well as the number of learners per class. The participants expressed dissatisfaction with regard to the information they have in their schools. They indicated a general shortage of information, lack of current information, lack of audio-visual teaching materials and technologies for teaching geography.

This study has contributed knowledge on the information-seeking behaviour of teachers in Lesotho. It revealed these teachers' work environment, roles, information needs and information-seeking process, including their preferred information sources. The participants are professionals and are therefore regarded as active information users, yet they seem to face challenges of information access. It is envisaged that through the findings of this study, an appropriate information service will be proposed.

REFERENCES

- Baker, LM. 2004. The information needs of female police officers involved in undercover prostitution work. *Information Research* 10(1). <http://informationr.net/ir/10-1/paper209.html> (Accessed 10 August 2011).
- Barker, LJ. 2009. Science teachers' use of online resources and the digital library for earth system education, in *Proceedings of the 9th ACM/IEEE-CD Joint Conference on Digital libraries*. <http://portal.com.acm.org/citation.cfm?id=1555402> (Accessed 4 August 2011).
- Bronstein, J. 2010. Selecting and using information sources: source preferences and information pathways of Israeli library and information science students, in *Proceedings of Information-seeking in Context Conference*, 28 September – 2 October. University of Murcia:61–76.
- Byström, K & Järvelin, K. 1995. Task complexity affects information-seeking and use. *Information Processing and Management* 31(2):191–213.
- Case, DO. 2006. Information behaviour. *Annual Review of Information Science and Technology* 40:293–327.
- Case, DO. 2007. *Looking for information: a survey of research on information-seeking, needs, and behaviour*. 2nd ed. Amsterdam: Elsevier.
- Choo, CW, Detlor, B & Turnbull, D. 1999. Information-seeking on the web – an integrated model of browsing and searching. ASIS 1999 Annual Meeting Contributed Paper. <http://choo.fis.utoronto.ca/fis/respub/asis99/> (Accessed 30 August 2011).
- Choo, CW, Detlor, B & Turnbull, D. 2000. *Web work: information-seeking and knowledge work on the World Wide Web*. Dordrecht: Kluwer Academic.
- Conroy, G, Parker, S & Davies, S. 2000. The European information needs of secondary school teachers in Scotland: recent developments in the provision of information to schools and colleges. *ASLIB Proceedings* 52(7):254–263.
- Courtright, C. 2007. Context in information behaviour research. *Annual Review of Information Science and Technology* 41:273–295.
- Dervin, B. 1983. An overview of sense-making research: concepts, methods, and results to date. Paper presented at the annual meeting of the International Communication

- Association, Dallas, TX, May. <http://communication.sbs.ohio-state.edu/sense-making/art/artabsdervin83smoverview.html> (Accessed 15 September 2010).
- Dervin, B. 1998. Sense-making theory and practice: an overview of user interests in knowledge seeking and use. *Journal of Knowledge Management* 2(2):36–46.
- Du Preez, M & Fourie, I. 2009. The information behaviour of consulting engineers in South Africa. *Mousaion* 27(1):137–158.
- Du Preez, M & Fourie, JA. 2010. Development of a conceptual model for studying engineers' information behaviour. *Mousaion* 28(1):62–88.
- Ellis, D. 1989. A behavioural approach to information retrieval system design. *Journal of Documentation* 45(3):171–212.
- Ellis, D. 1993. Modelling the information-seeking patterns of academic researchers: a grounded theory approach. *Library Quarterly* 63(4):469–486.
- Fisher, KE & Julien, H. 2009. Information behaviour. *Annual Review of Information Science and Technology* 43:317–358.
- Hepworth, M. 2007. Knowledge of information behaviour and its relevance to the design of people-centred information products and services. *Journal of Documentation* 63(1):33–56.
- IFLA/FAIFE World Report. 2007. In Bothma, TJD (ed). *Access to libraries and information: towards a fairer world*. IFLA/FAIFE World Report Series, Vol VII. The Hague: IFLA/FAIFE.
- Ingwersen, P. 1996. Cognitive perspectives of information retrieval interaction: elements of a cognitive IR theory. *Journal of Documentation* 52(1):3–50.
- Ingwersen, P & Järvelin, K. 2005. *The turn: integration of information-seeking and retrieval in context*. Dordrecht: Springer.
- Kakoma, A. 1999. School libraries in Lesotho. *Information Development* 15(2):120–126.
- Kakoma, A & Mariti, LM. 2008. The role of Lesotho academic libraries in the attainment of MDGs, in Njobvu, B & Koopman, S (eds). *Libraries and information services towards the attainment of the UN Millennium Development Goals*. Munich: Saur:99–113.
- Kerins, G, Madden, R & Fulton, C. 2004. Information-seeking and students studying for professional careers: the cases of engineering and law students in Ireland. *Information Research* 10(1). <http://informationr.net/ir/10-1/paper208.html> (Accessed 30 August 2011).
- Kostiainen, E, Valtonen, MR & Vakkari, P. 2003. Information-seeking in pre-trial investigation with particular reference to records management. *Archival Science* 3:157–176.
- Krikelas, J. 1983. Information-seeking behaviour: patterns and concepts. *Drexel Library Quarterly* 19(2):5–20.
- Kuhlthau, CC. 1991. Inside the search process: information-seeking from the user's perspective. *Journal of the American Society for Information Science* 42(5):361–371.
- Kuhlthau, CC. 1993. A principle of uncertainty for information-seeking. *Journal of Documentation* 49(4):339–355.
- Lan, C & Chang, Y. 2002. The advanced study of information behaviour of biology teachers in junior high school. *Journal of Library and Information Science (USA/Taiwan)* 28(2):39–48.
- Landrum, TJ, Cook, BG, Tankersley, M & Fitzgerald, S. 2002. Teacher perceptions of the trustworthiness, usability and accessibility of information from different sources. *Remedial and Special Education* 23(1):42–48.

- Landry, CF. 2006. Work roles, tasks and the information behaviour of dentists. *Journal of the American Society for Information Science and Technology* 57(14):1896–1908.
- Leckie, GJ, Pettigrew, KE & Sylvain, C. 1996. Modelling the information-seeking professionals: a general model derived from research on engineers, health care professionals and lawyers. *Library Quarterly* 66(2):161–193.
- Lesotho IFLA World Report. 2010. http://www.ifla-world-report.org/cgi-bin/static.ifla_wr.cgi (Accessed 30 August 2011).
- Lundh, M. 2005. Information-seeking and teachers: a study of high school teachers in the transition from education to occupational practice. Masters' dissertation, University College of Borås. <http://hdl.handle.net/2320/1316> (Accessed 12 August 2011).
- Madden, A, Ford, N, Miller, D & Levy, P. 2005. Using the Internet in teaching: the views of practitioners. *British Journal of Educational Technology* 36(2):255–280.
- Mafube, M. 2005. The role of school library in promoting quality education. Paper presented at the Botswana, Lesotho, Swaziland and Namibia (BOLESWANA) Educational Research Symposium, Windhoek, 6–9 July 2005.
- Marchionini, GM. 1995. *Information-seeking in electronic environments*. England: Cambridge University Press.
- Mardis, MA. 2009. Classroom information needs: search analysis form a digital library for educators. *D-LIB Magazine* 15(1/2). <http://webdoc.sub.gwdg.de/edoc/aw/d-lib/january09/mardis/01mardis.html> (Accessed 28 May 2009).
- Moloi, F, Morobe, N & Urwick, J. 2008. Free but inaccessible primary education: a critique of the pedagogy of English and Mathematics in Lesotho. *International Journal of Educational Development* 28(5):612–621.
- Mundt, M, Stockert, K & Yellesetty, L. 2006. The information behaviour of teachers. http://katestockert.com/LIS510_Information_Behaviour_of_Teachers.pdf (Accessed 28 May 2009).
- Niedźwiedzka, B. 2003. A proposed general model of information behaviour. *Information Research* 9(1). <http://informationr.net/ir/9-1/paper164.html> (Accessed 11 August 2011).
- Noh, T, Kang, S & Scharmann, LC. 2004. Perceived needs of Korean science teachers majoring in chemical education and their preferences for online and on-site training. *International Journal of Science Education* 26(10):1269–1289.
- Nwokedi, VC & Adah, J. 2009. Information needs of post-primary school teachers in Jos, Plateau State, Nigeria. *Information Technologist* 6(2). <http://ajol.info/index.php/ict/article/view/52727> (Accessed 30 May 2010).
- Pattuelli, MC. 2008. Teachers' perspectives and contextual dimensions to guide the design of N.C. history learning objects and ontology. *Information Processing and Management* 44(2):635–646.
- Perrault, AM. 2007. An exploratory study of biology teachers' online information-seeking practices. *School Library Media Research*. Volume 10. <http://www.ala.org/ala/mgrps/divs/aas/aaslpubsandjournals/slmrb/slmrcontents/volume10/contents.cfm> (Accessed 2 February 2008).
- Sánchez, G & Valcárcel, MV. 1999. Science teachers' views and practices in planning for teaching. *Journal of Research in Science Teaching* 36(4):493–513.

- Savolainen, R. 1995. Everyday life information-seeking: approaching information-seeking in context of "way of life". *Library and Information Science Research* 17(3):259–294.
- Savolainen, R. 2005. Everyday life information-seeking, in *Theories of information behaviour*, Fisher, KE, Erdelez, S & McKechnie, EF (eds). Medford: Published for the American Society for Information Science and Technology by Information Today:143–148.
- Shanmugam, A. 1999. Information-seeking behaviour of trainee teachers in selected teacher training colleges in Malaysia. *Malaysia Journal of Library and Information Science* 4(1):1–26.
- Snyman, M & Heyns, D. 2004. Die inligtingbehoefte van Afrikaans T1-onderwysers. *Mousaion* 22(2):211–229.
- Tahee, N, Cha, J, Kang, S & Scharmann, LC. 2004. Perceived professional needs of Korean science teachers majoring in chemical education and their preferences for online and on-site training. *International Journal of Science Education* 26(10):1269–1289.
- Tanni, M, Sormunen, E & Syvänen, A. 2008. Prospective history teachers' information behaviour in lesson planning. *Information Research* 13(4). <http://informationr.net/ir/13-4/paper374.html> (Accessed 21 March 2009).
- Taylor, RS. 1991. Information use environments. *Progress in Communication Sciences* 10:217–255.
- Twidle, J, Sorensen, P, Childs, A, Godwin, J & Dussart, M. 2006. Issues, challenges and needs of student science teachers in using the Internet as a tool for teaching. *Technology, Pedagogy and Education* 15(2):207–221.
- Wilkinson, MA. 2001. Information sources used by lawyers in problem-solving: an empirical exploration. *Library & Information Science Research* 23(3):257–276.
- Williams, D & Coles, L. 2007. Evidence-based practice in teaching: an information perspective. *Journal of Documentation* 63(6):812–835.
- Wilson, TD. 1981. On user studies and information needs. *Journal of Documentation* 37(2):3–15.
- Wilson, TD. 2000. Human information behaviour. *Informing Science* 3(2):49–56.
- Wilson, TD. 2006. 60 years of the best in information research: on user studies and information needs. *Journal of Documentation* 62(6):658–670.
- Wilson, TD & Walsh, C. 1996. Information behaviour: an interdisciplinary perspective. informationr.net/tdw/publ/infbehav/cont.html (Accessed 23 March 2010).
- Wu, M, Chen, S & Hseih, M. 2005. A study of elementary school teachers' searching behaviour for instructional resources on the Internet. *Journal of Educational Media and Library Sciences* 42(4):481–498.