Providing a web-based information resource for Afrikaans First Language teachers

A dissertation by

Danielle Heyns

Submitted in fulfilment of the requirements for the degree

Magister Artium

in

Information Science

Faculty of Humanities
University of Pretoria

Supervisor: Prof ME Snyman
Co-supervisor: Prof TDJ Bothma

November 2002

Samevatting

Die voorsiening van 'n webruimte as 'n inligtingshulpbron vir Afrikaans Eerste Taal onderwysers

'n verhandeling deur

Danielle Heyns

Studieleiers	**Professore ME Snyman en TDJ Bothma**
Departement	**Inligtingkunde**
Graad	**MA (Inligtingkunde)**

Hierdie verhandeling doen verslag oor 'n aksienavorsingsprojek wat die skep van 'n webruimte, die *Goudmyn* (www.onnet.up.ac.za), vir Afrikaansonderwysers, gerig het. Die inligtingsbehoeftes en gebruikmaking van hulpbronne van 78 Afrikaans eerste taal onderwysers is vasgestel deur middel van 'n vraelys en fokusgroepbesprekigs. Die gehalte van die *Goudmyn* as inligtingshulpbron en Afrikaansonderwysers se gebruikmaking daarvan, is formeel geassesseer. Uit die data blyk dit dat Afrikaansonderwysers nog traag is om die Internet as medium te gebruik, maar besoekerstatistiek op die webruimte dui aan dat dié hulpbron al meer gebruik word.

Redes vir lae vlakke van Internetgebruik deur die respondente sluit in: gebrek aan Internettoegang, tyd, opleiding, relevante inligting, bewussyn van beskikbare inligting en integrering van inligtingstegnologievaardighede in die kurrikulum. Die studie het bevind dat 'n webruimte soos die *Goudmyn* die potensiaal het om 'n sentrale rol in die ondersteuning van Afrikaansonderwysers te speel, mits die onderwysers opgelei word in en bewusgemaak word van die gebruik en toepassing van die Internet vir onderrigdoeleindes.

Sleutelwoorde:

Internet | inligting | inligtingsbehoeftes | inligtingshulpbron | inligtingstegnologie | webruimte | webbladontwerp |aksienavorsing | Afrikaansonderwyser

Summary

Providing a web site as an information resource for Afrikaans First Language teachers

A dissertation by

Danielle Heyns

Supervisors	**Professors ME Snyman and TDJ Bothma**
Department	**Information Science**
Degree	**MA (Information Science)**

This dissertation reports on an action research project that guided the development of the *Goudmyn* (www.onnet.up.ac.za), a web-based information resource for Afrikaans language teachers. The information needs and utilisation of information resources by 78 Afrikaans First Language teachers were determined by means of a questionnaire and focus group discussions. The quality of the *Goudmyn* as information resource for and Afrikaans teachers' utilisation thereof were formally assessed. From the data it is evident that Afrikaans language teachers do not utilise the Internet as an information resource to a high degree. Nevertheless, statistics of visits to the *Goudmyn* indicate that the resource is being utilised increasingly.

Reasons for low levels of Internet utilisation by the respondents include the following: a lack of Internet access, time, training, relevant information, awareness of resources and integration of ICT skills into the curriculum. The study found that a web site such as the *Goudmyn* has the potential to play a central role in supporting Afrikaans language teachers, if the teachers are trained and made aware of the use and applications of the Internet for teaching purposes.

Key words:

Internet | information | information needs | information resource | information communication technology | web site | web page design | action research | Afrikaans language teacher

Table of Contents

Chapter 1: Background and introduction

List of Tables

List of Figures

Addenda

Addendum A – Questionnaire (Afrikaans version)

Addendum B – Questionnaire (English translation)

Addendum C – Online evaluation form

Addendum D – Detailed description of web-based educational resources

Acknowledgements

My sincerest gratitude to:

- My supervisor, Professor Maritha Snyman, Department of Information Science, University of Pretoria, for her guidance and encouragement

- My former colleague, Vreda Pieterse who introduced me to the wonders of the Internet, HTML, FTP, etc

- My parents, family, and my two children, Paul and Riëtte, who believe in me

- My friends and colleagues, for their support, especially Trudi, for all the coffee, advice, help and inspiration

- Sylvia van Straaten for language editing

The financial assistance of the National Research Foundation (NRF) towards this research is hereby acknowledged. Opinions expressed and conclusions arrived at, are those of the author and are not necessarily to be attributed to the National Research Foundation.

CHAPTER 1: BACKGROUND AND INTRODUCTION

1.1 Introduction

This dissertation reports on an action research project that investigates the degree to which information communication technology (ICT) can be an effective mechanism of information delivery for teachers. It reports on the process of developing a subject-specific web site for Afrikaans First Language teachers to provide for their information needs.

Motivation for the study

Teachers are, by the sheer nature of their profession, information providers and facilitators of the learning process that involves the utilisation of information. Teachers form a professional group that is heavily involved in information provision (Chalkley & Nicholas 1997:97). They need to be informed about teaching and learning strategies, curriculum changes, educational policy, and developments in their area of specialisation. For instance, language teachers need to be aware of current developments concerning language policies, language learning and teaching, assessment strategies, trends in literature and children's literature.

To be able to do their job well, teachers need easy and quick access to current, accurate information. An efficient and reliable information resource can do much to support teachers in their quest for lesson ideas, information on the new curriculum and assessment strategies. It can save time, motivate, educate, and enhance their productivity on the whole. This point of view is also expressed by Oosthuizen (1997:233): "If teachers know how, why, where and when to find information and use it, these skills will not only enhance their teaching and prepare them for the new curriculum, but will filter through to the pupils and the community".

In order to establish an effective information resource for teachers, investigations of their specific information needs should be done. An examination of the information needs of teachers in South Africa is long been overdue. Oosthuizen's study (1997) deals with the

information needs of the teachers of Orange Farm. The only other study concerning the subject-specific needs of teachers was done by Pretorius (1994) and dealt with the information needs of Biology teachers. No formal investigation has ever been done on the information needs of Afrikaans First Language teachers.

It is with this background in mind that this action research was undertaken. The researcher has been working closely with Afrikaans language teachers for more than ten years. During this time a lack of a reliable, up-to-date and easy-to-access information resource for this group of teachers became evident.

In the meantime advanced communication technologies like the Internet, have become **the** tool for conducting business, communication, information provision and even teaching in developed countries, while in many countries they are widely utilised to provide professional support for teachers. Many web-based information resources have been established to provide for the information needs of teachers, for example *AskEric* and *SchoolNet Canada*. These two information resources receive more than two million visits per month (Ask Eric 2001; Haughey & Anderson 1998:75). This is a clear indication of the value sites like these have for teachers.

The Internet presents itself as an ideal tool for information delivery. A survey of the status quo of web-based information resources in 2000 revealed no such initiative for Afrikaans L1 teachers. At the end of 1999 the researcher started a small-scale subject-specific web site for Afrikaans L1 teachers. As formal research would undeniably help to deal with the pitfalls and problems of web site development, an action research project was the obvious choice. This would culminate in a combination of action and research in the form of disciplined inquiry, in which a personal attempt was made to "understand, improve and reform practice" (Cohen et al 2001:226).

But is the Internet an appropriate tool for information delivery in a developing country such as South Africa? Many schools do not yet have electricity, few have computers (Lundall & Howell 2000:66; SRN 2001) and many schools do not have telephone lines.

Previously most South African teachers were not trained to use computers or the Internet. There seems to be a general lack of awareness of the potential of the Internet (Summerley 1996). This raises the question as to whether web-based information resources for teachers are viable in South Africa.

In a time of space-age revolutions and advanced information communication technologies, it is vitally important to develop comprehensive support structures for South African teachers to optimise the use of ICT in schools. National policies also prioritise the development of ICT capacity in education (RSA 1996*;* DoE 1996 and DoE & DoC 2001*).*

The end goal is to equip all learners for the Information Age. Teachers are key agents in this venture: "Educators will need curriculum and technical skills to integrate ICT in the curriculum so as to ensure that learners have the appropriate competencies and knowledge to study or work in information rich environments" (Paterson & Lundall 2001). They maintain that the following aspects should be addressed urgently:

- Development of learning support materials
- Support of innovative culture of ICT teaching
- Support of individual teachers

The development of a web-based information resource for teachers is in line with national policies and priorities identified by researchers in the field. Research into the development of an online information resource for Afrikaans language teachers is important because it can:

- lead to a broader view of the possibilities of ICT development in the South African educational context;
- add to the knowledge base of this discipline; and
- contribute to the establishment and maintenance of a quality web-based information resources for teachers in other learning areas.

According to the research results of Lundall & Howell (2000:51) there is a need for contextually specific investigations of ICTs in education in South Africa. The research for this study falls into this category.

1.2 Research problem

Central to this study is the main research problem, namely:

What is the best practice to establish a web-based information resource to meet the information needs of Afrikaans First Language teachers?

The following sub-questions are derived from the research question above:

- ***Information resources***
  - Why are information resources necessary?
  - What are the criteria for a quality information resource?
  - What is a suitable framework for establishing and maintaining an information resource?

- ***The Internet as information resource***
  - What are the benefits and constraints of the Internet as an information resource?
  - What are the benefits of web-based information resources for teachers?
  - How do teachers utilise and value the Internet as an information resource?
  - What is the best practice to develop a quality web-based information resource?

- ***Establishing a web-based information resource for Afrikaans L1 teachers***
  - What are the information needs of Afrikaans L1 teachers?
  - To what extent do Afrikaans L1 teachers use and value the Internet as an information resource?
  - How do Afrikaans L1 teachers value and use a subject-specific web site?

1.3 The purpose of this research

The aim of an action research project is to "bring about practical improvement, innovation, change or development of social practice, and the practitioners' better understanding of their practices" (Cohen et al 2001:227). Central to action research is problem solving – usually a problem that is of immediate concern to the practitioner(s).

This action research project aims to:

- determine via a literature survey the characteristics of information resources and appropriate steps to be taken to implement a web-based information resource;
- establish the appropriateness of the Internet as an information resource;
- examine to what extent teachers use and value web-based information resources;
- determine the information needs of Afrikaans L1 teachers;
- investigate the utilisation of both traditional information resources and the Internet by the target group; and
- establish, improve and maintain a subject-specific web site for Afrikaans L1 teachers.

1.4 Terminology

Concepts such as 'information', 'information needs', 'information resource' and 'information communication technology' will be used. To clarify what is meant by these terms in this study they will be defined in the next section:

- ***Information***

  Dictionary definitions of information range in scope. It is defined as "facts or detail" (*Merriam-Webster*) and as "data, common knowledge, general knowledge, know-how, skill and aptitude" (*Xrefer*). Data are listed at the lowest point of a hierarchy that moves from information and knowledge to wisdom at the top. Whereas data are a collection of more or less isolated facts, information is "data with a shape and a potential use, or conclusions drawn from data" (*Xrefer Online*).

McMillan (2002) emphasises that there is no commonly agreed definition of information, but gives the following description of information: “Information is produced when data are processed so that they are placed within some context in order to convey meaning to a recipient”. Information is only valuable if it has a definite meaning for a person in a specific situation. Information has meaning when it helps someone do and/or decide something (Blom 1981:34).

The kind of information referred to in this study is the information which language teachers need on a daily basis to enable them to interpret the curriculum and plan for lessons. It provides background information for lessons, empowers them to make decisions concerning assessment, administration and classroom practice, and provides ideas for extra activities.

- ***Information needs***

  Information needs refer to the information a person needs to do a job. It could entail information necessary to solve problems, make decisions, act creatively, plan and answer questions (Du Toit 1986:12). The science, profession, circumstances and personal aspects of the individual influence the information needs.

  For the purposes of this study information needs refers to gaps in the teachers’ knowledge. It is the information they **need** to teach, or to plan teaching and learning activities. For instance, they might need the correct versions of poems, clarification of new terminology in the curriculum, examples of assessment procedures, or background information of Afrikaans authors.

- ***Information resource***

  Kaniki (1995:16) defines an information resource as "a space or building in which human and other information resources in a variety of media are arranged or made accessible in an appropriate manner”. The information resource is a source (building/ book/ CD-Rom/ person/ museum) with specific information for a certain

target group. Information resources are generally designed to provide support for a specific group of users in a given content area (Milheim & Harvey 1998:53).

Thus, an information resource will indicate a central resource that provides a variety of information specific to the information needs of a specific group of teachers. It is a resource (paper-based or electronic) that can be accessed by teachers who need information in support of their professional duties.

- ***Information Communication Technology (ICT)***

  Information technologies consist of the hardware and software used to input and process data and output useful information (Laribee 1992). With the development of telecommunication technology, information technologies have become an integral part of information systems. These technologies are used for storing, retrieving and communicating data. Examples of these technologies include distributed networks, electronic mail and telecommunications such as the Internet.

  In the context of this study ICT will more specifically refer to the Internet with its applications such as web pages, and communication tools such as e-mail.

1.5 Methodology

This study was conducted as an action research project. True to the characteristics of action research, this study has moved through various stages and used a variety of instruments for data collection.

An action research project follows "a spiral of cycles of *planning*, *acting* (implementing plans), *observing* (systematically), *reflecting*… and then re-planning, further implementation, observing and reflecting" (Cohen et al 2001:229). The research for this study was conducted by means of a literature survey on the subject, followed by an empirical study.

Though literature on similar studies is limited, an extensive survey of relevant literature was done and is critically synthesised in Chapter 2. The research process evolved through various stages. Data was collected for various purposes and a variety of data collection methodologies were used (see Table 1.1).

- **Data collection methods**

  Table 1.1 summarises the stages of the research with the appropriate data collection methodologies:

Table 1.1: Data collection methodologies of the research

Purpose	Data source
❑ Audit of existing information resources for Afrikaans L1 teachers	➢ Web search engines ➢ Library visits ➢ Questionnaire
❑ Assessment of the information needs of Afrikaans L1 teachers	➢ Focus group discussions ➢ Questionnaire
❑ Evaluation of the quality and effectiveness of the web-based information resource	➢ Online evaluation form ➢ E-mail ➢ Peer review of the web site ➢ Hit counters on web sites

- **Selection of participants**

  Non-probability sampling is frequently used in action and small-scale research (Cohen et al 2001:102). For the purposes of this study convenience sampling (a form of non-probability sampling) was done. It involves choosing respondents to whom the researcher has easy access. This was done because of financial constraints.

  A group of Afrikaans First Language teachers who attended a conference at the University of Pretoria in September 2000 were asked to complete a questionnaire

and participate in focus group discussions. This group was chosen because it was convenient and cheap to circulate the questionnaires at the conference.

The selectivity of a non-probability sample is recognised. Although data from these questionnaires could not be generalised for the wider population of Afrikaans L1 teachers, it gave valuable direction at this early stage of the research.

1.6 Significance of research

Nicholas (1996:1) is of the opinion that society is not yet utilising technologies such as the Internet to the advantage of users. This study is a venture in the direction of not only providing teachers with a much-needed information resource, but also in utilising ICT to the advantage of an important profession.

The research results of this study will contribute to the knowledge base of ICT development and utilisation for educational purposes, information science and teacher education, especially in a developing country such as South Africa.

- **Validity and reliability**

  As the researcher has been closely involved in the action research project, it was decided – for validity's sake – to triangulate the data. The data for this study came from six different sources:

  - A questionnaire completed by Afrikaans L1 teachers
  - Focus group discussions with Afrikaans L1 teachers
  - A hit counter on a subject-specific web site for Afrikaans language teachers
  - A feed-back form on the web site
  - Feedback to the webmaster in the form of e-mail
  - Peer review

The data gathered from these sources was compared to triangulate the findings of the research. This was done in an effort to strengthen the validity of the research findings.

- **Demarcation**

  The focus of this study is not on website development (structure and design), but on meeting the target audience's information needs. It does not explore web design in depth, but rather addresses the content of such a resource and the feasibility of a project of this kind.

- **Limitations of research**

  The research for this study worked within three important limitations:

  1) *Convenience sampling*: The sample for establishing the information needs of Afrikaans L1 teachers was selected out of convenience because of budget constraints.

  2) *Size of the sample*: The size of the sample was very small and is therefore not representative of the intended target group. As teachers from one region were involved in the answering the questionnaire and participating in the focus group discussions, the results are not representative of Afrikaans L1 teachers in other provinces.

  3) *Subjectivity of the researcher*: The researcher is closely connected to the target group. The development of the information resource is her brainchild. She avoided, as far as possible, to interpret results in a biased way.

  The validation of the data via triangulation might add to the validity of the research. However, it is still acknowledged that this research will be affected by these limitations.

1.7 Outline of the chapters

Table 1.2 offers an outline of the chapters to follow:

Table 1.2: Outline of chapters

1	Background and introduction
2	Review of relevant literature
3	Research methodology
4	Research findings
5	Conclusion and recommendations
6	References

1.8 Research outcomes

Apart from the dissertation, a web-based information resource for Afrikaans language teachers was developed. It is called the *"Goudmyn"* (Gold Mine) for Afrikaans language teachers. The web page is online available at http://www.onnet.up.ac.za.

Conclusion

It is the aim of this study to establish whether information communication technology (ICT) can be an effective mechanism of information delivery for teachers. The literature review, the empirical research and the assessment of the subject-specific web site, the *Goudmyn*, will contribute to answer the research questions of this study.

CHAPTER 2: LITERATURE REVIEW

The purpose of this chapter is to put the research questions of this study into a national and international perspective. A review of literature and recent research was done to explore issues regarding information resources, the Internet as information resource and teachers' perceptions of and utilisation of web-based information resources. This chapter will offer a critical synthesis of what has been written on these matters. The findings of the literature survey will be incorporated into the research project to serve as a frame of reference for the findings.

2.1 Information resources

As this research deals with the role of information resources in the professional lives of teachers, the first section of this chapter will investigate the nature of information resources, the importance of information resources and factors to take into consideration when implementing an information resource.

2.1.1 Functions of an information resource

Arnold (1990:1) and Du Toit (1986:161) state that the prime function of an information resource is to offer a service that assists the goals and objectives of the institution it serves. Khosrowpour and Yaverbaum (1989) consider an information resource to be a resource consisting of various forms of data (text, image, voice) that can be disseminated through different systems, i.e. communication systems like the Internet. It should offer a wide range of information for a specific group of users in a given content area and assist the intended target group in the performance of their duties.

Perhaps the most important aspect of an information resource is what Kaniki (1995:16) calls the "**empowering** (of) people through information dissemination, production, skills and resource sharing" [my emphasis].

All of these functions of an information resource are strengthened if the resource complies with the following prerequisites:

- ***Knowledge of target group***

  A thorough understanding and knowledge of the intended user group or organisation should drive the resource (Long 1995). Thus the provider(s) of an information resource must understand the target group's preferences, duties, tasks, and the demands of the profession.

- ***Easy access***

  The resource must not only be easily accessible to a wide range of people, but also at hours that suit the users (Line 1998:229).

- ***Friendly atmosphere***

  It is important that the service is 'attractive' to the users – users should feel welcome (Line 1998:224). This also implies that the service should offer friendly and efficient help to the users, encouraging them to return to the resource.

- ***Easy to use***

  It should be simple and straightforward for a user to find the relevant information (Line 1998:226). Users should have clear instructions on how and where to find the information they need. The ease of use applies especially to electronic information resources. First-time users should be able to master the technology involved quickly.

- ***Speedy access***

  The resource or service should actually save the users time. Queuing and waiting must be kept to a minimum. Access to the resource must be cheap or at least affordable (Line 1998:224,226).

- ***Quality information***

  The information offered must be correct, relevant, of a good variety (Line 1998:229) and show evidence of current awareness (Orna 1992:305). There is a saying - 'content is king' – and that is what information resources are all about. The more useful and interesting the information, the more successful an information resource will be (AKA Marketing 2002).

But why are information resources important? What role do they play in society, in organisations, businesses, or in the lives of individuals?

2.1.2 The importance of information resources

On the Briggs Library Research Guide (available online) the following statement appears: *"Information is power".* Long (1995) is convinced that information is one of the "linchpins that holds our organizations together" and Laribee (1992) considers information as an asset that should be managed rigorously. These sources and authors emphasise the role and power of information.

The demands on most professions are ever increasing and the ability to access information quickly gives a company or an individual a competitive advantage (Nelson 2000; Nicholas & Martin 1997; Long 1995). The success of many companies and individuals "hinges upon their ability to locate, analyse and use information skilfully and appropriately" (Nelson 2000).

Information resources seek to harness information for the benefit of the organisation as a whole by exploiting, developing and optimising information (Laribee 1992). An information resource centralises useful information. It brings together all (or ideally, most) of the information needed to make decisions, solve problems or do a job better.

The Information Age has arrived. The increase of information produced in all fields worldwide makes it difficult for professionals and individuals to keep track of new developments, research findings and information in their field of specialisation. The dangers of information overload make information management in the form of user-specific information resources a necessity to prevent "drowning" in information (Nelson 2000; Bundy 2000).

The central function of any information resource is to offer a service that "assists the goals and objectives of the institution it serves" (Arnold 1990:1). It can contribute to the success of a business and improve operational efficiency and productivity (Laribee 1992). For this to be feasible, the resource needs to be developed from

knowledge of the intended users and the nature of the information they need or would like to have. This brings us to the steps that should be taken when an information resource is planned.

2.1.3 A framework for the implementation of an information resource

It would be a waste of time, energy and money to create an information resource, launch it and then find out that it is not being utilised. The goal of an information resource is to assist a company, professionals and individuals in their tasks. According to Kaniki (1995:9) the best way to achieve this is to provide information and resources on the basis of current and ongoing needs assessments of the intended user group. This is part of the initial stage when starting a new information service.

Various sources (Orna 1992; Line 1998; Du Toit 1986) agree on the following steps when implementing an information resource:

i. Identification of the target group

The starting point for the implementation of any information resource is to know and understand the target group. Different professions need different information – the information needs of doctors, engineers, journalists, mathematics teachers and language teachers will not be the same. It is necessary therefore to do a needs-analysis of the information needs of the intended target group.

ii. User needs analysis

According to Nicholas (1996:12) the identification of information needs:

- monitors and evaluates the effectiveness and appropriateness of existing information systems from the user's perspective;
- detects gaps in information provision and helps to remain vigilant to changes in need; and
- assists with the design of an ongoing information support system.

Information needs can be determined by means of questionnaires, interviews, observations, focus-group discussions or by merely talking to people. The user need

analysis provides vital information regarding the type, amount and extent of information the group need.

iii. Establish aim and function of resource

It is important to decide on the nature of the product and what benefits it intends to offer (Orna 1992:306). An information resource's intentions should be to provide an information service to support a certain target group to fulfill their duties (Du Toit 1986:164). Not all information can ever be provided in a single resource. Thus it is necessary to determine beforehand what the parameters of the new resource will be.

iv. Compare resources

A good point of reference is to compare existing information resources and any new resources similar to the intended one. Valuable lessons can be learned from similar services and a study of existing resources can identify their shortcomings and pitfalls. This can help to avoid the same mistakes and give direction to the planned resource.

v. Design new information service

The new information service should be planned carefully. Different strategies will be necessary for different types of information resources. The design of web-based information resources will be discussed in more detail in Section 2.4.2. Decisions on the kind of information, the format, the volume, how and where it will be stored, must be made. The kind of information and the nature of the users' needs direct this design process to a large extent.

vi. Collect data needed/ content development

Once the type of data or information needed has been identified, it must be acquired, bought or developed. This will have time and cost implications. Issues on content development – especially for web-based information resources – will be discussed later in this chapter.

vii. Employ necessary staff

It must be established how many people are needed to run the intended service and they should be employed, trained and remunerated to run the service efficiently.

viii. Start service

The service must get off the ground and the potential users must be informed of the service or resource. This can be done by way of advertising, workshops and presentations.

An information resource must be planned with the guidance of empirical research in order to ensure that it will be utilised by the intended target group. A resource service or centre cannot continue to attract users (old and new) without "tailoring information and resources to meet the 'new needs' of the community" (Kaniki 1995:9). Therefore it will be necessary to review the content often, analyse the user behaviour and stay in touch with new user needs and developments in the specific field.

The conclusions reached from the above discussion are that the establishment of new information resources must be guided by empirical research. It will entail a dynamic and reiterative process because societies change and information production will never cease. New technologies will also alter the shape and size of information resources. Libraries were traditionally the most important information resource centres, but the arrival of the Internet has brought with it new opportunities for information delivery.

2.2 Web-based information resources

One of the biggest technological developments of the last decade is the arrival of the Internet with its possibilities. Ford and Dixon (1996:6) are amongst those who believe that the Internet is the answer to information provision: "in principle, (the Web) could encompass the sum of all human knowledge, complete with indexes and cross-references".

This section will look critically at the features of the Internet as a tool for information delivery and investigate whether it has advantages over traditional information resources, particularly for teachers.

2.2.1 Characteristics of web-based information resources

The Internet is a global network of LANs (Local Area Networks) and WANs (Wide Area Networks) connected to a so-called 'backbone' in order to communicate via different user platforms via standardised protocols (Schneider 1995:2). This technical definition is complemented by the following descriptions of the Internet from literature:

The Internet is –

- a large-scale system of interconnected hypermedia resources accessible from any computer connected to it. It facilitates access to stored text, hypertext, images, sound and video for reference, perusal or downloading (Clarke 1998:8);
- the largest global collection of information stored in network-accessible databases (Haughey & Anderson 1998:3);
- a dynamic body of information, distributed around the world by computers communicating via standardised protocols (Ford & Dixon 1996:6); and
- a publicly accessible global information system (Summerley 1996).

From a study of definitions and descriptions of the Internet, it appears that it is an electronic, computerised, networked platform for access to a multitude of sources of information accessible from anywhere in the world. The Internet is then an information resource that hosts, amongst others, many information resources.

A web-based information resource would then be an **online, Internet-based information resource for a specific user group.** Milheim & Harvey (1998:53) refer to a web-based resource site as an information resource on the Internet with specific information for a certain target audience, various Web links and access to software. Web sites like these are generally designed to provide support for a specific group of users in a given content area.

The latest estimate of the number of web pages on the Internet is 968 million (Notess 2002). This World Wide Web is still increasing and confirms the popularity of the

medium. What are the features of the Internet that make it such a popular tool for information delivery?

Kahn (1998:64) lists the following features of the Internet:

> *Key features:*
> Interactive; multi-medial; open system; on-line search; device-distance-time independent; globally accessible; electronic publishing; on-line resources; distributed; cross-cultural interaction; multiple expertise; industry supported.
>
> *Additional features:*
> Convenient; self-contained; ease of use; on-line support; authentic; non-discriminatory; cost effective; ease of coursework maintenance; collaborative learning; formal and informal environments; on-line evaluation; virtual cultures.

These features of the Internet add to its popularity. The Internet is close to an all-in-one-resource. What are the benefits of web-based information resources, especially when compared to other information resources?

2.2.2 The benefits of web-based information resources

Establishing a web site inevitably centralises access to information (Ford & Dixon 1996:17). A user can sit in one place, and have access to an abundance of information. The person need not travel, but can gain access to information on any topic from different parts of the world. Instant communication is possible via chat rooms and e-mail. These communication tools give the Internet an advantage over many other information resources.

Traditional information resources can be any of the following:

- Libraries
- Magazines
- Museums
- Newspapers
- Textbooks
- Encyclopaedias
- Journals
- CD-ROMs
- Universities
- Research centres
- Catalogues
- Specialists
- Resource centres, for example teacher centres
- Multi-media like films, cassettes, videos.

All of the above-mentioned information resources have their benefits, but a list of disadvantages can also be drawn up. For instance, libraries are not open at all hours and are not available to people who do not live nearby or have transport. Newspapers are dated on the day they are printed and paper is expensive. Textbooks become outdated with curriculum changes and the information on CD-ROMs cannot be updated easily.

Table 2.1 presents an overview of the advantages of web-based information resources:

Table 2.1: Advantages of web-based information resources

Ease of use	With its graphic user interface the Internet's resources are both easy and attractive to use. The point-and-click technique is not intimidating and it is easy to master. Web browsers are easy to install and technical support quickly available. Most interfaces are user-friendly, with online help-menus. Search engines will dig around and retrieve whatever information the user seeks, even if the user does not know where that information may be located on the Internet (Harasim et al 1995:22).
Convenience	The Internet's convenience lies in what Kahn (1998:64) calls "device-distance-time independent". Users can work on the Internet any place in the world in their own time, even after hours.
Global availability	A big advantage of web-based information resources is its global availability (Kumari 2000). From anywhere in the world information from any other part of the world can be retrieved and sent. The Internet makes national and global collaboration possible for anyone in any profession.
Relatively cheap	The Internet offers relatively cheap access to sources of information located anywhere in the world. At the mere cost of a local call users can communicate with colleagues at the other end of the world. They can participate in conferences, live chats, discussion groups, forums, and can subscribe to electronic journals or publish their own work at little cost.
Hypertext	Web pages are based on a **hypertext design**, which means that information at one Internet address can be linked to information at another Internet address. *Hypertext Mark up Language* (HTML) means that keywords or graphics in documents are linked to other relevant and

	supporting information – even on other computers at different locations. It can lead to new web sites with additional or complementing content. This information is accessible by merely clicking on a highlighted item, which makes it very easy even for inexperienced Internet users. A user can literally jump from one web page to another. Thus the Internet provides a vehicle through which images, text, video clips, music and sound can be exchanged without too much delay.
Interactive	It is also possible to design interactive materials for the Internet. Users can browse through information, not in a linear fashion as with textbooks, but by participating in the process of finding knowledge.
Downloads	Downloading is the act of copying a computer file from a server to your own computer. Users can download information, graphics and even video-clips onto their own computer for later viewing. Relevant material can be printed out, presentations can be compiled and used when necessary.
Access to a variety of information sources	The Internet offers access to a wide variety of sources of information, such as databases, policy documents, homepages of universities/ schools/ individuals, newspapers, journals, encyclopaedias, newsrooms, lesson plans, library catalogues, dictionaries and maps.
Research tool	With the help of the several free search engines on the Internet users can perform extensive searches to find information on various topics. Up-to-date data can be uploaded quickly to be published immediately at a much lower cost than in textbooks or journals. There is help available for new users to master the search skills quickly. Searches can be conducted by using keyword-searches or by category. After searching the whole database (which takes only a moment or two), the search tool displays a list of links to all the pages it determined as matches. This list is called a 'hit list' and the best hits are usually at the top of the list.
Communication	Communication via e-mail is easy and effective. Information can be requested from companies, experts and colleagues in other parts of the world at the cost of a local telephone call.
Publishing	Most Internet servers and easy-to-use software provide all that is necessary for users to publish their own work on the Internet without having to master complex new programming skills.
Adaptable/ dynamic medium	It is much easier and cheaper to change information on a web page than in published textbooks, newspapers or journals. Policy changes and research findings can be incorporated in existing documents without too much effort.

The descriptions above make it clear that the Internet has unprecedented possibilities for information delivery. Yet, despite these positive features of the Internet, there also are some constraints. Jackson, Bartle & Walton (1999:323) identify several barriers to the effective use of the Internet as an electronic information resource:

- Limitations in hardware, software and networking
- Insufficient access to network
- Limited awareness of resources
- Negative perceptions
- Ever-changing new skills needed
- Technical support needed

Additional to their list, the following constraints can be added:

- **The cost of technology**

  Although the Internet is not expensive to use, the initial costs of a computer, modem and software could be high.

- **Infrastructures**

  A variety of infrastructures is necessary for a business, library or school to provide Internet access for its staff. Security measures must be taken, appropriate space, lighting and ventilation must be provided. Cables, hardware and software must be installed and technical support must be readily available. Even more basic than of all of these, is the availability of electricity and telephone lines to connect to the Internet.

- **Lack of skills/ training**

  A huge barrier to access to the network and its resources may be the potential network user's lack of understanding of the medium. Knowing what is available in the network and how to navigate within the network are important, thus training of staff is of utmost importance if the Internet's benefits are to be maximised (McKenzie 1999a).

- **Information overload**

  More information has been produced within the last three decades, than in the last five millennia (Nelson 2000). Much of this is being published on the Internet. It would take more than a lifetime to read everything published on even one topic. The volume of information on the Internet has "exceeded the ability of most people to find the information they need" (Nelson 2000), creating an information overload. Nelson defines information overload as "the inability to extract needed knowledge from an immense quantity of information for one of many reasons" (Nelson 2000).

  The Internet may be the largest global collection of information, but "this collection of information is not as well organised as it should or will be" (Haughey & Anderson 1998:3). There is no one system that classifies and organises all the information on the Internet. Often users have to sort through large quantities of information on the Internet just to find the information needed. They could feel quite overwhelmed by the amount of available information (McKenzie 2000).

- **The Internet is still under construction**

  Everyday web pages are added to or removed from the Internet. Unknown to the potential users new information arrives daily. As servers expand and more and more servers are set up, the Internet addresses of web sites (URLs) change sometimes. This can create confusion among users. Authors like Sano (1996) and Schulze (2000:248) are of the opinion that the Internet will always be under construction.

- **Time consuming**

  The biggest frustration for the average user is the time it takes to locate information. It can also take long for a web page to "open" if there are many graphics on it. The downloading of documents may take very long as well. To use the Internet effectively, can be quite time-consuming (Jackson, Bartle & Walton 1999:323; Schulze 2000:248).

- **Quality control**

  The biggest criticism levelled at the Internet is the lack of quality control (Briggs 2002; Tillman 2000). Many portals try to link everything within their domain of interest, without screening for quality. The task of managing a web site is usually that of a web master – someone with technical skills but not necessarily with any subject knowledge. This results in the publication of masses of information, not all of it of good quality (McKenzie 1999b:44).

  The Internet offers access to documents typified as 'grey literature' (documents produced at "all levels of government, academics, business and industry, but which is not controlled by commercial publishers" - GL '99) and 'vanity publishing' (Tillman 2000). The latter are documents that have information of great value, but that have not been through peer review processes or the scrutiny of a publisher.

  With all the advertising and obscure publications on the Internet, it remains up to the Internet user to determine the reliability of information on web pages.

- **Lack of relevant material**

  As the global availability of the Internet has removed the traditional barriers between countries, it is understandable that information on the Internet is culturally diverse and in many different languages. Relevant material for a certain country, society, culture and language must be developed locally before it can really address the information needs of the intended user group (Czerniewicz, Murray & Probyn 2000:v).

Most of the problems with the Internet as information resource can be solved with careful planning, training and appropriate support structures in place. However, when the constraints of the Internet as an information resource are compared with the possibilities of the medium, the positive aspects far outweigh the negative aspects. In general, authors feel that the Internet offers more opportunities than drawbacks.

2.3 The Internet as an information resource for teachers

This section deals firstly with the information teachers need and the potential the Internet offers as an information resource for teachers. It then explores whether there is an expressed need for web-based resources for teachers, and the extent to which teachers utilise web-based information resources for professional purposes.

2.3.1 Teachers and information

Teachers form a professional group who are heavily involved in information provision. For them to provide the necessary information, they themselves must have effective access to the information. "If the teachers know how, why, where and when to find information and use it, these skills will not only enhance their teaching and prepare them for the new curriculum, but will filter through to the pupils and the community" (Oosthuizen 1997:233).

For the purposes of this study with its focus on Afrikaans First Language teachers, it is necessary to investigate the information needs of language teachers. Fillmore & Snow (2000) discuss the information needs of elementary school language teachers. They discern the following categories of information needed by language teachers:

- Content-area curriculum
- Pedagogical knowledge
- Knowledge of language teaching methodologies
- Educational linguistics (language acquisition, development of literacy)
- Language structures (grammar, semantics, lexicon, spelling)
- Strategies in reading, writing and speaking.

The duty of language teachers entails teaching the learners to become skilled users of language (reading, writing, listening and speaking). They must also be capable of teaching literature, i.e. the conventions of the genres of poetry, novels, short stories and drama. It becomes a daunting task when the language teacher is also expected to keep up with the latest developments in classroom practice, assessment strategies, children's literature, language debates as well as research findings in all the categories of information mentioned.

ERIC – the Educational Resources Information Center in the USA – has done much research to identify the types of information that teachers would find valuable (Clay 1985). The twelve top priority documents identified by teachers were:

- Promising practices
- Learning activities
- Units of study
- Resource and background materials
- Compilation of ideas from journal articles
- Brief research summaries
- Curriculum guides
- Lesson plans
- Fact sheets or ready reference materials
- Games/puzzles
- Annotated bibliographies
- Worksheets

These documents encompass the anticipated information needs of teachers. Clay (1985) reports that the top ten types of material requested by teachers from the resource are ranked as follows:

- Research summaries & syntheses
- Curriculum guides
- Resource materials
- Learning activities
- Annotated bibliographies
- Promising practices
- Units of study
- Lesson plans
- Textbooks.

Both the above mentioned lists give an indication of not only what teachers think they need, but also reflect to a great extent the type of information teachers do need and

seek in practice. It is clear that teachers – and language teachers in particular – need a variety of information on a continual basis.

There are information resources of various kinds to assist teachers. Many schools have well-equipped libraries, and many school districts host teacher centres with information resources for teachers. In Section 2.2.2 the discussion dealt with drawbacks of traditional information resources such as libraries. The next section explores the benefits web-based information resources have over existing resources for teachers.

2.3.2 The potential of web-based information resources for teachers

Most authors feel positive about the Internet's possibilities for information delivery to teachers. According to Quinlan (1997:16) the Web's versatility and interconnectedness makes it a prime platform to address curriculum concerns. It is this feature of the Internet that gives it its advantage over other types of information resources. All other resources are static, in most cases in printed format (textbooks, newspapers, journals, encyclopaedias), confined between the walls of libraries and only accessible during certain hours. Web-based documents can be updated much more easily and quickly than printed materials. Czerniewicz, Murray & Probyn (2000:38) mention that technology is also considered as a potential way of reducing the costs of learning support materials.

Other advantages of web-based information resources listed by Jackson, Bartle & Walton (1999:320) are:

- The Internet provides access to information not available in libraries;
- Faster and easier access to information resources;
- Access to up-to-date information;
- Access to specialist and unpublished information.

Jackson (2000) lists several ways in which the Internet can be used to support teachers, including:

i. *Assistance with day-to-day teaching*: The Web offers a vast array of information on various matters which teachers may need in their challenging profession. Textbooks may become outdated and curriculum matters can be addressed more quickly via the Internet.

ii. *Policies and procedures*: These can be posted on the Web for easy access by teachers. The Internet also allows for revision of documents to be made rather inexpensively. These document can be accessed immediately by all with Internet access.

iii. *Resource teachers*: Experts can be assigned full-time or part-time to advise teachers on problems and best practices. They can also prepare and provide supplemental lesson plans where textbooks and traditional resources are unavailable or outdated.

iv. *Collegial sharing*: Internet lists and bulletin boards allow a large number of people to participate in discussions on lesson plans, pedagogical issues, teaching strategies and shared interests.

v. *Portals*: A portal site links related web sites, providing teachers with an easy way of finding web sites that specialise in their field with lesson plans, teacher guides and student exercises.

From the literature it can be established that a web-based information resource holds many benefits for teachers. It can provide a single point of entry to find lesson ideas, curriculum statements, relevant information and help in a way that saves precious time and provides valuable support. Web-based information resources have the potential to be an adaptable, cost-effective way to deliver up-to-date material to teachers.

2.3.3 The need for web-based information resources

Jackson (2000) argues for the development of web-based information resources for teachers:

"Teaching is a tough job and teachers deserve support. Technologies can help provide such support. There are new possibilities for new technologies such as the Internet and the Web, which incorporate and extend the scope of older technologies. Taken together, these technologies can help motivate and empower teachers, assist them with day-to-day situations, provide avenues for lifelong professional development, and in short, can enrich teachers' work lives and enhance their effectiveness."

Trilling & Hood's ten top challenges for Educational Technology (1999:17) relate directly to the development of web-based information resources for educational purposes, among others:

- a need for better **Web-based multimedia reference sites** for learning, with simple interfaces and search engines, interactive simulations, comprehensive and updated guides to related Web sites [my emphasis];
- a quantum leap in ease of use and useful results in information searching, organising, and reporting tools, especially for the Web, and for databases of content knowledge and learning activities; and
- uncomplicated processes to make database development and web maintenance much simpler in order to create useful online knowledge bases, dynamic database-driven Web sites, and large-scale education information systems.

In the South African educational context, there have also been calls for online initiatives and support for teachers. In November 2001 the joint policy document of the Departments of Education and Communications was published. The document clearly gives notice of the intentions of these Ministries to drive ICT capacity-building in the South African educational context. The document envisions Internet connectivity for all schools, basic competencies in ICT skills by learners and educators alike and an educational portal, *Thutong*, to provide access to a host of curriculum and support material (Department of Education and Communications 2001:15-16).

From this document Paterson & Lundall (2001) identified key development intentions to:

- harness the Internet to meet the need for in-service training of teachers;
- ensure that teachers know how to incorporate and use ICT in their school teaching;
- enrich the curriculum with ICT components in all learning areas; and
- implement and support educator networks.

All three these priorities are motivations for the development of web-based resources for South African teachers. Paterson & Lundall (2001) express the opinion that the development of an educational portal "will be a **critical intervention**" [my emphasis]. A general portal for all teachers will contribute much to provide support for teachers, but the question of specialisation remains. There are many areas of specialisation in the South African teaching and training context, for instance Early Childhood Development, Learners with Special Needs, Intermediate Phase and Senior Phase Teaching and Training, Further Education and Training, learning areas and subjects. The ideal would be to provide local content and learning support materials for all fields of specialisation.

The need to connect yet smaller communities of teachers was voiced by Bob Sherman. In 1995 Jewish educators called for an information clearinghouse. They motivated their call with the fact that many good ideas never reach other teachers working in isolation. They voiced their opinion that a devoted online service for Jewish educators would have the potential of bringing opportunities to all teachers, alleviate feelings of isolation and be an important tool to disseminate information throughout their community. Bob Sherman concluded: "Jewish education is a small world, and we need to connect it" (Pearl 1995).

The same could be true for all smaller communities of teachers with their special interests and specific needs in South Africa. The ideal would be to provide them all with the information they need on user-specific web sites.

It is evident from the literature that there is a definite need for web-based information resources. But while it has been established that the Internet offers tremendous

opportunities for effective delivery of information to teachers, it is necessary to ask whether teachers are aware of this opportunity and if they utilise the Internet for professional purposes.

2.3.4 Utilisation of web-based information resources by teachers

Gray 1998, Kumari 2000, Quinlan 1997 and Woodall 2001 claim that teachers are increasingly using the Internet for professional purposes. This section investigates certain aspects of utilisation of web-based information resources by teachers, for instance when, how, how often and why teachers use web-based information resources. It also investigates teachers' attitudes towards the Internet as information resource and whether teachers really benefit from web-based information resources.

2.3.4. Frequency of use

The web based information service for American teachers, *ERIC* (http://ericir.syr.edu*)*, receives approximately six million hits per week, which amounts to about 24 million per month (Ask Eric 2001). This web-based information resource provides a central point in the U.S. where all educational research information, lesson plans, a library, expert advice and much more, are available.

In 1998 the *SchoolNet Canada* web site (www.schoolnet.ca) recorded more than 2.5 million hits per month. Elise Boisjoly, Director of SchoolNet Canada, says their web site is "an exciting resource that provides learners and educators alike with an easy-to-use single platform from which to reach the power of the Information Highway" (quoted by Haughey & Anderson 1998:75).

The *EdNA Online* or *Educator Network Australia* (http://www.edna.edu.au) receives approximately two million hits per month (Smith 2002). An information web site for Dutch teachers in the Netherlands, *Ondewijspagina* (http://onderwijs.pagina.nl) received 240 6188 visitors from 21 March 1999 up until 13 March 2002 (statistics retrieved on 24/04/2002 from the site http://v1.nedstatbasic.net/s?tab=1&link=1&id=780981). On the single busiest day this site received 6031 visits which amounts to 180 000 hits per month. A comprehensive resource for language teachers in the UK, *The Subject Centre for Languages, Linguistics and Area Studies* (www.lang.ltsn.ac.uk) receives an estimated 4000 hits a week (Riley 2002). A

Belgium site for Biology teachers (www.vob-ond.be) indicated a visitor total of 10 289 on 1 July 2002.

Hit counters on web sites do not give an indication of the utilisation of these resources specifically by teachers. Yet the statistics of the use of international resources are overwhelming. Teachers do not only utilise the resources extensively, they also contribute their own lesson plans, ideas and learning support material.

It was very difficult to establish the extent of utilisation of web-based resources by teachers in South Africa. No literature on the subject could be found. E-mails were sent to South African educational resources. Very few replied with information. One can ask whether these resources do give high priority to serving the information needs of customers.

The following indication of utilisation of online South African resources for teachers was either from feedback on e-mails or some indication of visits to the websites themselves. It is certainly not an accurate indication of how teachers utilise these resources, but to a certain extent it gives an indication of activities on South African resources.

Easymaths (www.easymaths.org) is a South African resource with curriculum-based information, lesson ideas, games and many more for mathematics teachers, learners and parents. According to the webmaster, Maggie Verster, the site gets about 8000 visits per month, but only 25% of these are from South Africa, which means a total of about 2000 South African visits to the site per month (Verster 2002).

The *English Teachers' Online Network of South Africa* (www.etonsa.cjb.net) is a web-based initiative that provides information for English Language teachers. Contributions in the guest book of this site reveal a minimum input of twenty-five contributions since 1999. No feedback was received from the information desk of this site.

SASchools (www.saschools.co.za) offers links to all South African schools with web sites, curriculum information and, amongst others, links to educational resources.

The guest book on the site revealed 3 433 'shows'. No replies to e-mails were received.

There is at this stage still a marked lack of local subject-specific resources on the Internet. New initiatives of the Western Cape Education Department such as *Edumedia* (www.edumedia.wcape.school.za/catalog/welcome_w.html) and *e-Curriculum* (www.wcape.school.za/curriculum) can contribute much in future.

The Sunday *Times* (http://www.sundaytimes.co.za/education), *SABC-Education* (http://www.sabceducation.co.za) and *Learning Channel* (http://www.learn.co.za), *M-Web Learning's* extensive online learning service *(http://www.mweb.co.za/learning)*, all provide valuable assistance for learners. But there are still huge gaps in user-specific information provision, learning support materials and virtual teacher communities on the Internet.

All indications from the web-activities on the above-mentioned resources indicate very low levels of Internet use by South African teachers. Stefanie Hefer, the director of *M-Web Learning* mentioned the following in an e-mail on South African teachers' utilisation of online resources (Hefer 2002):

> *It is a fact that teachers in our country are still very wary of and uninterested in the Internet. Its worth as a medium for exchanging knowledge, help and ideas has not yet been discovered and the Internet is still under-utilised.*[1]

It is evident from the information mentioned above that South African teachers do not utilise the Internet for professional purposes. It is necessary to explore the factors that contribute to Internet use by teachers. These can lead to interesting insights for the planning and implementation of a web-based information resource in the South African context.

---

[1] *Basies is dit eenvoudig 'n feit dat onderwysers in ons land nog ontsettend skrikkerig en onbelangstellend oor die internet is. Die waarde van die medium as tydbesparende uitruilplek vir kennis, hulp, wenke, noem op is nog absoluut onontdek en word heeltemal onderbenut.*

2.3.4.2 Prerequisites for effective utilisation of web-based resources

According to the literature available teachers use the Internet and its resources when and where there are support structures in place. The following prerequisites for Internet utilisation by teachers were identified in the literature:

- **Connectivity**

Becker identified connectivity in the classroom as an important factor that enhances the utilisation of web-based resources by teachers. In 1999 more than 90% of U.S. schools had some sort of Internet access and more than one-third of U.S. teachers had Internet access in their own classrooms (Becker 1999). Becker's research results also revealed that a majority of teachers (59%) had Internet access at home with only one-quarter (27%) having no access at home or at school. Becker (1999)declares: "These statistics suggest that, as with other knowledge-oriented professionals, the Internet has begun to be established as an information and communications resource in the working and home environments of most teachers."

Nine out of ten EU schools have been reported connected to the Internet by 2001 (Joyce 2001). The SITES[2] survey revealed that more that nine out of ten Canadian students attended a school that had Internet access by 1999 (Drouin 2000).

As far as connectivity is concerned, the South African situation looks bleak compared with first world countries like the USA. Denis Brandjes (2000) mentioned in the opening address at the *Millennium Minds-2000 Conference* in Pretoria that only 250 out of over 28 000 schools in South Africa were connected to the Internet in 1996. The figure rose to more than 2000 connected schools in the year 2000, still only about 14% of all South African schools (Lundall & Howell 2000).

The level of connectivity is currently a priority for South African schools. According to the latest policy document regarding ICTs in education, all South African schools will have at least one computer connected to the Internet by 2010 (Departments of Education & Communication 2001). While it will still take many years before the

[2] Second International Technology in Education Study

South African situation may change for the better, it is necessary to explore other factors that contribute to Internet use.

- **Training**

The second prerequisite identified in the literature for sustainable Internet utilisation by teachers is the training of teachers to use ICTs effectively in their professional lives. International reviews have shown that educator development is one of the most critical factors in building and sustaining ICT capability in schools (Gray 1998; McKenzie 1999a; Paterson & Lundall 2001).

Low levels of ICT skills impact negatively on ICT use in schools. Both internationally and locally there are clearly expressed needs for the training of teachers in the use of ICTs. In his critique on Educational Technology, Greg Kearsley (1998:47) states that teachers are ill prepared to use educational technology and pleads that training should also be done in content areas.

Urgent attention should be given to the training of teachers in South Africa. Paterson & Lundall (2001) are of the opinion that large-scale interventions from the state, private sector and other agencies will be necessary to remedy the lack of ICT skills of teachers. This calls for systematic planning, detailed co-ordination and an ongoing evaluation of the progress in this regard.

- **Other factors**

A certain level of **computer expertise** is required for teachers to utilise the Internet for professional purposes (Becker 1999). Positive attitudes, curriculum guidelines for ICT use and technical support (Woodall 2000, McKenzie 2000) are amongst the factors that contribute towards high levels of ICT adoption and integration by teachers.

2.3.4.3 Teachers' attitudes towards the Internet as information resource

As a rule teachers have positive attitudes regarding the Internet as an information resource (Woodall 2001; Becker 1999). Of the 600 American teachers interviewed by NetDay, 84% indicated that they think the Internet can improve the quality of education (Woodall 2001). Seventy-five percent of the interviewed teachers are of

the opinion that the Internet is an important tool for finding new resources and meeting educational standards.

Lundall & Howell (2000:98) also found that teachers in South Africa in general feel positive towards the use of computers in education. It is very interesting to note that 77% teachers at schools **without** computers rated the value of the computer as an information resource much higher than 66% teachers from schools **with** computers (Lundall & Howell 2000:116). Perhaps they see computers as an important source of information to access resources not available to them in schools.

Research has revealed that teachers are becoming more and more aware of the Internet as an educational resource. Where there are web-based resources available and support structures in place, they are utilised with positive results. There are, however, still negative feelings towards the Internet and many teachers who do not use it for professional purposes.

2.3.4.4 Reasons why teachers do not utilise the Internet as an information resource

Willis, Thompson & Sadera (1999:36) mention that surveys on the current status of ICT integration in schools reveal that teachers may have positive attitudes about the use of technology in schools, "but that teachers are not confident of their ability to use technology in the classroom". Jamie McKenzie (1999b:44) mentions that teachers do use the Internet, but that many express disillusionment: "They seek guidance and mediation. They cannot afford to wade through thousands of 'hits' and hundreds of Web pages, most of which are irrelevant, highly commercial or untrustworthy."

Factors that deter teachers from using the Internet include lack of time, lack of equipment and a lack of technical support at schools (Woodall 2001; Summerley 1996). McKenzie (2000) comments: "...there never seems to be enough time... not enough time to invent great lessons, to convert the often disorganised Net into a benefit". He claims that some teachers' dissatisfaction with electronic resources comes from the lack of structure and the extensive effort required from them in order to make valuable use of it.

The low levels of skills continue to impact negatively on ICT use in schools. According to the September 1999 report of *Market Data Retrieval,* more than 60% of the teachers replying to a survey indicated that they were not well prepared to use technologies in their classrooms (quoted by McKenzie 1999a).

Both internationally and locally there are clearly expressed needs for the training of teachers in the use of ICTs. In his critique on Educational Technology, Greg Kearsley (1998:47) states that teachers are ill prepared to use educational technology. He pleads that training should also be done in content areas: "…what teachers want to know most, is how to teach their chosen subject domain more effectively" (Kearsley 1998:50).

Trilling and Hood (1999:15) mention that billions of dollars are being spent world wide on connecting schools, libraries, and homes to the ever-expanding information infrastructure, "while comparatively little is being invested in the learning content and support that will actually appear on our computer screens once they're connected". This is also the case in South African schools (Lundall & Howell 2000:104,105).

As early as 1996 South African teachers indicated the following reasons for not utilising the Internet (Summerley 1996): a lack of time, suitable equipment, know-how, interest and a lack of relevant South African material on the Web. Summerley's early findings are reiterated in other more recent South African studies. Czerniewicz, Murray & Probyn (2000:v & 41) and Lundall & Howell (2000) also mention lack of training and a lack of local content as main reasons why ICTs are not exploited effectively in South Africa.

The available information indicates that South African educators in general do not and cannot benefit from web-based information resources, primarily because of the low level of Internet connectivity in schools. There is a strong correlation between low ICT use in South African schools and the absence of Internet access (Lundall & Howell 2000:138; Brandjies 2000).

The lack of local content as a reason why teachers do not utilise the Internet, supports the idea of providing a web-based information resource for Afrikaans language teachers. The next step would be to establish a framework for implementing a web-based information resource for teachers.

2.4 A framework for implementing a web-based information resource for teachers

It is evident from the literature that web-based information resources can definitely add to teacher productivity and development. It is now necessary to ask how the development of a subject-specific information resource should be tackled.

Section 2.1.1 dealt with the criteria for quality information resources and the process to follow when an information resource is started. The same criteria are applicable to the development of information resources for the Internet. Design issues of web pages will not be discussed in detail here, but rather the criteria for quality web-based information resources, summarised from available literature. The various stages in the development process will also be discussed.

2.4.1 Stages in the development process

- Firstly a **set of goals** should be defined for the resource, including a statement of purpose and main objectives (Milheim & Harvey 1998:53; Ruffini 2001:64). This sets the stage for long-term development and defines the parameters within which the service will operate.

- Secondly an **analysis of the potential users** should be done so that the site can meet their needs and expectations (Milheim & Harvey 1998:53; Maddux & Johnson 1997:7; Ruffini 2001:64). This will help determine the content of the resource site and help to stay focused. "It is only through an understanding of what information people need and how they set about finding it that information professionals can ensure that suitable information systems are provided" (Nicholas 1996:5).

- After a study of the potential user group is done, the site must be **designed and built** to allow users to visit the site, find the information they want easily, and then

print or save it as needed (Milheim & Harvey1998:54). Ruffini (2001) mentions that most resources agree that there are four main design principles namely, simplicity, balance, emphasis and unity. Section 2.4.2 will deal further with the design issues.

- Webb (1996:17) mentioned that it is important to **get the information service off the ground** – "Gaining the confidence of users is most important at this stage. They do not want to have to wait too long for the new service: their expectations have been set." According to Webb the service should be started and tested. The initial procedures should be kept simple and flexible to allow for the development of the service.

- After designing a web-based information resource, the next step is to involve a small, representative group typical of the target audience to **evaluate** the system (Milheim & Harvey1998:54; Corry, Frick & Hansen 1997:66). This contributes to, for example, the identification and correction of gaps, mistakes, inactive links and language errors.

- Once the information resource has been established, an **adoption process** should be implemented. Morrell (1997:30) emphasises the fact that technology will only gain wide acceptance when it is easy to use. Involvement right from the start by the intended user group will contribute much to the success of the project. It is necessary to tell users of the resource.

- Finally, the **management and maintenance** of the site is an ongoing process. The site should be regularly scanned for 'dead' links. Outdated information must be removed, new developments, links and pages added or integrated (Milheim & Harvey 1998:55; Maddux & Johnson 1997:11).

2.4.2 Design principles

Wilkinson, Bennett & Oliver (1997) identified eleven criteria for designing a quality Internet resource. They will not be discussed in depth, as web design issues are not the focus of this study. Wilkinson, Bennett and Oliver's (1997) criteria are presented

in Table 2.2. The second column of Table 2.2 indicates other sources that confirm their criteria.

Table 2.2: Criteria for quality web-based information resources

Aspect	Reference
i) Site access & usability	
▪ Permanent, easy URL; reliable server	▪ Milheim & Harvey 1998:54
▪ The site should open / download fast	▪ Jackson 2000
▪ The site should have a distinctive name	▪ Thompson, Simonson & Hargrave 1996: 4
▪ Screen should have an orderly, clutter-free appearance	▪ Milheim & Harvey 1998:54; Maddux & Johnson 1997
▪ Compatible with different browsers	
ii) Resource identification and documentation	
▪ The intended audience must be mentioned	
▪ The mission, purpose and scope of the site should be clear	▪ Maddux & Johnson 1997:7
▪ Documents should be regularly updated	
▪ All the documents should have clear URLs	
iii) Author identification	
▪ The name, qualifications, position and contact details of the author(s) must be clear	▪ Maddux & Johnson 1997:8
iv) Authority of author	
▪ The author must be a recognised authority on the subject	▪ Maddux & Johnson 1997:8
▪ Involvement of educational institutions related to the topic adds credibility to the site	
v) Information structure and design	
▪ The titles of documents should be clear and descriptive	
▪ The content must fit the stated scope, purpose and audience	▪ Maddux & Johnson 1997:10
▪ Use of graphics and icons must contribute to the clarity and usability of the information	
▪ The site should offer a variety of features	▪ Ohl & Gates:1997:26
▪ A metaphorical interface design can enhance the usability of a web site by foreshadowing for the user what will happen	

vi) Relevance and scope of content ▪ The content must be related to the intended user's needs ▪ Currency of content should be of utmost importance ▪ The content must meet the curriculum standards of the country ▪ Documents should provide new information on the topic ▪ Obvious gaps or omissions in the coverage of the topic must be avoided	▪ Jackson 2000 ▪ Jackson 2000
vii) Validity of the content ▪ Bibliographies or cite references should confirm the accuracy of the information ▪ A reputable organisation should maintain the site	
viii) Accuracy and balance of content ▪ Documents must be free of errors or misleading omissions ▪ Language and grammar must be correct and appropriate ▪ Information must be of consistent quality	▪ Maddux & Johnson 1997:10
ix) Navigation within the document ▪ There must be an index/ table of contents that can be used to navigate within the document ▪ Users must have a way to get back to the home page ▪ Help should be available	▪ Corry, Frick & Hansen 1997:73
x) Quality of the links ▪ Links must be clearly visible and understandable ▪ Instructions should appear before links ▪ Links should be annotated ▪ Are users informed of the type of information they are linking to? ▪ Links must be reliable, relevant and appropriate ▪ Minimum mouse clicks required to bring relevant information to the user	▪ Sano 1996:8
xi) Aesthetic and affective aspects ▪ The documents should follow accepted graphic design principles (e.g. balance, unity, proportion, simplicity)	

▪ Graphics should be used wisely ▪ Documents should follow accepted text design principles (headers, limited mix of style and sizes) ▪ Readability and legibility guidelines should be followed (sufficient colour and tone contrast, font size) ▪ The document should show evidence of originality and creativity in the visual design and layout ▪ The interface must make use of consistent menu conventions from screen to screen ▪ The source must attract and maintain the user's attention	▪ Ford & Dixon 1996:21

According to Sano (1996:8) the design activity never ends, "for the web is a living, evolving entity, open to change, improvement, and technological innovation". In most instances a web-based information resource will entail a reiterative process. Action research will be a valuable instrument to guide this process (Carter 1998).

To ensure user satisfaction and utilisation of the resource, valuable lessons can be learned from similar projects. The next section deals with this aspect of information resources.

2.4.3 Ensuring participation and utilisation of the information resource by the intended target population

A very important aspect is to ensure that the information resource is utilised by the people for whom it was created. It is no use to invest in time, money and effort to start an information resource that will not be utilised sufficiently. Therefore, it is of utmost importance that strategies should be implemented to ensure that the intended target group will use the resource.

It is important to give users a sense of ownership (Kumari 2000; McKenzie 2000). Training them to use the Internet, convincing them of the relevance of the resource, and giving them the opportunity to contribute to the resource can do this.

It is also important to extend on initial successes: "One of the greatest challenges in maintaining a first class Internet site is maintaining what has been built and

expanding upon it ... The key is to provide a common ground for educators and learners and then empower them to generate and share quality instructional materials" (Haughey & Anderson 1998:76).

Once the web site meets the criteria for a quality resource, attention must be given to the promotion of the resource. It is essential that a web resource intended for a specific target group should be advertised. Opportunities for the intended audience to learn more and participate in the development of the resource would further ensure its utilisation.

Jamie McKenzie has much experience in the training teachers in the USA to use ICT. He is of the opinion that teachers are most likely to embrace technologies "…if they can see the connection between their work (covering and exploring the curriculum) and the tools" (McKenzie 1999b:3).

Kumari (1997) says teachers should be taught the skills necessary to navigate the Internet and understand its functioning. Their skill level must be increased for them to be able to contribute to the resource, "which gives them an immense sense of responsibility, ownership and motivation to be continually involved".

Teachers want to see results, not promises of content support on a web-based information resource (McKenzie 1999b:130-132). McKenzie supports Kumari's view that teachers must be trained in the use of ICTs and that their competence should be developed through workshops and training.

The culmination of the above-mentioned factors, will contribute to the utilisation of web-based information resources for teachers. It will have to be a dynamic and ongoing process requiring good planning and effective marketing strategies.

Research into the subject has provided valuable insights into understanding how to provide a professional group with a needs-driven online information resource.

2.5 CONCLUSIONS

The purpose of the literature review was to probe the trends and issues raised by the study's research questions. Here are some conclusive remarks regarding the questions posed:

Information resources should be needs-driven, reliable and provide relevant and quality information to support the intended target audience. With increasing demands on all professions to be competitive and survive in the Information Age, information resources can do much to save valuable time and add to productivity.

New technologies, such as the Internet, provide new possibilities for speedy, cheap and convenient information delivery. There is an optimistic view in the literature reviewed of the possibilities of the Internet to serve as a tool for information delivery to teachers. Its positive features far outweigh the negative aspects. Web-based information resources are far more versatile than traditional information resources. The Internet can support teachers in various ways and offer them tremendous opportunities for effective delivery of information.

Worldwide teachers are increasingly using the Internet for professional purposes. In general they have a positive attitude towards the Internet as an information resource. In instances where the necessary resources are available online, it has led to higher productivity, effectiveness and job satisfaction (Ely 1997:107).

For teachers to utilise the Internet effectively, there are certain prerequisites that should be in place, e.g. technical support, training and relevant content. The South African situation regarding the utilisation of web-based information resources by teachers differs much from that of countries like the U.S. and Canada. This is mainly because of very low levels of Internet connectivity in South African schools and lack of training in ICT skills.

Information resources are only well utilised if they are needs driven, well planned and designed, maintained effectively and if the content is relevant and of good quality. Means to ensure participation and utilisation of the intended target group include participation, skills training and advertising.

Girod and Cavanaugh (2001:46) say: " Technology is not the key to radical change – teachers are the key". Therefore it is a wonderful opportunity to be able to utilise technology to benefit and support teachers: to provide them with quality resources for capacity building, professional support and for the enhancement of their teaching.

The purpose of the research for this study, is to justify and guide the development of a web-based information resource for Afrikaans language teachers. Research findings support the notion for such an initiative. From the literature reviewed clear guidelines were identified to start such a process. The empirical research aspect for the development of a web-based information research will be dealt with in the next chapter.

CHAPTER 3: RESEARCH DESIGN

This chapter will discuss the research methodology used in this study. It first offers a brief outline of action research as a research method, then continues with a detailed description of the research project undertaken to establish a web-based information resource for Afrikaans First language teachers.

3.1 Action research

This study was planned and developed as an action research project. The aim of action research is to "bring about practical improvement, innovation, change or development of social practice, and the practitioners' better understanding of their practices" (Cohen et al 2001:227). Kemmis & McTaggart (1988:10) describe action research as "… to plan, act, observe and reflect more carefully, more systematically, and more rigorously than one usually does in everyday life; and to use the relationships between these moments in the process as a source of both improvement and knowledge".

The term **action research** highlights the essential features of action and research, which involves the systematic testing of ideas in practice to improve social conditions and increase knowledge (Hatten, Knapp & Salonga 1997).

Action research lies within the domain of formative and evaluation research (Mouton 2001:158). It implies that the research is undertaken to evaluate a real life problem, seek and plan systematically for a solution to the problem, implement the solution, and evaluate whether the intervention was successful.

Kurt Lewin (1948), a social psychologist, developed the concept of action research. He described action research as a spiral of steps, each consisting of planning, action and evaluation. Cohen et al (2001:229) depict an action research project as "a spiral of cycles of *planning*, *acting* (implementing plans), *observing* (systematically), *reflecting*… and then re-planning, further implementation, observing and reflecting".

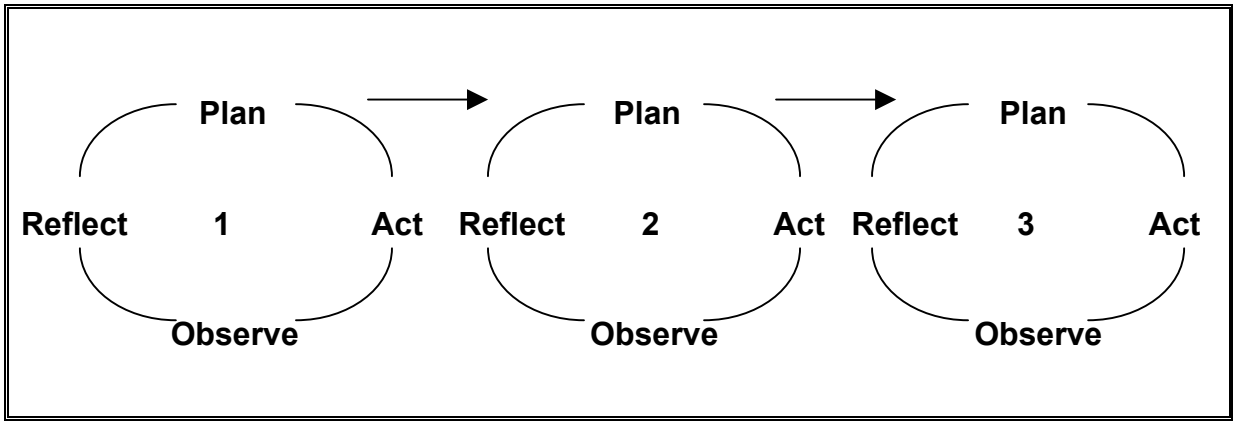
Kemmis (1981), McLean (1995) and Zuber-Skerritt (1992) are amongst those that see the action research process as consecutive spirals or cycles of observing,

planning, acting, and reflecting. This can result in an ongoing process. Brown and McIntyre (1981:245) expand on it as follows:

> "The research questions arise from an analysis of the problems of the practitioners in the situation and the immediate aim then becomes that of understanding those problems. The researcher/actor, at an early stage, formulates speculative, tentative, general principles in relation to the problems that have been identified; from these principles, hypotheses may then be generated about what action is likely to lead to the desired improvements in practice. Such action will then be tried out and data on its effects collected; these data are used to revise the earlier hypotheses and identify more appropriate action that reflects modification of general principles. Collection of data on the effects of this new action may then generate further hypotheses and modified principles, and so on as we move towards a greater understanding of, and desirable change in, the practice that is achieve."

Zuber-Skerritt (1992:13) proposes a four-moment action research model, which represents the cycles of action research as consisting of four major moments: plan, act, observe and reflect. Figure 3.1 represents this research model.

Figure 3.1: Zuber-Skerritts' four-moment action research model



The four-moment action research model includes the following activities:

- ***Planning***:

This stage involves problem identification. The problem is systematically analysed, research questions are formulated and a strategic plan for action on how to address the problem is outlined.

- ***Action/ implementation***:
  In this phase the strategic plan is implemented. This might involve some intervention or action to address the problem.

- ***Observation/ evaluation***:
  The researcher observes the outcomes of the strategic plan in this phase. The action taken in the previous phase is evaluated with appropriate methods and techniques.

- ***Critical reflection***:
  In this phase of the action research cycle the researcher reflects critically on the results of the evaluation, i.e. on the whole action taken and the research process itself. The researcher identifies a new problem and the process can start all over again.

From the action research model it is evident that problem solving is central in this type of research – usually a problem that is of immediate concern to the practitioner. Van Ryneveld (2000: 43) maintains that action research is an effective and innovative way to make "academic research relevant to the overwhelming problems that confront education in South Africa".

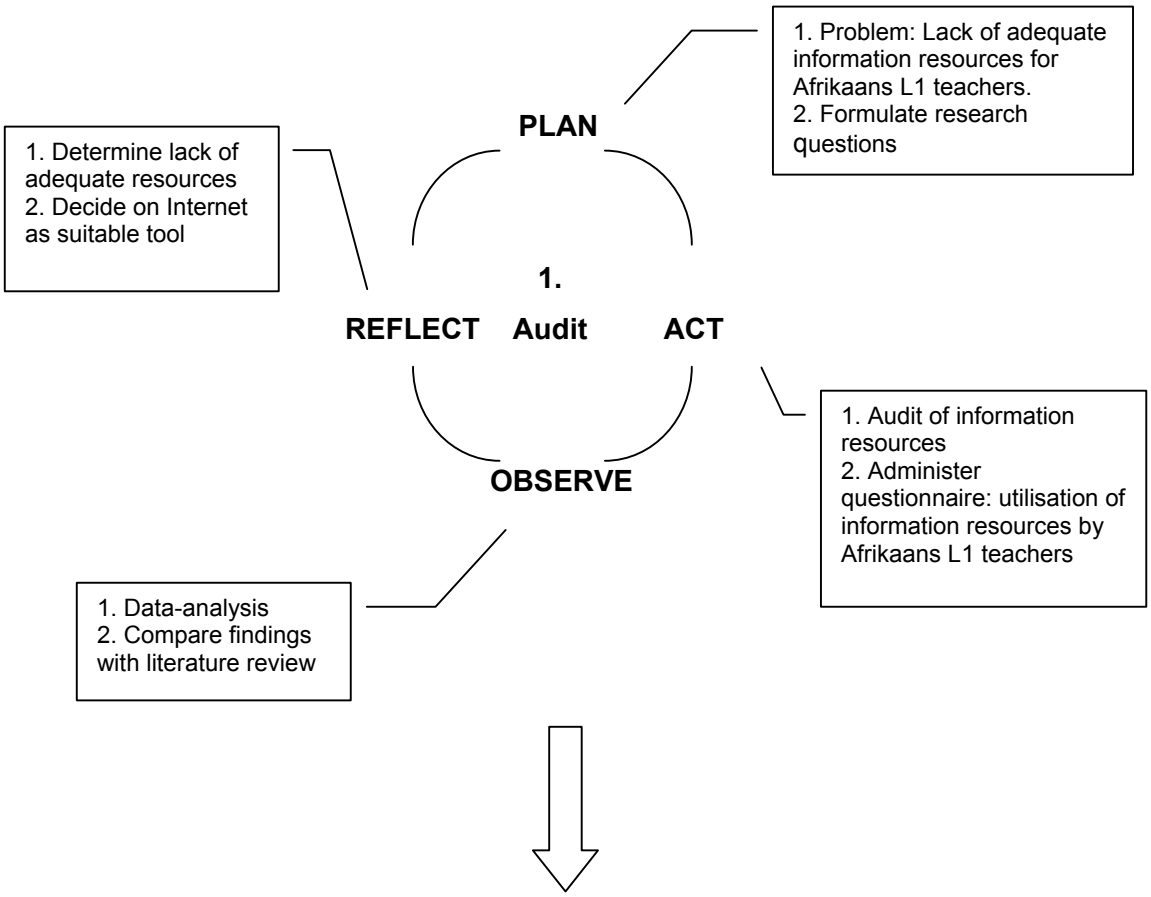
It is within this paradigm that this study has been conducted. The research was an attempt to understand, improve and reform practice. A lack of effective information resources for Afrikaans Language teachers was identified and the researcher decided to find the best possible way to address this problem. A web site for these teachers seemed a good option, but such a project had to be planned systematically and guided through empirical research. True to the characteristics of action research this study moved through various cycles and used a variety of instruments for data collection within each cycle.

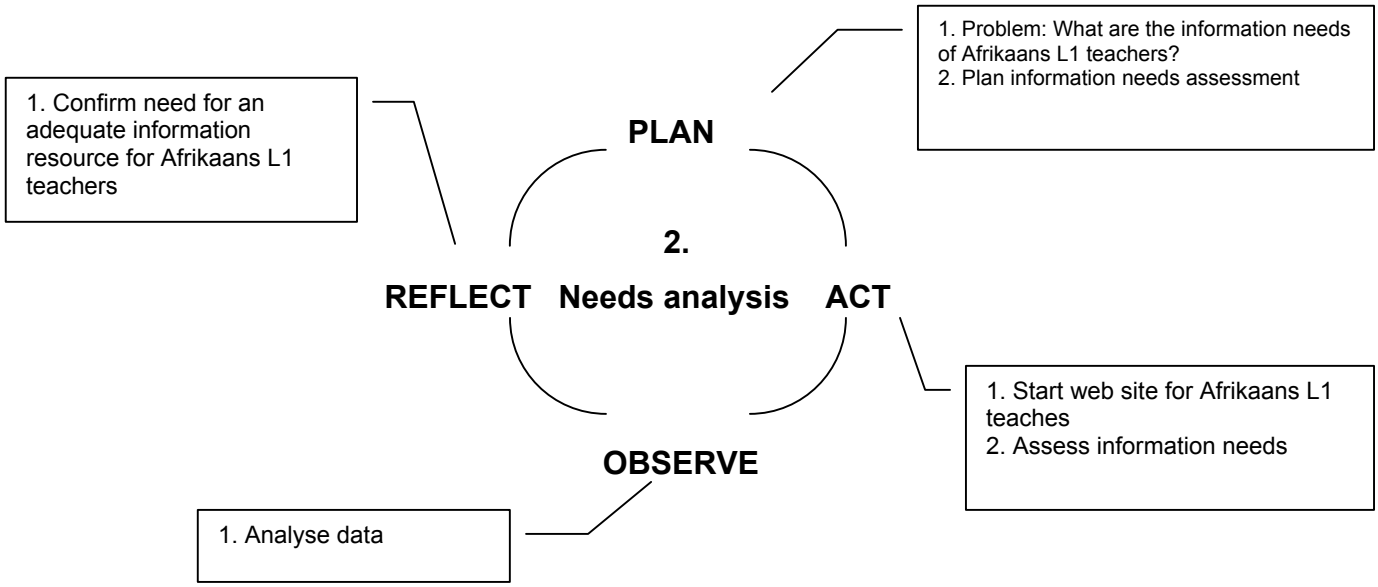
The research process, reflecting the main concern and activity of the various stages of the research, went through the following three cycles:

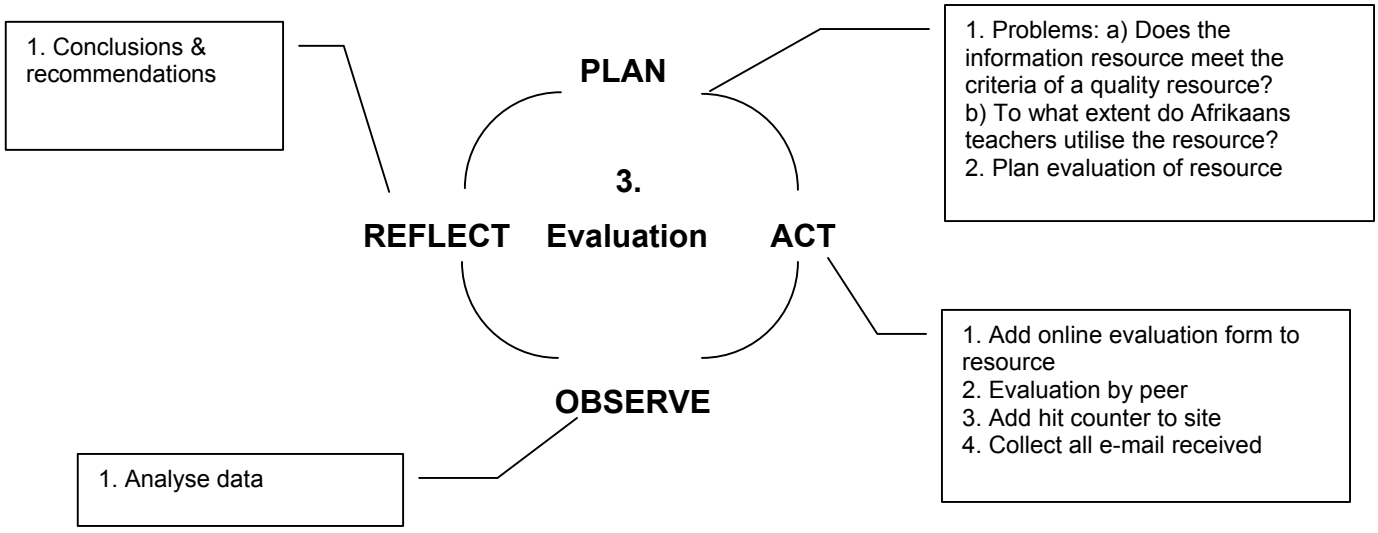
1. Audit of existing information resources for Afrikaans First Language teachers
2. Analysis of the information needs of the intended target group
3. Evaluation of the resource

Figure 3.2 represents a summary of the different cycles of this research.

Figure 3.2: The Four-moment action research cycles of this study







In each stage of the research, data was collected to answer the research questions relevant at that particular stage of the research. Various data collection methodologies were used to find answers to the issues raised by the critical research question of this study.

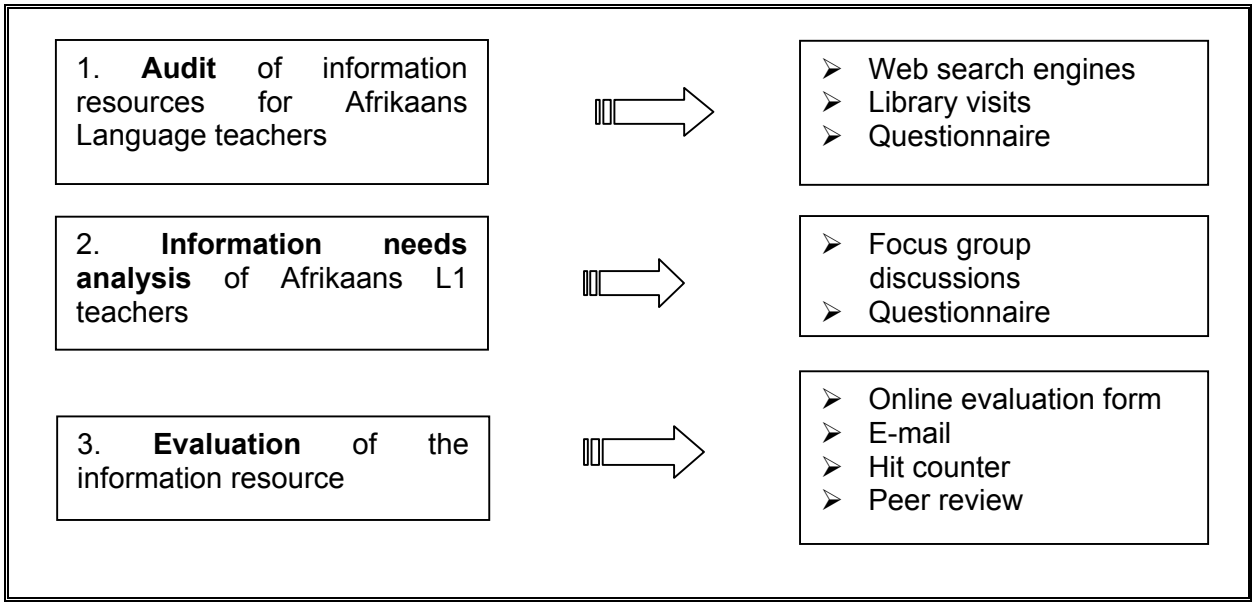
The next section deals in detail with the research design and data collection methodologies of this study.

3.2 Detailed research design and data collection methodologies

An empirical study such as this evaluation research typically makes use of hybrid forms of data and uses multiple methods of data collection (Mouton 2001:158,159). As the research process develops, new research questions arise and in order to answer these satisfactorily, appropriate means of data collection have to be applied.

Figure 3.3 presents a graphical representation of the research process and of the data-collection methods used at each stage/ cycle:

Figure 3.3: A graphical representation of the research process



The data collection methodologies within each of the three cycles will now be dealt with in detail.

3.2.1 Cycle One: Audit of information resources

There is obviously no need for an information resource if similar resources are available. It was therefore necessary to do a thorough survey of information resources available for Afrikaans language teachers to ensure that the web site

intended for Afrikaans language teachers will not be a duplication of something similar.

The questions at this stage of the research were:

- What information resources are available for Afrikaans language teachers?
- How do Afrikaans L1 teachers use and value these resources?
- Do Afrikaans L1 teachers utilise the Internet as an information resource, and what are the contributing factors in this regard?

In order to derive at answers for these initial questions, a thorough search of available information resources for Afrikaans L1 teachers had to be done. The instruments used to conduct these searches will be discussed now.

3.2.1.1 Data collection instruments in Cycle One

1. Web search engines

Web search engines are popular tools for locating web pages. Search engines crawl the Web and log the words from web pages in their databases. Search engines used for this study include Google, Yahoo, AltaVista and Aardvark. Searches were conducted with the following key words, concepts and subject directories:

- "Afrikaans" + "onderwys*" (Teach*)
- "Afrikaansonderwys*"
- "Afrikaans" plus combinations such as:
    - Kurrikulum (Curriculm)
    - Letterkunde (Literature)
    - Lesidees (Lesson ideas/ plans)
    - Hulp (Help)

The home pages of all the tertiary institutions in South Africa were visited. The web sites of their Afrikaans Departments were explored for indications of contributions or information for Afrikaans language teachers.

Thirdly, a search was done on all South African education web sites for references to the different learning areas/ subjects. Finally, the home pages of South African Internet Service Providers such as M-Web and Atlantic were visited to determine whether they provide any educational resources in Afrikaans or even possibly for Afrikaans language teachers.

Web-based searches were done twice – once in September 1999 and then again in the middle of 2001. This was done do monitor the development of Internet resources, since no matches were found in the 1999 search.

2. Library catalogue

By means of the search facilities of the Academic Service Unit of the University of Pretoria thorough searches were done for electronic and paper-based information resources dedicated to Afrikaans language teachers.

3. Questionnaire

A questionnaire was designed to investigate, amongst others, the information resources Afrikaans First Language teachers use and how often they use these resources (Addenda A and B). The questionnaire consisted mainly of closed questions. It was tested on colleagues of the researcher who have taught Afrikaans First Language for several years. A covering letter for the final questionnaire was drafted to indicate to the participants the aim, importance and benefits of the research.

3.2.1.2 Selection of participants

Non-probability sampling is frequently used in action and small-scale research (Cohen et al 2001:102). For the purposes of this study convenience sampling (a form of non-probability sampling) was done. It involves choosing respondents to whom the researcher has easy access. This was done because of financial constraints.

A group of 78 Afrikaans First Language teachers who attended a conference at the University of Pretoria in September 2000 were asked to participate in the research. This group was chosen because the researcher delivered a paper at the same

conference and it was convenient and cheap to circulate the questionnaires at the conference. It resulted in a high response-rate.

The selectivity of a non-probability sample is recognised. The data from these questionnaires cannot be generalised for the wider population of Afrikaans First Language teachers, but at this early stage of the research it gave valuable direction to the project.

3.2.1.3 Data analysis in Cycle One

Findings from the web- and library searches were listed and documented (see Chapter 4). The data from the questionnaire was coded. Staff members from STATOMET at the University of Pretoria post-coded the data. Comparisons were generated through selecting the type of school (primary or secondary school) as a main variable.

The findings from the data analysis are presented fully in Chapter 4.

3.2.2 Cycle Two: Information needs analysis

From the study of the literature it was clear that an information resource should be grounded in a firm knowledge of the information needs of the intended target population (Chapter 2.1.3). The questions at this stage of the research were:

- What are the information needs of Afrikaans First Language teachers?
- Are there any significant differences in the information needs of primary and high schools teachers?

A needs analysis is usually rooted in evaluation research such as is the case with this study (Cohen et al 2001:390). Data required for needs analysis can be derived from several sources, for example:

- *Quantitive data* – such as structured interviews, surveys and questionnaires
- *Qualitative data* - focus group discussions and case studies

A questionnaire was administered to gather quantitive data on the information needs of Afrikaans First Language teachers. Through focus group discussions more information could be obtained than from a questionnaire.

3.2.2.1 Data collection instruments in Cycle Two

1. Questionnaire

The questions used to investigate the information needs of Afrikaans L1 teachers, were part of the questionnaire discussed in Cycle One. The questions probing the information needs also investigated the teachers' utilisation of information resources and the Internet. A questionnaire at the early stages of the web site development would give valuable direction to the kind of information the intended target population wants.

2. Focus groups

Focus groups are a form of group interview. Valuable data can emerge from the interaction between group members and responses from the groups. Cohen et al (2001:288) call focus groups "contrived settings, bringing together a specifically chosen section of the population to discuss a particular given theme or topic, where the interaction with the groups leads to data and outcomes". One of the strengths of a focus group is that it is very focused on a particular issue and will therefore yield insights that might not otherwise have been achievable through other data collection methods such as questionnaires.

The topic of the focus group discussions for this research was the information Afrikaans L1 teachers need to fulfil their professional duties. Participants formed smaller groups, wrote down their feedback and reported back to the larger group.

3.2.2.2 Selection of participants

At the seminar for Afrikaans language teachers at the University of Pretoria in September 2000 (mentioned in Cycle One) semi-structured focus group discussions with Afrikaans L1 teachers were conducted. Two separate sessions of focus group discussion were held with primary and secondary school teachers.

Once again it needs to be mentioned that the sampling for this study was convenience sampling. Many of these teachers were from schools in and around Pretoria, where there are a variety of good libraries and teacher support centres available. Their responses and needs would nevertheless indicate trends among the target population of the web site, and could therefore count as a good starting point.

3.2.2.3 Data analysis in Cycle Two

Data from the questionnaire were treated as in Cycle One, with the type of school the main variable. It is necessary to discern between the information needs of primary and high school teachers, since they work with different syllabuses.

The researcher conducted the focus group discussions personally, with the teachers' feedback recorded, analysed and listed. The lists of information needs compiled in their smaller groups were collected.

Chapter 4 reports on the findings from the data analysis done in Cycle Two of the research.

3.2.3 Cycle Three: Evaluation of the web-based information resource

The online information resource for Afrikaans language teachers, the *Goudmyn,* was developed after the findings of the research done in Cycles One and Two were scrutinised. With the rapid expansion of the information resource, came the inevitable questions:

- Does the information resource comply with the criteria of quality web-based information resources?
- To what extent do teachers use and value the information resource?

To find answers for these questions, a variety of data collection methodologies were applied:

- An online evaluation form was added to the web site

- All correspondence (e-mail) to the webmaster of the information resource was kept
- A hit counter was added to the web site
- A critical evaluation of the information resource by an experienced colleague was done (peer review)

3.2.3.1 Data collection instruments in Cycle Three

1. Evaluation form

The design and maintenance of a web-based information resource asks for feedback and evaluation by the target group. To achieve this, an online evaluation form (Addendum C) was added to the site to provide opportunity for feedback from visitors. The evaluation form is in the form of a tick-box and asks a few yes/no-questions. There is also a text box for short feedback. The function of this evaluation form is to get direct feedback from visitors to the information resource.

2. E-mail

All correspondence with the webmaster of the information resource was kept. It was printed and filed for later reference. Direct correspondence allows for interaction with the real users of the information resource. Recording the e-mails can indicate trends in feedback, questions, problems or specific requests from the users of the resource.

3. Hit counter

A hit counter is an indicator on a web page that graphically displays the number of previous users that have accessed the page. During June 2000 a hit counter from *Absolute Statistics* was added to the home page. Absol Stats renders a free service for non-profit web sites to keep detailed statistics of visits to the web page. Since the server on which the *Goudmyn* was run, was terminated in March 2002, Absol Stats' data indicates only visits from June 2000 to March 2002. During the first months of 2002 the website was moved to a new URL because of transitions in the Higher Education[1]. A hit counter was added to the resource on 11 June 2002.

[1] The former Onderwyskollege van Pretoria (College of Education) was incorporated into the Faculty of Education of the University of Pretoria.

For the purposes of this study the average monthly visits to the information resource was recorded to try to establish to what extent the resource is being utilised.

4. Peer review

The function of peer review is to obtain an 'informed' opinion from a reliable source. A colleague with 22 years experience in training Afrikaans language teachers was asked to review the web-based information resource critically. He is professor M.J. Kühn, professor in Afrikaans and English Method at the University of Pretoria. He has also specialised in computer-integrated language teaching. An evaluation by a professional with knowledge, not only of the Afrikaans language teacher's profession, but also of educational technology, can add to the credibility of the evaluation. Such an evaluation can point out the strengths and weaknesses of the information resource.

The criteria for quality web-based information resources according to Table 2.2 in Chapter 2 were used to guide the peer review of the resource.

3.2.3.2 Data analysis in Cycle Three

Cycle Three evolved into a multi-method approach to obtain valid data. The data from various sources were used to evaluate the quality of the information resource, as well as the levels of utilisation of the resource, especially by the intended target population.

The data from the online evaluation form were recorded on an Excel spreadsheet. E-mails received were recorded and categorised. Statistics on the average monthly visits to the information resource were kept. The peer review gives a detailed evaluation of the design and content of the *Goudmyn*.

3.3 Limitations, validity and reliability of the study

It was decided – for validity's sake – to use a multi-method approach of data collection. The data for this study comes from the following different data collection instruments:

- A questionnaire completed by Afrikaans L1 teachers

- Focus group discussions with Afrikaans L1 teachers
- A hit counter on the subject-specific web site for Afrikaans L1 teachers
- A feed-back form on the web site
- All correspondence to the webmaster
- A critical peer review of the information resource.

The empirical research component of this study has obvious limitations. The questionnaire was completed by only a small sample of 78 participants who were not representative of the total population of Afrikaans language teachers. The teachers who took part in this study, teach at both primary and secondary schools, primarily in Gauteng. As the seminar was held at the University of Pretoria, most teachers came from schools in Pretoria and surrounding areas. Only Afrikaans L1 teachers were represented in the sample. Afrikaans L2 or L3 teachers were not included. It is therefore not possible to generalise these findings. They will merely be used to indicate a trend.

Table 3.1 gives an indication of how the various data collection methodologies supported each other's finding concerning the main issues of the empirical research component of this study:

Table 3.1: Sources of data for the study

Audit of information resources for Afrikaans L1 teachers	Web search engines Library visits Questionnaire
Information needs analysis of Afrikaans L1 teachers	Questionnaire Focus group discussions E-mail Online evaluation form
Utilisation of information resources by Afrikaans L1 teachers	Questionnaire Focus group discussions E-mail Online evaluation form Hit counter

Evaluation of information resource	E-mail Hit counter Peer review

The findings from the different sources of data support each other. This adds to the reliability of the research findings. Chapter 4 deals with the research findings in more detail.

CHAPTER 4: RESEARCH FINDINGS

The research findings for this study will be presented in the same sequence the research process followed, namely the three different cycles described in chapter three (Figure 3.2):

1. Audit of resources
2. Analysis of information needs
3. Improvement and evaluation of resource

4.1 Cycle One: Audit of information resources for Afrikaans L1 teachers

In Cycle One the research tried to establish answers to the following questions:

- What information resources are available for Afrikaans language teachers?
- How do Afrikaans L1 teachers use and value these resources?
- Do Afrikaans L1 teachers utilise the Internet as information resources, and what are the contributing factors in this regard?

4.1.1 Information resources for Afrikaans L1 teachers

After a thorough search through libraries and catalogues, it is evident that Afrikaans language teachers have only one printed information resource. It is a journal called *Klasgids,* published three to four times a year. Issues consist mainly of contributions from teachers in the form of test papers, discussions of poetry or lesson ideas. Teachers or schools have to subscribe to the journal and running costs increase yearly.

Apart from this journal, Afrikaans L1 teachers have a variety of textbooks to choose from to assist them in teaching. *Koerant-in-Onderwys*, a supplement to the Afrikaans newspaper *Beeld*, gives lesson ideas and guidelines on how to integrate newspapers into classroom teaching.

A survey in 1999 of Internet resources revealed no formal resource dedicated to the information needs of Afrikaans language teachers. This was at a time when a difficult new curriculum was introduced and information communication technologies were proliferating. At that time it was established that there were no such initiatives of the kind on the Web.

At the end of 1999 the researcher started the *Goudmyn,* a small-scale web site with documents of the new curriculum translated from English and with links to Afrikaans web sites on the server of the then Onderwyskollege van Pretoria. The process of establishing an online information resource is a time consuming one. The web site grew slowly with lesson plans, more curriculum information and a few discussions of prescribed literature. Again it was necessary to make sure that the resource was not duplicating information and an audit of information resources for the intended target group on the Internet was done.

A thorough survey of South African education resources on the Internet was done from June to October 2001. Search engines such as Google, Altavista, Yahoo and Aardvark were used to search for resources dedicated to Afrikaans language teachers on any of the following web sites:

- South African educational resources
- Tertiary institutions
- NGOs
- South African Internet Service providers
- Afrikaans resources

Table 4.1 indicates the available educational resources for South African teachers found on the Internet in 2001. The last column indicates the status quo of information for Afrikaans language teachers on the resource (Addendum D provides a detailed description of the resources and the date the resource was accessed).

Table 4.1: An index of web-based information resources for teachers in South Africa (2001)

URL	INSTITUTION	AFRIKAANS
http://education.pwv.gov.za	**National Department of Education**	***None***
http://education.pwv.gov.za /teli2	**National Centre for Educational Technology and Distance Education**	***None***

www.wcape.school.za	**The Western Cape Schools Network (WCSN)**	***None*** There is a section for Afrikaans First and Second Language, but without any information
http://scope.ncape.gov.za	**Scope: South African- Finnish Co-operation in the Education Sector**	***None***
www.school.za	**SchoolNet SA**	***None***
www.saide.org.za	**The South African Institute for Distance Education (SAIDE)**	***None***
www.shoma.org.za	**The ShoMa Education Foundation**	***None***
www.teacher.co.za/ edutech	**Edutech Puisano**	***None***
www.learn.co.za	**Learning Channel Campus**	***None*** Subject support in Afrikaans for other subjects e.g. Mathematics, Biology, and Geography.
www.sabceducation.com	**SABC's Education Network**	***None***
www.mweb.co.za/learning	**M-Web's Learning Channel**	***Yes*** Only available to subscribers and in school hours from a LAN.
www.mweb.co.za/LitNet	**M-Web's OnderwysNet**	***Yes*** Only available to subscribers.
www.easymaths.org	**Easymaths – private initiative of Maggie Verster**	***None***
www.nkp.ac.za/afrikaans[1] *(*Die *Goudmyn)*	**Previously known as the Onderwyskollege Pretoria – since 2002 the School for Teacher Training of the University of Pretoria**	***Yes***

[1] The URL for the *Goudmyn* has changed in 2002 to www.onnet.up.ac.za

Thus, in 1999, except for the *Goudmyn*, only *M-Web* had an infrastructure for learners and teachers of Afrikaans L1 teachers on the Internet. M-Web's *Learning Channel* and *OnderwysNet* support learners and teachers of Afrikaans, but their service is only available for M-Web subscribers and from a LAN during school hours. As many schools still use dial-up facilities for Internet connectivity, these resources are not to the benefit of all teachers. It still leaves a huge section of the Afrikaans teaching-population without online support.

There are many general Afrikaans resources on the Internet in Afrikaans. *Die Knoop* (www.dieknoop.co.za) is the largest single collection of links to all Afrikaans web sites. *Storiewerf (*www.storiewerf.co.za) is a site dedicated to Afrikaans children's literature. But only *M-Web* and the *Goudmyn* offer information specifically for Afrikaans language teachers. The *Goudmyn* is the only free information resource for these teachers.

The survey of web-based information resources led to the conclusion that there is definitely a lack of resources and content for Afrikaans language teachers on the Internet. There are also not many other paper-based resources for this professional group. It is evident from the search for information resources that there is still scope for contributions in this regard. A dedicated web-based information resource for this target group has the potential to provide relevant information for Afrikaans language Teachers.

4.1.2 Afrikaans L1 teachers' utilisation of information resources

To find out to what extent Afrikaans L1 teachers value and use information resources, a survey was conducted at a seminar for Afrikaans language teachers at the University of Pretoria (September 2000). A questionnaire was completed by 78 Afrikaans L1 teachers.

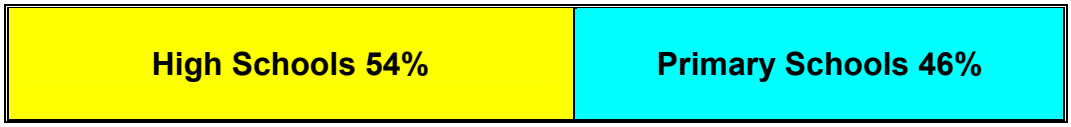
4.1.2.1 Profile of the participants

The teachers who participated in the research represented primary and high schools in urban and rural areas from Gauteng and a few other provinces. The next section gives a profile of the participants.

- **Type of school**

  The respondents represented both primary schools and secondary schools (also known as high schools):

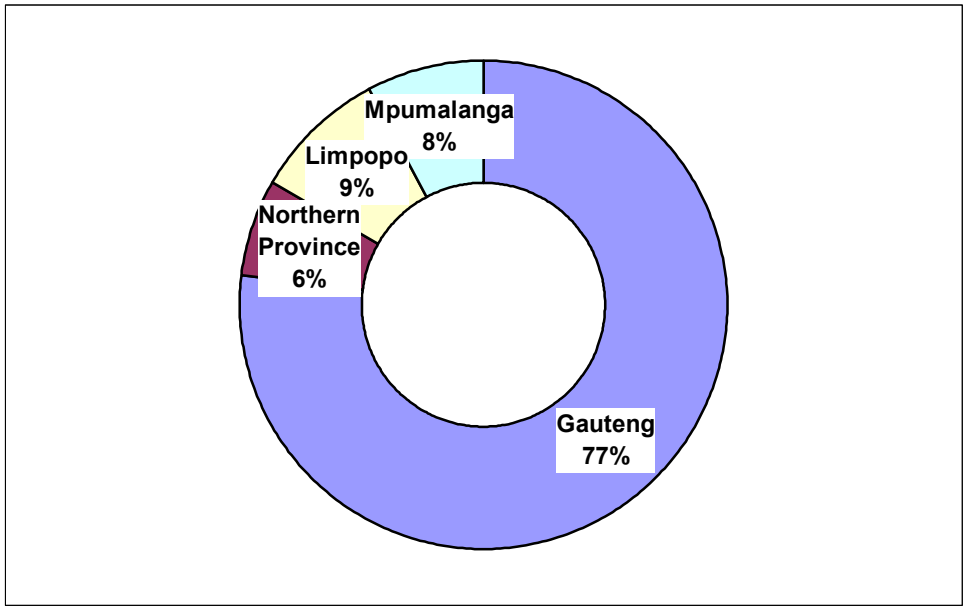
Figure 4.1: Type of school



- **Geographical location of schools represented by respondents**

  Schools were also identified according to their geographical location (Figure 4.2). This classification identifies he provinces represented by the respondents.

Figure 4.2: Geographical location of schools



The fact that the conference was held in Pretoria resulted in an attendance of largely teachers from Gauteng (76.9%). The results from the study cannot be representative of teachers from other provinces.

- **Distribution of schools**

  Figure 4.3 shows that the respondents were mainly teachers from schools in urban areas. This may be due to the fact that the conference was held in the city and more local teachers were able to attend the conference.

Figure 4.3: Distribution of schools

- **Years experience in teaching Afrikaans First Language**

  As many as 57.9 % of the respondents indicated that they have always taught Afrikaans First language, compared to 42.1 % respondents who have not taught Afrikaans L1 previously.

For the purposes of this study the only significant variable was **the type of school** – the only significant differences in the data were between primary and high school teachers of Afrikaans L1. The distribution of schools or the geographical location of schools did not seem to have any impact on the data, neither did the experience of teachers

4.1.2.2 Utilisation of information resources by the respondents:

The teachers were asked to indicate how often they use different sources of information when preparing for lessons. '**Regularly'** refers to information resources used weekly or at least monthly (Table 4.2).

Newspapers and popular family magazines are the most highly utilised information resources for Afrikaans L1 teachers. Various newspaper groups have contributed to the training of teachers by integrating material from newspapers into the classrooms (*Beeld, Burger, Sunday Times*).

Table 4.2: Utilisation of information resources

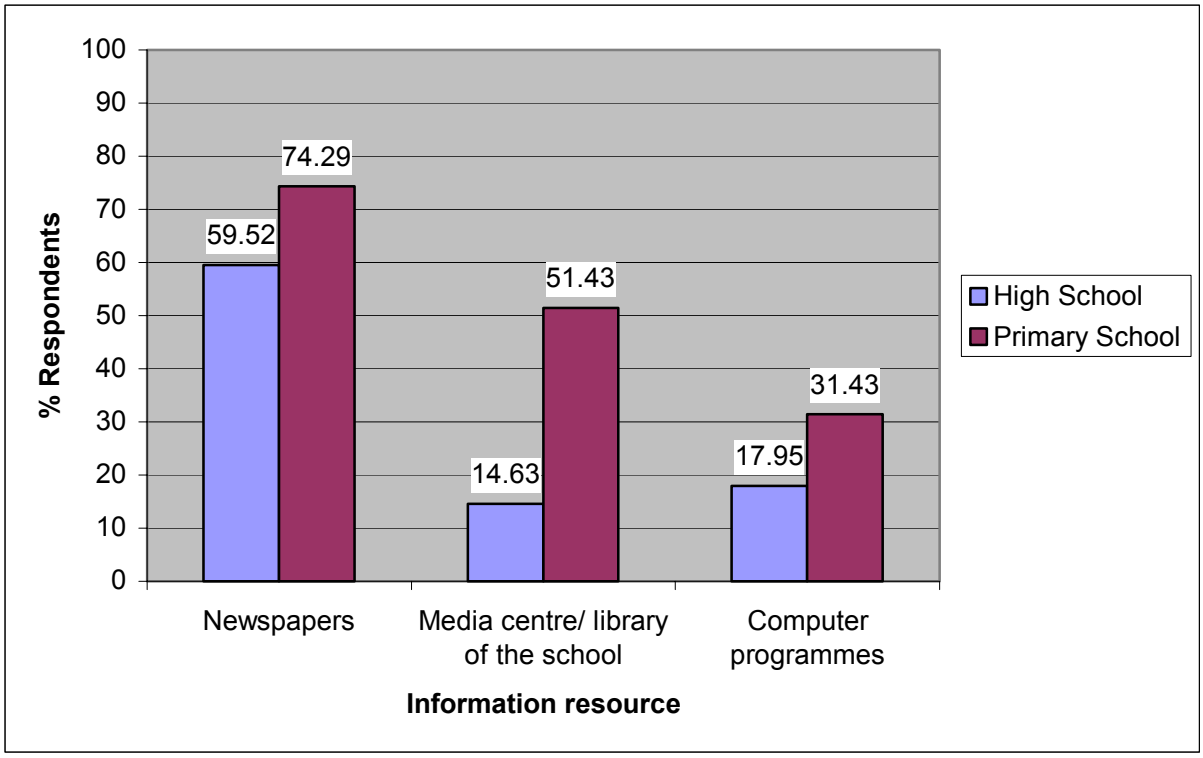
Information Resource	Regularly
1. Newspapers	90.9%
2. Popular magazines *(Huisgenoot, Sarie etc.)*	85.7%
3. Text books	81.1%
4. Subject journal (*Klasgids)*	64.5%
5. School library	56.6%
6. Material from workshops	54.1%
7. Radio	47.9%
8. Television	47.3%
9. Encyclopaedias	45.9%
10. *Insig* - magazine	41.7%
11. Computer programmes	40.5%
12. Community library	33.8%
13. *De Kat* - magazine	27.8%
14. Internet	22.9%
15. Subject advisor	13.5%
16. E-mail	12.7%
17. Seminars & conferences	5.5%

It is interesting that popular magazines are used more frequently than textbooks. Due to the changes in the curriculum, teachers are less textbook-bound. Magazines that are apparently not as popular are the two more upmarket or intellectual Afrikaans magazines, *De Kat* and *Insig.* The majority of the teachers (64.5%) use the journal *Klasgids* regularly, which indicates that Afrikaans L1 teachers do find this journal valuable. Note that subject advisors, the Internet, e-mail, conferences and seminars do not seem to be highly utilised sources of information for Afrikaans L1 teachers.

There are not many significant differences between the utilisation of information resources by primary and high school teachers. The only resources where significant differences were evident are represented in Figure 4.4. These include

newspapers, the school library and computer programmes. The other information resources are utilised more or less equally.

Figure 4.4: Differences between primary and high school teachers in the utilisation of some information resources



4.1.3 Afrikaans L1 teachers' utilisation of the Internet as an information resource

Compared to the high levels of Internet use by teachers in developed first world countries (Chapter 2) this study reveals very low levels of Internet use by the target group. Table 4.2 indicates that only **22.9%** of the respondents use the Internet and **12.7%** use e-mail on a regular basis as an information resource.

The low level of Internet use by Afrikaans language teachers supports Stefanie Hefer's words quoted in Chapter 2.3.4.1. Teachers in South Africa are not yet 'online'. If one plans to introduce an active needs-driven information resource on the Internet the following should be considered:

i) What are the reasons for the low level of utilisation of the Internet?

ii) What are the teachers' attitudes towards the Internet?

iii) What factors contribute to the use of the Internet?

iv) For what purposes do the target population use the Internet?

4.1.3.1 Reasons for low levels of Internet utilisation by Afrikaans L1 teachers

A review of literature on the topic indicates that a lack of time, equipment, support, training and content contribute to low levels of Internet use by teachers (Chapter 2.3.4.4). Summerley (1996) and Czerniewicz, Murray & Probyn (2000) identified the same factors as the reasons why South African teachers do not utilise the Internet. It is now time to identify why Afrikaans L1 teachers under-utilise the Internet.

The data from the questionnaires revealed inadequate access to the Internet, a lack of awareness, ICT skills (training) and support as possible reasons for the low level of Internet utilisation by Afrikaans L1 teachers.

- **Access**

Of all the respondents only 28.6% indicated that they have Internet access at home. Becker (1999) averred that the presence of technologies increases utilisation. Of the respondents 74% indicated that they have access to the Internet at their schools. One would expect the Internet use to be much higher with these levels of connectivity.

Informal discussions with Afrikaans L1 teachers, however, revealed that connectivity in these cases refer to only **one** connected computer for the use of all the teachers. Teachers mentioned that these connected computers were often in the principal's office, or that their full schedules do not allow them the luxury of browsing the Internet for quality information. One can thus add that **a lack of time** also constrains teachers from utilising the Internet.

Another question regarding access to the Internet is affordability. Computers and modems are expensive and in South Africa telecommunication is not cheap. In her response to an e-mail, Stefanie Hefer (2002) of M-Web Learning, voices the frustration of Afrikaans teachers and confirms the above-mentioned findings:

Affordability plays a role, but the biggest reason is overwork, anxiety because of constant changes and the meddling with teaching methods which have always been OK, the misconception that they do not have enough time and that the Internet will interfere with what little time they have[2].

- **Attitudes**

Even though it seems that Afrikaans language teachers are not yet utilising the Internet as an information resource, they are positive about the idea. Of the seventy-eight respondents 94.9% expressed the view that there is a need for ICT integration into the Afrikaans curriculum and 94.8% indicated support for future training to learn more about the Internet and its possibilities. An overwhelming 80.5% indicated that they would like to have a subject-specific web site for Afrikaans L1 teachers.

The respondents were asked what information they perceive the Internet could offer the Afrikaans L1 teacher. Table 4.3 presents their feedback in this regard:

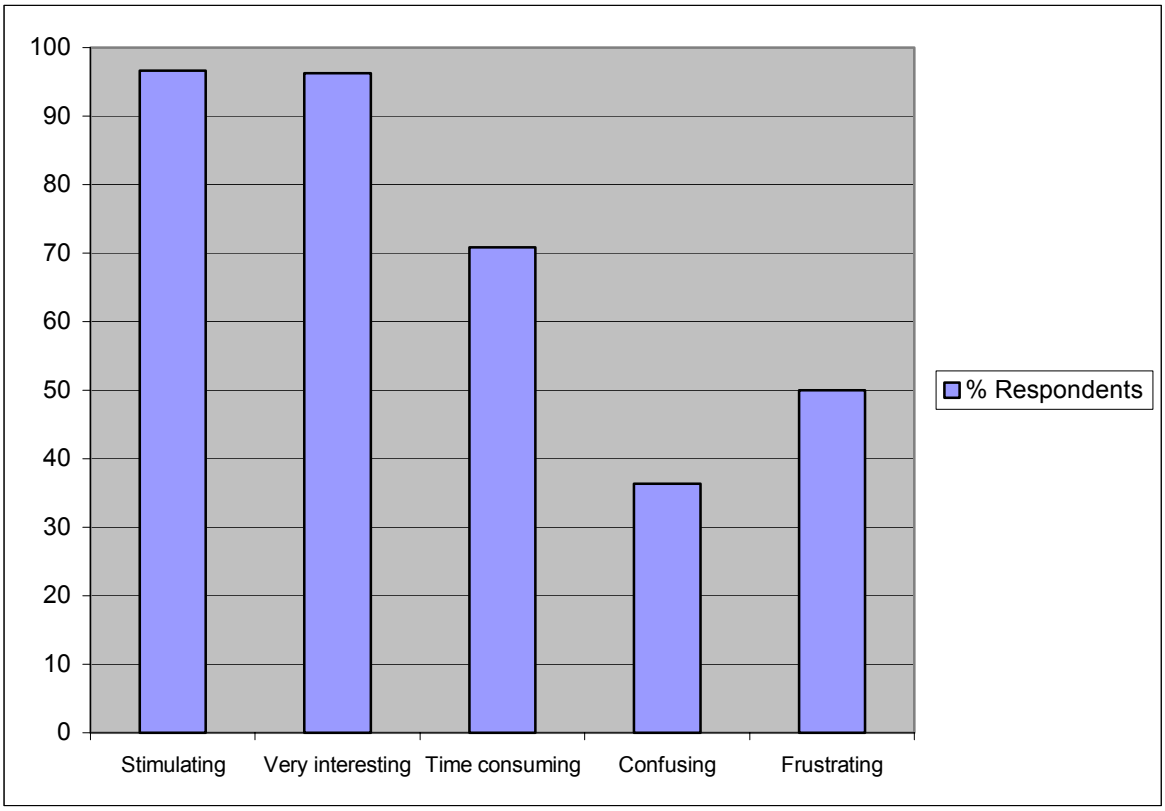
Table 4.3: Information the respondents feel the Internet should provide

Information the Internet should provide	% Respondents
Curriculum matters (OBE)	80
Information on new textbooks	76.9
Lesson ideas	76
Reviews of new books	73.1
Lesson plans	72
Exams and tests	70.4
Prescribed texts	70
Public speaking/ debate	64
Contemporary language issues	62.5
Afrikaans authors	59.1
Information on competitions	56.5

[2] Translated from the Afrikaans: *Die bekostigbaarheid speel wel 'n rol, maar die grootste oorsaak is oorwerktheid, angs vir verandering en die gepeuter aan onderrigmetodes wat dan nog altyd OK was, die wanindruk dat hulle dan juis te min tyd het, en dat die Internet op die min tyd gaan inbreuk maak*.

The respondents clearly have high expectations of the Internet as an information resource. In general the respondents' descriptions of the Internet were very positive (Figure 4.5), but they also indicated that they find the Internet time-consuming and frustrating. One factor that frustrates users is that some web pages take very long to download.

Figure 4.5: Respondents' descriptions of the Internet



It can thus be concluded that the respondents do not have negative attitudes towards the Internet, and that negative attitudes are not a reason for the low level of Internet use by the respondents.

- **Awareness**

Of the respondents who were asked whether they thought that there was enough Afrikaans information on the Internet, 5.1% agreed that there was, while 30.8% disagreed and 64.1% indicated that they do not know.

Their reaction contributes to the hypothesis that the Internet is not being utilised because teachers are either not aware of the information for them on the Internet, or that there really is a lack of good content. Although there is information available on the Internet for Afrikaans L1 teachers, it is inadequate.

- **Skills/ Training**

ICT skills were not an integral part of pre-service teacher training a few years ago. Only 9% of the seventy-eight respondents indicated that they had formal training in the use and working of the Internet and only 6.4% had formal training in the use of e-mail. Concern has been raised on the lack of teacher development in this regard. It seems that Departments of Education have never targeted in-service Afrikaans L1 teachers as potential users of web- based resources. This might also be the case with teachers of other subjects.

Only 46.2% of the respondents have an e-mail address (most probably at their schools), while 32% of the respondents indicated that they do not know how to use the Internet and e-mail.

From Table 4.4 it can be seen that there is a lack of formal training opportunities in ICT skills for Afrikaans language teachers. The majority of the respondents indicated that they were either self-taught or given training by friends or family members.

Table 4.4: Sources of training in ICT skills

Internet training through:	Respondents
Personal effort	16
Friends/ family	14
Colleagues	3
Group work at school	2
Learners	2
Post-graduate studies	1
Diploma/ certificate courses	1
Workshops at school	1
Workshops at Education Dept.	1

Private courses	1
Pre-service studies	nobody

The fact that there is a definite lack of training opportunities for Afrikaans L1 teachers is an unmistakable reason why the target group does not utilise web based information resources.

- **Support**

Table 4.5 shows that 65% of the respondents indicated that they do have help with the effective utilisation of the Internet.

Table 4.5: Support available

Who can help	Respondents
Family/ friends	17
Colleagues	11
Group work at school	2
Learners	3
Online help	1

The main reasons for Afrikaans L1 teachers not utilising the Internet are a lack of time, formal training and the skills to integrate ICT into the current curriculum as well as a lack of resources and a lack of awareness of resources available. This correlates with the international trends in the sources consulted, yet Afrikaans L1 teachers also add **a lack of awareness** of web-based resources to this list. Perhaps they think that the Internet is dominated by English and therefore cannot serve their information needs.

These are important considerations to take into account for the future development of the *Goudmyn.* The initial goal of the web site was primarily to serve as a single platform from which Afrikaans language teachers can access relevant information. These teachers urgently need training in the use and integration of ICT into the Afrikaans syllabus. The content on the resource must be expanded to cover more

aspects of the curriculum and their information needs. Furthermore, it is evident that a resource should be marketed effectively to enhance awareness amongst teachers.

It was, nevertheless, necessary to make sure that the resource really addresses the information needs of the intended target population. This leads to the second cycle of the research – that of identifying the information needs of Afrikaans language teachers.

4.2 Cycle Two: The information needs of Afrikaans L1 teachers

The pertinent questions asked at this stage of the research were:

- What are the information needs of Afrikaans L1 teachers?
- Are there any significant differences in the information needs of primary and high schools teachers?

4.2.1 Information needs of Afrikaans L1 teachers

Chapter 2.3.1 dealt with the information needed in general, as well as with research results concerning the information needs of language teachers. Top of the list are content-area curriculum, pedagogical knowledge and further issues related to literature and language teaching. High on the list of information teachers indicated they would like to have, are promising practices and learning activities, or lesson plans. This section investigates how Afrikaans L1 teachers rate their information needs.

The focus groups generated data on what Afrikaans language teachers would like to see on a web-based information resource. In smaller discussion groups the teachers brainstormed lists of information they would like to have easy access to. During the feedback session it became evident that most of the teachers voiced the same needs. The analysed data of their feedback is presented in Table 4.6.

From the focus group discussions it is evident that Afrikaans L1 teachers need a wide variety of information. Classroom-related activities and assessment practices top the list, but are followed closely by the demands placed on them by their extra-mural responsibilities.

Table 4.6: Information needs of Afrikaans First Language teachers

Classroom teaching:	Examples of OBE lesson plans Prescribed poems (correct versions!) and discussions Tips for grammar teaching Themes for creative writing Reading lists, especially children's literature Crossword puzzles Humorous texts that could be used in the classrooms Prescribed poems set to music
Assessment strategies	Examples of assessment reports Exam papers Tests and memos
Extra mural activities	Information on competitions for learners Themes for speech festivals Suitable plays Publications of learner's own poetry
Professional development	Index of articles in *Klasgids* A calendar of events Introductions and reviews of new textbooks News on the latest developments in Afrikaans literature Jobs for teachers

4.2.2 The importance of information for Afrikaans L1 teachers

In addition to the focus group discussions, the teachers also completed a questionnaire that probed their information needs. Question 11 in the questionnaire asked the respondents to rate the importance of certain types of information according to a scale (1 = very important; 2= less important; 0 = not important).

Table 4.7 indicates how many of the respondents rated the importance of information on certain issues as **very important**.

Table 4.7: Importance of information

Importance of Information	%
1. Lesson ideas	85.5
2. Lesson plans	84.2
3. New textbooks	81.6
4. Exams and tests	78.9
5. Prescribed work	78.9
6. Outcomes Based Education	74.7
7. School publications	66.7
8. Contemporary language issues	64.5
9. Reviews of new books	64.5
10. Debate and public speaking	56.6
11. Afrikaans authors	45.9
12. School competitions	41.7

The rating of the importance of information by the respondents turned out to be very significant. According to the results, the respondents feel a dire need for ideas for the classroom (This was supported by the findings from the focus group discussions). This could entail new, creative ways of teaching. Teachers teach the same concepts year after year. They do not always have the time or inspiration to think up new ideas.

Second to new ideas, are lesson plans (84.2%). This makes sense when one considers that teachers are facing a new teaching paradigm. At the time of the survey (2000), they were confronted with the introduction of a new curriculum. They need examples of how to implement the curriculum guidelines into classroom practice. Lesson plans would also alleviate their workload, especially if they are in a ready-to-implement format.

The lowest rating was for information on competitions, like the Afrikaans Ekspo and Olympiad (41.7%). Nevertheless, it is clear that this group of professionals rate information very high, and they need a wide variety of information to fulfil their professional duties.

The data from the questionnaire complements the data gathered during the focus group discussions. Similarities in the respondents' feedback indicate that there is a definite need for information on:

- Lesson plans
- Outcomes Based Education
- Exam papers and tests
- New textbooks
- Information regarding Afrikaans literature
- Competitions for learners

The findings of this study compares well with the findings from the literature on the subject. The data revealed that classroom practice (lesson ideas, assessment, pedagogy), curriculum matters (OBE, content-area guidelines) and learning support materials (background materials, games, worksheets) are very important for teachers in general. To what extent is this also the case with primary and high school teachers of Afrikaans?

4.2.3 Differences between the information needs of primary and high school teachers

It is further very interesting to note the difference in the rating of information needs between primary and high school teachers (Table 4.8 and Figure 4.6). Primary school teachers rated their need for information as a rule higher than those of high school teachers.

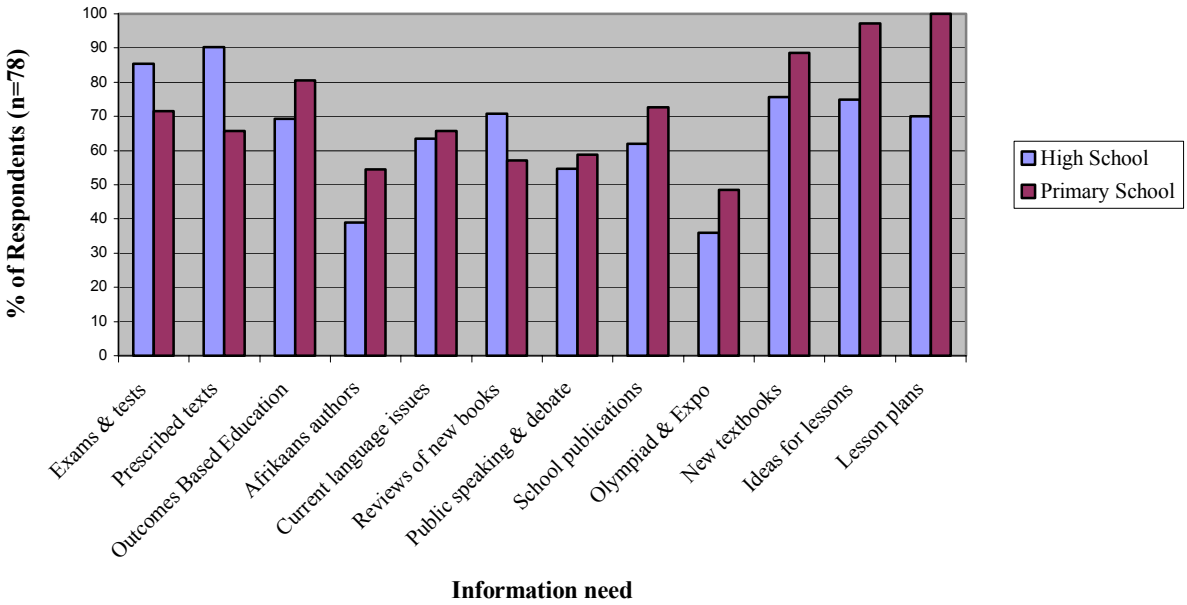
Exceptions to this are the greater need by high school teachers for information on exams and tests, prescribed texts and reviews of books. As high school teachers (especially those who teach the higher grades) feel the pressure of good exam results in the Matric final exams, it is to be expected that they rate information on exams very highly.

Table 4.8: Differences between the information needs of primary and high school teachers

Importance of Information	High School	Primary School	*P-value
Exams and tests	85.37	71.48	0.143
Prescribed texts	90.24	65.71	0.002
Outcomes Based Education	69.23	80.56	0.460
Afrikaans authors	39.02	54.55	0.407
Current language issues	63.41	65.71	0.900
Reviews of new books	70.73	57.14	0.327
Public speaking and debate	54.76	58.82	0.916
School publications	61.90	72.73	0.251
Olympiad and Expo	35.90	48.48	0.515
New textbooks	75.61	88.57	0.343
Ideas for lessons	75.00	97.22	0.021
Lesson plans	70.00	100.00	0.002

(*Where the P-value is less than 0.05, the data is statistically significant)

Figure 4.6: Differences between the information needs of high and primary school teachers



The differences between the information needs of primary and high school teachers can largely be accounted for by the difference in the focus and general goals of teaching Afrikaans L1. In the Intermediate (grades 4 – 6) and Senior Phases (grades 7 – 9) the learners are guided towards effective communication skills (reading, writing, listening and speaking). The teachers want new ideas, and are not that driven towards results in exams like the high school teachers, whose main information need is for examples of exam papers and tests and discussions of the prescribed literature texts.

With this information in mind the web-based resource for Afrikaans language teachers, the *Goudmyn,* was developed and expanded. The next phase was to ensure not only a quality information resource, but also that the resource would be utilised and valued by the intended target population.

4.3 Cycle Three: Evaluation of the web-based information resource for Afrikaans L1 teachers

In the process of evaluating the *Goudmyn* the following questions were asked:

- Does the information resource comply with the criteria of quality web-based information resources?
- To what extent do teachers use and value the information resource?

4.3.1 Evaluation of the *Goudmyn*

For the purposes of this research it was decided to use primarily feedback from the users of the *Goudmyn* to evaluate its appropriateness, user-friendliness, content and quality. Three features were added to the homepage of the *Goudmyn* to provide opportunities for this: an online evaluation form, a hyperlink to the e-mail address of the webmaster and a hit counter.

4.3.1.1 Online evaluation form

An online evaluation form on the site (Addendum C) enables visitors to the site to evaluate the online information resource for Afrikaans language teachers. Although the evaluation form was added to the web site early in 2001, only three responses had been received via this method by October 2002. Because of the extremely low

response rate, this means of evaluation does not bear much significance to the research. Table 4.9 nevertheless gives an indication of feedback received through this means.

All three respondents indicated that they are Afrikaans language teachers. Respondent one (R1) is a primary school teacher in a rural area, and respondents two and three (R2 & R3) are from high schools, with R2 from a high school in a rural area, while R2 is at a school in an urban area.

Table 4.9: Evaluation via the online evaluation form

	R1	R2	R3
1. The navigation in the site is easy	Y*	Y	Y
2. The resource contains relevant information	Y	Y	Y
3. The information is of good quality	Y	Y	Y
4. The resource is visually attractive	Y	N	Y
5. The information is inadequate	Y	N	N
6. More practical information is necessary	Y	Y	Y
7. I got useful ideas on the site	Y	Y	Y
8. I will tell others of this site	Y	Y	Y
9. It is worth the effort to visit this site	Y	Y	Y
10. I would like to participate in this project	Y	Y	Y

(*Y = Yes; N = No)

On the whole the evaluation of the site by end users is very positive. The only weak points that were identified relate to volume of content (R1:5) and visual appearance of the site (R2:4). Since this specific feedback, the design has been changed and the content is being upgraded and added to on a regular basis.

All three respondents felt that the site is worth visiting, that they will tell others of the project and that they would like to participate in the project. The three respondents also gave the following feedback:

R1 Primary School: *Thank you for all your effort. The web site is important, especially to us teachers in rural areas*.[3]

R2 High School: *We are very grateful for this web site – especially those of us that had to struggle through OBE for the first time this year. We are looking for practical advice regarding assessment and the dear old portfolio*.[4]

R3 High School: *Great idea – please don't stop! Thank you*.[5]

In principal the teachers indicated gratitude for the resource and mentioned the following factors that intensify their need for information:

- Being in a rural area
- The new curriculum
- Ideas for assessment
- Portfolio-assessment

The feedback of these respondents is in line with feedback received through e-mail.

4.3.1.2 Feedback via e-mail

All correspondence to the webmaster of the *Goudmyn* via e-mail was printed and stored. This serves as a valuable source of feedback from the users of the resource. Table 4.10 presents the feedback received through e-mail. Only e-mails that really expressed information needs or gratitude are documented here. The e-mails are numbered (E1 to E9) to protect the privacy of the senders.

The feedback received shows that especially teachers from rural areas express gratitude for the initiative. It is also interesting that South African teachers abroad also make use of the resource. Information needs mentioned in the feedback are ideas for art festivals, information on prescribed literature (especially for the Matric

[3] Dankie vir die moeite. Die webruimte is belangrik, veral vir ons onderwysers op die platteland.
[4] Ons ouens wat hierdie jaar die eerste keer meet oubie-ee in graad 9 moes worstel is baie dankbaar vir hierdie webblad. Ons soek praktiese raad rondom assessering en die liewe ou portfolio.
[5] Oulike idee – moet asb nie hiermee stop nie! Dankie.

syllabus) and Afrikaans authors and the new curriculum. Otherwise much appreciation for the content of the resource is evident from the feedback.

Table 4.10: Feedback to the *Goudmyn*

E1	Thank you for a nice web site! I usually search for hours for information on prescribed literature. Don't forget the teachers in the rural areas! I'm also looking for information on Curriculum 2005.[6]
E2	Can you please help me with appropriate texts for gr 5-7 & gr 8-10 for arts festivals?[7]
E3	I'm looking for information on Dalene Matthee's *Circles in a Forest*, but I can't find any.[8]
E4	Here Rina asks for information on Afrikaans authors for her students in Afrikaans Literature at the University of Vienna.
E5	What a fantastic experience! It gave me hope again. Thank you for your effort, especially with the information on OBE, the new curriculum, etc.[9]
E6	I do agree that your web site is indeed a gold mine.[10]
E7	Help, please! I'm looking for prescribed texts for Matric 2003[11]
E8	Just discovered your web site en had hours of fun! My colleagues enjoyed it as well. Thanks for the effort. I will visit this site often![12]
E9	How about contributions from abroad? I used "dieknoop", saw your link and browsed your site. My husband and I teach in England and I'm sure there are more teachers from all over who can contribute?[13]

[6] Dankie vir 'n wonderlike webruimte! Ek soek gewoonlik ure lank na inligting oor voorgeskrewe tekste. Moenie ons onderwysers op die platteland vergeet nie! Ek is ook op soek na inligting oor Kurrikulum 2005.
[7] Kan u my dalk help met "stukke' vir kunstefeesdoeleindes. Gr 5-7 en gr 8-10. Ek moet leerders inskryf en afrig maar die stukke in ons omgewing is al so 'n bietjie holrug gery.
[8] Ek is op soek na inligting oor Dalene Matthee se boek "Kringe in 'n bos" en oor Dalene Matthee self, maar ek vind nêrens inligting nie.
[9] Wat 'n fantastiese ervaring! Ek het sommer weer hoop geskep. Dankie vir jou moeite, veral met goed oor UGO, die nuwe kurrikulum ens.
[10] Ek stem saam dat julle webwerf 'n goudmyn is.
[11] Help asb. Ek soek voorgeskrewe werk vir matriek 2003.
[12] Het pas u webwerf ontdek en het ure se pret gehad! My kollegas het dit net soveel geniet. Dankie vir die moeite. Ek sal die werf beslis nog baie besoek!
[13] Wat van bydraes deur onnies in die buiteland? Ek het toevallig op "dieknoop" ingegaan en toe gesien dat julle ge"link" is en gaan toer op die webbladsy. Ek en my man hou hier skool in Engeland en ek is seker daar is stringe ander in ander dele of lande wat ook 'n 'eier' kan lê?

4.3.1.3 Peer review

Once the *Goudmyn* was established, the next step in the evaluation process was to revisit the initial guidelines for web site development and evaluate whether the Goudmyn complies with these criteria (Table 2.2). The criteria of Table 2.2 were adapted into an evaluation checklist to be used as an instrument to evaluate the web site.

Professor Thinus Kühn, a colleague with 22 years experience of training Afrikaans language teachers at the University of Pretoria, was asked to evaluate the *Goudmyn* according to the checklist. He did the evaluation on 25 October 2002. His feedback is presented in Table 4.11.

Table 4.11: Peer review report

Aspect	Comments
Site access and usability	
▪ Permanent, easy URL	▪ Yes
▪ Reliable server	▪ University of Pretoria – yes
▪ Download time	▪ Quick
▪ Distinctive name	▪ *Die Goudmyn* – yes
▪ Screen appearance	▪ Clear and user-friendly
▪ Compatible with different browsers	▪ Not tested
Resource identification and documentation	
▪ Target audience is mentioned	▪ Yes
▪ Mission, purpose and scope is clear	▪ Yes
▪ Documents are regularly updated	▪ Yes
▪ All documents have clear URLs	▪ Yes

Author identification	
▪ Name, qualifications, position and contact details of author(s)	▪ Add more clearly
▪ Recognised authority on the subject	▪ Define more clearly
▪ Involvement of an educational institution related to the topic	▪ Add Faculty of Education
Information structure and design	
▪ Titles of documents are clear and descriptive	▪ Yes
▪ Content fits the stated scope, purpose and audience	▪ Yes
Relevance and scope of content	
▪ Related to intended user's needs	▪ Yes
▪ Currency	▪ Yes
▪ Content meets curriculum standards of the country	▪ Yes
▪ Documents provide new information on the topic	▪ Very useful content
Validity, accuracy of the content	
▪ Bibliographies to confirm accuracy of information	▪ Where applicable
▪ Documents are free of errors or misleading omissions	▪ Yes
▪ Language and grammar correct and appropriate	▪ Edit all pages
▪ Information of consistent quality	▪ Yes
Navigation within the document	
▪ Index/table of contents to navigate within the document	▪ Move to top of page and add link to top of page
▪ Link back to home page	▪ Yes
▪ Help	▪ No
Quality of the links	
▪ Links are clearly visible and understandable	▪ Do not underline headings in documents if they are not hyperlinks
▪ Instructions appear before links	
▪ Information on links	
▪ Links are reliable, relevant and appropriate	
▪ Minimum mouse clicks	▪ Yes

Aesthetic and affective aspects	
▪ Accepted graphic design principles (e.g. balance, unity, proportion, simplicity)	▪ Tables occasionally use space that could be used for more important information
▪ Accepted text design principles (headers, limited mix of style and sizes)	
▪ Readability and legibility (sufficient colour and tone contrast, font size)	▪ Change upper case to lower case; fonts could be smaller
▪ Evidence of originality and creativity in visual design and layout	
▪ Source attracts and holds the user's attention	▪ A very promising web page!

The peer review of the *Goudmyn* was favourable. The main concern is still editing – some pages need language and grammar editing. Consistency regarding the use of upper and lower case should apply on all pages. Headings must not be underlined if they are not hyperlinked. Tables should be avoided as they take up too much space. The most important change the resource needs has to do with the use of the menu. At this stage it is at the bottom of each page, but it should be moved to the top. A link to the top of a page must be also be added to all pages. This change will enhance the navigation in the resource.

The content of the resource was evaluated positively. The content was rated as of high quality and good variety, current, related to the target group's needs and, therefore, very useful. It will add to the credibility of the resource to add more information on person(s) and/or department responsible for the resource.

Otherwise the *Goudmyn* complies with the criteria of quality web-based information resources. The feedback from the peer review is being incorporated into the design and content of the *Goudmyn*. These changes will benefit the resource and its end-users. If the content is of good quality, the users will be likely to return for more (as E-mail 8 indicated). This raises the issue of the utilisation of this web-based information resource.

4.3.2 Utilisation of the information resource

To keep track of the number of visitors to the *Goudmyn,* a hit counter from *Absolute Statistics* was added to the home page during June 2000. Absol Stats renders a free service for non-profit web sites to keep detailed statistics of visits to the web page. Since the existence of the server on which the *Goudmyn* was run, was terminated in March 2002, Absol Stat's data indicates only hits from June 2000 to March 2002. The number of hits amounted to 2511, with the average score of 150 per month and an average of four visits per day to the *Goudmyn* (Figures 4.7 and 4.8).

Figure 4.7: Visitors to the *Goudmyn* in Year One: Aug 2000 - Jul 2001

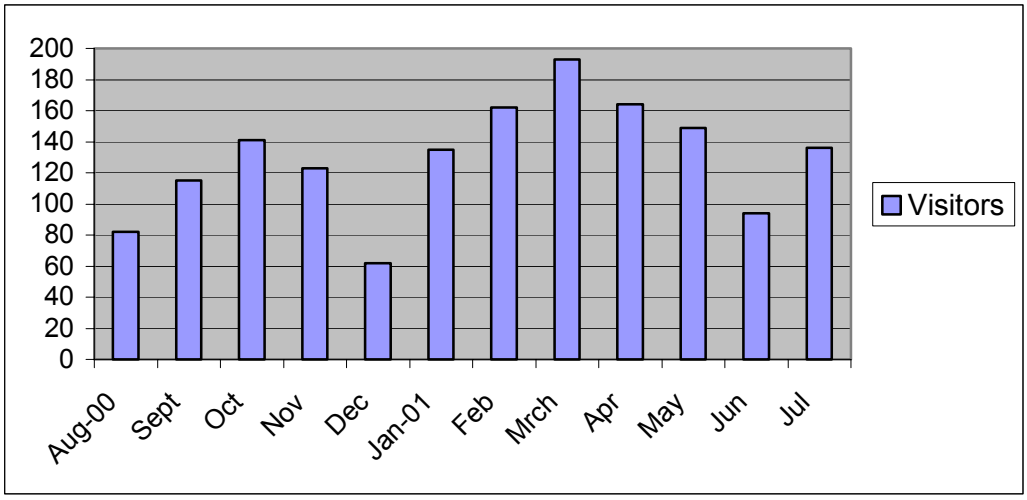
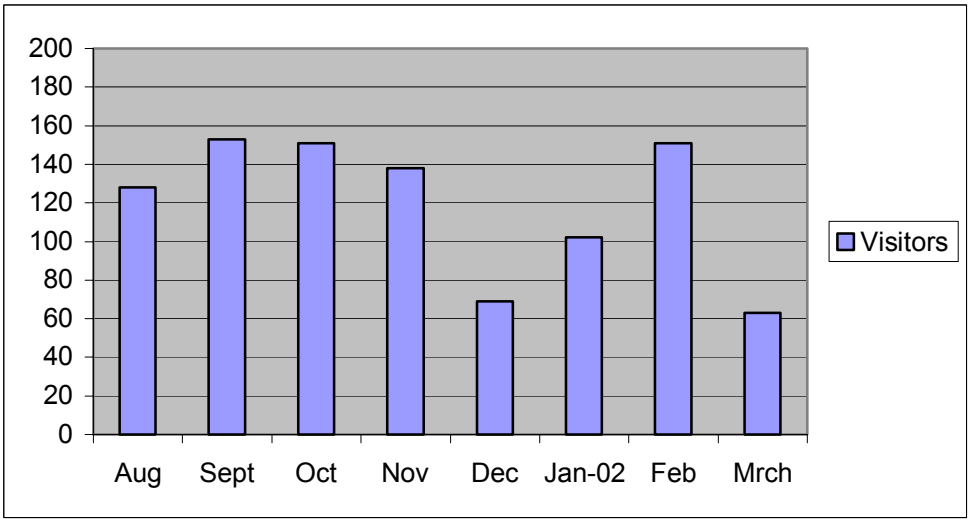
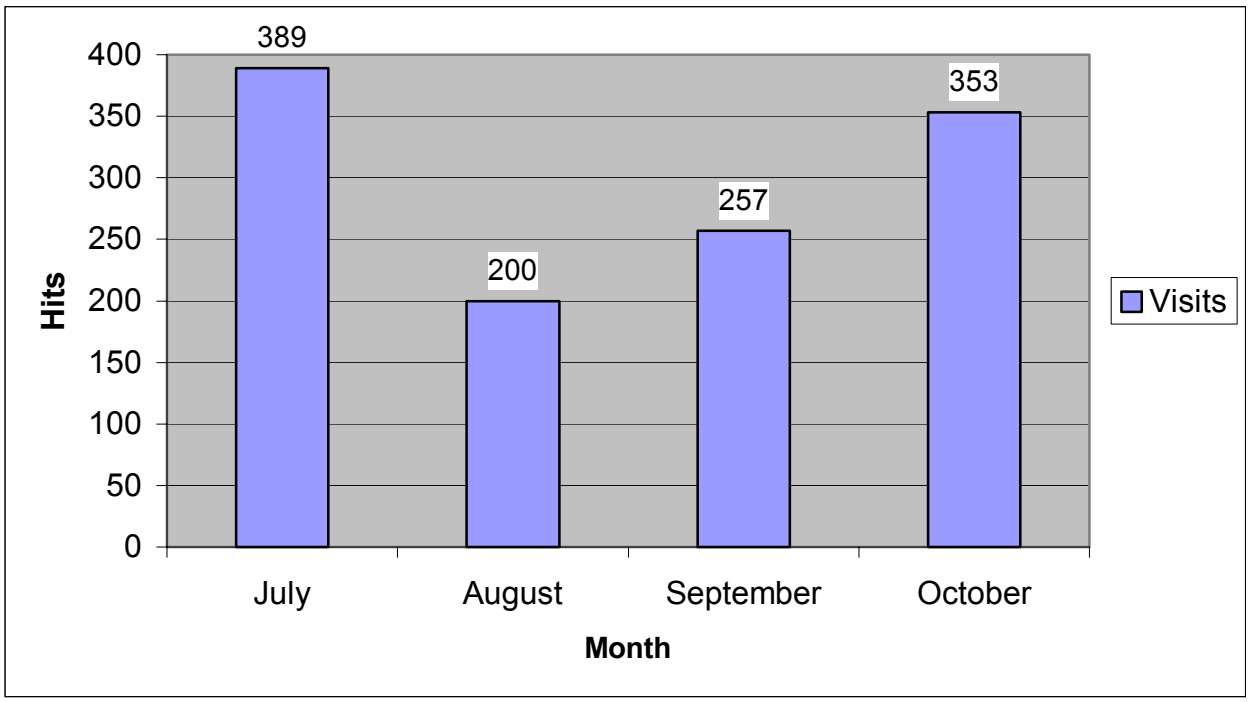


Figure 4.8: Visits to the *Goudmyn* in Year Two: Aug 2001 – March 2002



Visits to the *Goudmyn* had a slow start (Figure 4.7). The school holidays during December and June/ July of each year show a decrease in visits to the resource. The total number of visits to the resource for a single month never exceeded 200. The sharp decline in March 2002 (Figure 4.8) can be attributed to the shutting down of the server from which the resource was run. During April/May 2002 the website was moved to a new URL (www.onnet.up.ac.za) because of transitions in Higher Education[14]. Once the resource complied with the regulations of the new server, the University of Pretoria, a hit counter was added to the resource. This was done only in June 2002. Figure 4.9 indicates the visitors to the *Goudmyn* since then:

Figure 4.9: Visits to the *Goudmyn* in Year Three: June – October 2002



There is a definite increase in the visits to the *Goudmyn* (Figure 4.9) compared to the first two years. The average hits are never below 200 in a single month. Although it is difficult to determine the reasons for the increase in visits to the resource, it can be any of the following:

[14] The former College of Education – Onderwyskollege van Pretoria – was incorporated into the Faculty of Education of the University of Pretoria .

- The resource is better known after two years of existence.
- The resource is now accessible from the homepage of the University of Pretoria's Faculty of Education.
- The resource was brought to the attention of potential users at conferences.

The visitor statistics nevertheless still show rather low levels of utilisation. This supports all of the previous findings regarding Afrikaans L1 teachers' utilisation of the Internet as an information resource (Chapter 4.1.2.2).

Five teachers have contributed excellent learning support materials to the site. They see the *Goudmyn* as a forum for collaboration and sharing. Unfortunately calls for contributions are met with resistance from some teachers. In an informal discussion one teacher mentioned: "Why must I share my stuff with others who do not work as hard as I do?" It seems that there is very much a culture of competition between schools and not an attitude of sharing and thereby lightening everybody's workload. Yet, an analysis of the data shows that the teachers who do use the *Goudmyn* appreciate it and will tell their colleagues of the initiative.

4.4 Conclusions

Afrikaans language teachers have one formal printed journal, *Klasgids,* which they use quite regularly. Newspapers, magazines and textbooks are also important information resources for the target population.

Online information resources for Afrikaans language teachers are limited to M-Web's *Onderwysnet* and *Learning Channel* (only accessible to M-Web subscribers) and the *Goudmyn* (open to all and free of charge). Although these online information resources are available for this group of teachers, the data indicates very low levels of Internet use. The most important factors for these low levels of Internet utilisation seems to be low levels of connectivity at home, a lack of time, a lack of awareness and definitely a lack of skills and training in ICTs.

The most significant information needs the respondents indicated are ideas for the classroom, the new curriculum, lesson ideas and plans, assessment strategies, and

strategies for teaching grammar and literature. There are noticeable differences between the information needs of primary and high school teachers, owing to differences in focus.

The *Goudmyn* was developed primarily to provide online support for the information needs of Afrikaans language teachers. Feedback to the webmaster indicates positive feelings and gratitude and appreciation from users of the resources. A critical evaluation of the resource suggests some improvements to the site in terms of design and editing, but is positive on the content and scope of the resource. The resource still lacks contributions from teachers.

There are certain recommendations to be made regarding the further development and management of the information resource, as well as with broader issues such as teacher training and curriculum guidelines. These will be discussed in the final chapter.

CHAPTER 5: CONCLUSIONS AND RECOMMENDATIONS

The purpose of this research was to investigate the degree to which information communication technology (ICT) can be an effective mechanism for information delivery and professional support for teachers in South Africa. It also investigated the extent to which the Internet can be a vehicle for meeting the information needs of teachers.

The main research question of this study was how to establish a web-based information resource to meet the information needs of Afrikaans First Language teachers.

First of all, the literature review established that the Internet is an excellent tool for information delivery. Almost all kinds of information can be conveyed via the Internet. Researchers such as Jackson (2000), Girod & Cavanaugh (2001) and Quinlann (1997) are convinced of the web's potential to deliver essential information, especially to teachers. In countries where there are quality web-based resources, the Internet is well utilised as an information resource by teachers.

Teachers do not utilise web-based resources, mainly because of insufficient Internet access and a lack of training to integrate ICT skills in their teaching. This is also the case in South Africa and in particular with the target population of the study.

Jamie McKenzie (1999b) reminds us that many teachers are disillusioned by the Internet. Careful attention must be given to the training of teachers if the investments made in the development of web-based resources are to reap fruits. "Simply learning how to operate a computer and log onto the Internet is not sufficient; teachers need curriculum-integration training as well as basic skills training" (Sherry & Gibson 2000).

Although the policy environment in South Africa is conducive to the development of Internet resources, there is still a considerable lack of local content and content for specific subjects. There is a special need for quality resources with in-depth information for teachers and learners alike.

Quality sites need to adhere to specific design and implementation principles. The best sites are those that adhere to the specific information needs of the intended target group. This is especially important to ensure ownership and utilisation by the target population.

The study focused on Afrikaans First Language teachers, their information needs and their utilisation of information resources. The data analysis revealed that the target group's main information needs are for lesson ideas and help with exams and tests. The most utilised information resources are newspapers, magazines and textbooks, with the Internet almost in the last place.

The reasons why the Internet is not a well-utilised resource by the target group correlate strongly with international trends, ranging from low levels of Internet access to lack of skills and awareness of the Internet's possibilities and resources.

A subject-specific information resource for Afrikaans First Language teachers, the *Goudmyn,* was established according to the criteria and guidelines in the literature in this regard. An evaluation of the resource and feedback to the resource are positive and shows evidence of appreciation from the teachers. Requests for certain kinds of information have been received and a handful of teachers have submitted contributions to the resource. The visitor statistics of the resource show a steady increase in the visits to the resource during the past year.

Though the *Goudmyn* is still a small in scope, it manifests the potential to become an important information resource for Afrikaans language teachers. The further development and management of the resource should still be directed by ongoing research. The resource can benefit from a marketing campaign while workshops for the target group can lead to awareness and higher ICT skills amongst these teachers.

This study can serve as a pilot study for more in-depth research concerning the role of the Internet and information resources in the professional lives of South African teachers. More studies on the information needs of teachers of all the subjects should also be done in South Africa. This can play a vital role in giving direction to the development of learning support materials and information resources for teachers.

After completion of this study, it is the researchers' opinion that there are also broader issues that need to be addressed, such as:

The urgent development of subject-specific portals for teachers of all learning areas/ subjects:

- From the study it is clear that reliable and updated information resources for teachers are important for capacity building.
- Teachers are often looking for information, but do not know where to start. To ease the task of the teacher and save precious time, there should be subject specific portals in all the learning areas with links to relevant resources.
- To reduce efforts and cost it is important to consolidate efforts and to develop a central educational portal for teachers that not only addresses their information needs, but also provides a platform for discussion, debate and development of information resources and learning support material.

ICT skills should be incorporated into all levels of preservice teacher training:

- Inservice and preservice training of teachers should be more strongly aligned in terms of ICTs.
- There is still a misconception about IT skills (computer skills) and ICT skills. ICT skills entail, among others, the pedagogical use of technology in the classroom, information literacy, and collaborative learning via ICTs.
- Deliberate actions need to be taken to advocate the pedagogical use of ICT in the classroom.

Departments of education should provide stronger leadership in the empowerment of teachers in ICT skills:

- There is a need for a workable model of inservice training for teachers in the application of ICTs in teaching and learning in South Africa.
- Accredited inservice training programmes for teachers at different levels should be developed and introduced.
- Diverse inservice programmes for teachers addressing different competency levels, different needs and different ICT applications are necessary.
- Organised and available pedagogical support in ICT applications in all learning areas/ subjects must be provided.
- The establishment of teacher support groups to discuss, debate and develop subject specific content is advised.
- Acknowledgement of performance in ICTs by teachers to promote the use of ICTs will certainly motivate others to follow the same route.
- Subject-focused campaigns to advocate the pedagogical use of ICTs can be effected via workshops, campaigns, seminars and publications.

Stronger collaboration between stakeholders:

- Stakeholders like departments of education, universities, colleges and NGOs should collaborate to avoid duplication, for example, education

departments can provide the content, while tertiary institutions do the quality control and NGOs develop infrastructures and ensure capacity building.

- Examples of successful ICT projects should be shared and built upon.
- Teachers who are leaders in the field of innovative ICT applications in the classroom can act as mentors. Sherry and Gibson (2000) mention the role of these teachers-leaders to be more than only exemplary:

> "They become active researchers who carefully observe their practice, collect data, share their improvements in practice with peers, and mentor new teachers through the learning/adoption process. They become change facilitators who help diffuse educational technology throughout the entire school system."

Girod and Cavanaugh (2001: 46) rightly state: "Technology is not the key to radical change – **teachers** are the key" [my emphasis].

REFERENCES

AKA MARKETING. 2002. *Your website: Content is king.* [Online] Available: http://www.akamarketing.com/content-is-king.html

ARNOLD, A. 1990. *An Assessment of the Academic Staff's Attitudes to and Usage of the Library and Information Services at the Graduate Schools of Business in the R.S.A.* M-Library and Information Science. Pretoria: University of Pretoria.

ASKERIC 2001. *AskERIC Feedback*. E-mail from the AskEric Service, July 26.

BECKER, H.J. 1999. *Internet Use by Teachers: Conditions of Professional Use and Teacher-Directed Student Use.* University of California, Irvine: Center for Research on Information Technology and Organizations. [Online]. Available: http://www.crito.uci.edu/TLC/findings/Internet-Use/startpage.htm

BLOM, A. 1981. 'n Teoretiese model van die bestudering van die inligtingsbehoeftes van wetenskaplikes. *Suid-Afrikaanse Tydskrif vir biblioteek- en inligtingswese,* 49(1):34-38.

BRANDJES, D. 2000. Opening address by the Executive Director of SchoolNet, South Africa at the Millennium Minds Conference, 27 – 29 September. Pretoria.

BRIGGS LIBRARY RESEARCH GUIDE. 2002. *What is Information?* [Online] Available: http://lib.sdstate.edu/lib11/research/research.htm

BROWN, S. & McINTYRE, D. 1981. An action-research approach to innovation in centralised education systems. *European Journal of Science Education,* 3(3):243-258.

BUNDY, A. 2000. Drowning in Information, starved for knowledge: information literacy, not technology, is the issue. Paper presented at *Books and Bytes: technologies for the hybrid library* 10th VALA Conference, Melbourne 16-18 February. [Online] Available: http://www.library.unisa.edu.au/papers/drowning.htm

CARTER, L.A. 1998. Building a Better Reference Interface. *Internet Reference Services Quarterly,* 3(4):57-85.

COHEN, L,; MANION, L. & MORRISON, K. 2001. *Research Methods in Education*. London & New York: RoutledgeFalmer.

CORRY, M.D., FRICK, T.W. & HANSEN, L. 1997. User-Centered Design and Usability Testing of a Web Site: An Illustrative Case Study. *Educational Technology Research and Development,* 45(4):65-76.

CHALKLEY, T.W. & NICHOLAS, D. 1997. "Teachers' use of information technology: observations of primary school classroom practice." *Aslib Proceedings,* 49(4):97-107.

CLARKE, P.A. 1998. *Telematic Teaching of Adults via the World Wide Web: A University Case Study.* MEd (Computer-Assisted Education). Pretoria: University of Pretoria.

CLAY, K. 1985. ERIC for Practitioners. *ERIC Digest.* [Online] Available: http://www.ed.gov/databases/ERIC_Digests/ed270101.html

COHEN, L; MANION, L. & MORRISON, K. 2001. *Research Methods in Education*. 5th Edition. London & New York: Routledge/Falmer.

CZERNIEWICZ, L., MURRAY, S. & PROBYN, M. 2000. *The Role of Learning Support Materials in C2005.* A research paper for the National Centre for Curriculum Research and Development. Pretoria: Department of Education.

DROUIN, J. 2000. *Internet Connectivity Comparison Between Canadian and United States' Schools.* Online Available: http://www.schoolnet.ca/home/e/research_Papers/research/Canadian_Research?Comparison_Canada_and_US.pdf

DU TOIT, A.S.A. 1986. *Die inligtingsbehoeftes van die nywerheids-bemarkingsnavorser.* M-Biblioteek en Inligtingkunde. Pretoria: Universiteit van Pretoria.

DoE (DEPARTMENT OF EDUCATION). 1996. *Technology-Enhanced Learning in South Africa (TELI).* Pretoria: Department of Education.

DoE & DoC (DEPARTMENT OF EDUCATION and DEPARTMENT OF COMMUNICATIONS). 2001. *Strategy for Information and Communication Technology in Education.* Pretoria: Department of Education.

ELY, D. P. 1997. Technology is the answer! But what was the question? *Educational Media and Technology Yearbook,* Vol. 22:102-108. Colorado: Libraries unlimited.

FILLMORE, L.W. & SNOW, C. 2000. *What Elementary Teachers Need to Know about Language.* [Online] Available: http://www.cal.org/ericcll/Teachers.pdf

FORD, A. & DIXON, T. 1996. *Spinning the Web.* 2nd edition. London: International Thompson Computer Press.

GIROD, M & CAVANAUGH, S. Technology as an Agent of Change in Teacher Practice. *T.H.E. Journal - technological Horizons in Education,* 28(9): 40 - 47.

GL '99 CONFERENCE PROGRAM. 1999. What is Grey Literature? *Grey Literature Report Quarterly,* publication of the New York Academy of Medicine Library. [Online] Available: http://www.nyam.org/library/greylit/whatis.shtml

GRAY, T. 1998. ED's Oasis: Teacher Support for Internet Use. *THE Journal-technological Horizons in Education,* 25(8):62 – 64.

HARASIM, L.; HILTZ, S.R.; TELES, L. & TUROFF, M. 1995. *Learning Networks.* Cambridge: The MIT Press.

HATTEN, R.; KNAPP, D. & SALONGA, R. 1997. Action Research: Comparison with the concepts of 'The Reflective Practitioner' and 'Quality Assurance'. [Online] Available: http://www.scu.edu.au/schools/gcm/ar/arr/arow/rdr.html

HAUGHEY, M. & ANDERSON, T. 1998. *Networked Learning. The Pedagogy of the Internet.* Montreal: Chenelicre/ McGraw-Hill.

HEFER, S. 2002. *FW: Navraag oor Afrikaans onderwysers.* E-mail on 24 June.

JACKSON, G. 2000. Technology for Teacher Support. *TechKnowLogia.* 2(6) [Online] Available: http://www.techknowlogia.org

JACKSON, M., BARTLE, C. & WALTON, G. 1999. Effective Use of Electronic Resources. *Innovations in Education and Training International.* 36(4):320-326.

JOYCE, A. 2001. *Schools' Connectivity in Europe Growing.* [Online] Available: http://www.eun.org/eun.org2/eun/en/About_eschoolnet/content.cfm?lang=en&ov=8844

KAHN, B.H. 1998. Web-Based Instruction. *Educational Media International,* 35(2):62-71.

KEARSLEY, G. 1998. Educational Technology: A Critique. *Educational Technology,* March-April: 47-51.

KANIKI, A.M. 1995. Exploratory study of information needs in Kwa-Ngwanase (Natal) and Qumbu (Transkei) communities of South Africa. *South African Journal of Library and Information Science,* 63(1):9-19.

KEMMIS, S. & McTAGGART, R. 1981. *The Action Research Planner.* Victoria, Australia: Deakin University Press.

KEMMIS, S. & McTAGGART, R. 1988. *The Action Research Planner.* 3rd Edition. Victoria, Australia: Deakin University Press.

KHOSROWPOUR, M.& YAVERBAUM, G. (Eds.) 1989. *Information Technology Resources Utlization and Management: Issues and Trends.* Harrisburg, PA: Idea Group Publishing.

KUMARI, S. 1997. Technology Training Model for Inservice Teachers to integrate Information Technologies. *SITE97-Telecommunications: Graduate, Inservice & Faculty Use.*

LARIBEE, J.F. 1992. Information resources Management: Topics, Concepts, and Resources for teaching IRM to Business Students. *Journal of IS Education,* 4(1). [Online] available: http://gise.org/JISE/Vol1-5/INFORM1.htm

LEWIN, K. 1948. *Resolving Social Conflicts: Selected Papers on Group Dynamics.* London: Harper & Row, Publishers, Inc.

LINE, M.B. 1998. Designing libraries round human beings. *Aslib Proceedings,* 50(8):221-229.

LONG, D. 1995. *The Information Organization.* [Online] Available: http://www.chips.navy.mil/archives/95_jul/file12.html

LUNDALL, P. & HOWELL, C. 2000. *Computers in Schools. A National survey of Information Communication Technology in South African Schools.* University of the Western Cape: Education Policy Unit.

MADDUX, C.D. & JOHNSON, D.L. 1997. The World Wide Web: History, Cultural Context, and a Manual for Developers of Educational Information-Based Web Sites. *Educational Technology,* 37(5):5-12.

McKENZIE, J. 1999a. Beyond IT - The Failure of IT (thus far) to Transform Schools. *From Now On - The Educational Technology Journal, 9(1).* [Online] Available: http://www.fno.org/sept99/beyond.html

McKENZIE, J. 1999b. *How Teachers Learn Technology Best. Washington: FNO Press.*

McKENZIE, J. 2000. The New Lesson Plan. *From Now On - The Educational Technology Journal, 9(8).* [Online] Available: http://www.fno.org

McLEAN, J.E. 1995. *Improving Education Through Action Research: A Guide for Administrators and Teachers.* Thousand Oaks, California: Corwin Press, Inc.

McMILLAN, B. 2002. *What is information?* [Online] Available: http://atrform.infj.ulst.ac.uk/billsweb/PGCert/InforSys/1whatisinfo.html

MERRIAM-WEBSTER. *Online Dictionary.* [Online] Available: http://www.m-w.com/netdict.htm

MILHEIM, W.D. & HARVEY, D.M. 1998. Design and development of a World Wide Web Resource Site. *Educational Technology,* 38(1):53-56.

MORRELL, P. 1997. Building intranet-based information systems for international companies etc. *ASLIB Proceedings,* 49(2):27-31.

MOUTON, J. 2001. *How to succeed in your Master's & Doctoral Studies.* Pretoria: Van Schaik Publishers.

NICHOLAS, D. 1996. *Assessing Information needs: Tools and Techniques.* London: Aslib.

NICHOLAS, D. & MARTIN, H. 1997. Assessing information needs: a case study of journalists. *Aslib Proceedings,* 49(2):43-52.

NELSON, M.R. 2000. *We have the Information you want, but getting it will cost you: Being held Hostage by Information Overload.* [Online] Available: http://info.acm.org/crossroads/xrds1-1/mnelson.html

NOTESS, G.R. 2002. *Search Engine Statistics: Database Total Size Estimates.* [Online] Available: http://www.searchengineshowdown.com/stats/sizeest.shtml

OHL, T.M. & GATES, W.M. 1997. Applying Metaphorical Interface Design Principles to the World Wide Web. *Educational Technology,* 37(6):25-37.

OOSTHUIZEN, B.L. 1997. Information needs of the teachers of Orange Farm. *South African Journal for Library and Information Science*, 65(4):227-233.

ORNA, L. 1992. Information design and information services. What information professionals should know about design, in order to deliver value-added information products. *Aslib Proceedings,* 44(9):305-308.

PATERSON, A. & LUNDALL, P. 2001. *A Review of the Prospects for Training of Educators in Information and Communication Technology.* Unpublished document. Pretoria: Human Sciences Research Council.

PEARL, L. 1995. Jewish educators call for information clearinghouse. *Online Jewish Bulletin,* July 28. [Online] Available: http://www.jewishsf.com/bk950728/sbcall.htm

PRETORIUS, J.P.H. 1994. Die oordra van toepaslike inligting aan biologie-onderwysers in die Oranje-Vrystaat: 'n ondersoek na houdings, behoeftes en voorkeure. Bloemfontein: Universiteit van die Oranje-Vrystaat.

QUINLAN, L.A. 1997. Creating a Classroom Kaleidoscope with the World Wide Web. *Educational Technology.* May-June:15-22.

RSA (REPUBLIC OF SOUTH AFRICA). 1996. *White Paper on Science and Technology: Preparing for the 21st Century. Government Gazette.* Cape Town: Government Printers.

RILEY, F. 2002 *Re: Visitors?* E-Mail on 1 July.

RUFFINI, M.F. 2001. Blueprint to Develop a Great Web Site. *T.H.E. Journal,* 28(8): 64-73.

SANO, D. 1996. *Designing Large-Scale Web Sites.* New York: Wiley Computer Publishing.

SCHNEIDER, D. 1995. The World Wide Web. *ANDREA.* [Online] Available: *ftp://andrea@nki.no.,2(5):1-12*

SCHULZE, S. 2000. Education and the Internet: perspectives and trends at South African universities. *South African Journal of Education,* 20(3):248-252.

SHERRY, L. & GIBSON, D. 2000. The path to Teacher Leadership in Educational Technology. [Online] Available: http://ceo.cudenver.edu/~lorraine_sherry/ASCD2000.htm

SMITH, K. 2002. *RE: Information?* E-mail on 9 July.

SRN (SCHOOL REGISTER OF NEEDS). 2001. Brochure for the 2000 School Register of Needs Report. [Online] Available:

http://education.pwv.gov.za/Policies%20and20%Reports/2001_Report/SRN/srn.htm

SUMMERLEY, G.E. 1996. *The Potential Benefits of the Internet in South African Schools.* Research essay submitted for the partial fulfilment of the requirements for the B.Inf (Hons). RAU. [Online] Available: http://www.school.za*Research and Reports

THOMPSON, A.D.; SIMONSON, M.R. & HARGRAVE, C.P. 1996. *Educational Technology. A Review of the Research.* 2nd edition. Association for Educational Communications and Technology.

TILLMAN, H.N. 2000. *Evaluating Quality on the Net.* [Online] Available: http://www.hopetillman.com/findqual.html

TRILLING, B & HOOD, P. 1999. Learning, Technology and Educational Reform in the Knowledge Age or "We're Wired, Webbed, and Windowed, Now What?" *Educational Technology,* 39(3):5-18.

VAN RYNEVELD, L. 2000. *An exploration of cost-effective solutions for Internet-based interactive learning.* Mini dissertation. Pretoria: University of Pretoria.

VERSTER, M. 2002. *RE: Request info.* E-mail on 29 May.

WEBB, S.P. 1996. *Creating an Information Service.* Third Edition. London: Aslib.

WILKINSON, G.L.; BENNETT, L.T. & OLIVER, K.M. 1997. Evaluation Criteria and Indicators of Quality for Internet Resources. *Educational Technology,* 37(3): 52 - 58.

WILLIS, J., THOMPSON, A. & SADERA, W. 1999 Research on Technology and Teacher Education: Current Status and Future Directions. *Educational Technology Research and Development,* 47(4): 29-45.

WOODALL, M. 2001. Teachers like Internet, wish it were better used in schools. [Online] Available: http://inq.philly.com/content/inquirer/2001/03/30/business/NET30.htm

XREFER. [Online] Available: http://www.xrefer.com

ZUBER-SKERRITT, O. 1992. *Professional Development in Higher Education: A Theoretical Framework for Action Research.* London: Kogan Page.

LW: Hierdie vraelys moet asseblief net deur **Afrikaans Eerste Taal (T1) onderwysers** ingevul word.
Dui u antwoorde met 'n kruisie in die ooreenstemmende grys blokkies aan, tensy anders gevra.

bv. X 1

Baie dankie vir u samewerking.

Moet asseblief nie in hierdie ruimte skryf nie

Respondent nommer: (Slegs vir kantoorgebruik) v1 [ ][ ][ ] 1-3

1. In watter provinsie is u skool geleë? v2 [ ] 4

Gauteng	1
Noordelike provinsie/ Limpopo	2
Noord-Wes	3
Mpumalanga	4
Ander (spesifiseer):	5

2. Waar is u skool geleë? v3 [ ] 5

Platteland	1
Stad	2

3. Hoeveel jare hou u al skool? [ ] v4 [ ][ ] 6-7

4. Hoeveel jare lank onderrig u al Afrikaans Eerste Taal (T1)? [ ] v5 [ ][ ] 8-9

5. Dui aan vir watter grade u die afgelope drie jaar Afrikaans T1 gegee het:

	1998	1999	2000		
Graad 4	1	2	3	v6 [ ][ ][ ]	10-12
5	1	2	3	v9 [ ][ ][ ]	13-15
6	1	2	3	v12 [ ][ ][ ]	16-18
7	1	2	3	v15 [ ][ ][ ]	19-21
8	1	2	3	v18 [ ][ ][ ]	22-24
9	1	2	3	v21 [ ][ ][ ]	25-27
10	1	2	3	v24 [ ][ ][ ]	28-30
11	1	2	3	v27 [ ][ ][ ]	31-33
12	1	2	3	v30 [ ][ ][ ]	34-36

6. Watter posvlak beklee u tans? v33 [ ] 37

Onderwyser	1
Departementshoof	2
Adjunkhoof	3
Ander (spesifiseer):	4

7. Wat is u ouderdom in jare? [ ] v34 [ ][ ] 38-39

8. Bied u ander vakke ook aan? v35 [ ] 40

Ja	1
Nee	2

9. Dui u *hoogste* akademiese kwalifikasie aan: v36 [ ] 41

Diploma	1
B-graad	2
BA(Ed)	3
HOD	4
BA(Hons)	5
B(Ed)	6
MA	7
D	8

10. Dui u hoogste kwalifikasie in *Afrikaans* aan:

v37 [ ][ ] 42-43

Diploma: 1 jaar	1
Diploma: 2 jaar	2
Diploma: 3 jaar	3
Diploma: 4 jaar	4
Voorgraads: 1 jaar	5
Voorgraads: 2 jaar	6
Voorgraads: 3 jaar	7
Honneurs	8
Magister	9
Doktor	10

11. Hoe belangrik is die volgende inligting vir u as Afrikaans onderwyser?

(1=baie belangrik 2=minder belangrik 3=onbelangrik)

Inligting:	**1**	**2**	**3**	
Eksamens & vraestelle	1	2	3	v38 [ ] 44
Voorgeskrewe werke	1	2	3	v39 [ ] 45
Uitkomsgebaseerde onderrig	1	2	3	v40 [ ] 46
Afrikaanse outeurs	1	2	3	v41 [ ] 47
Aktuele taalkwessies	1	2	3	v42 [ ] 48
Resensies van nuwe werke	1	2	3	v43 [ ] 49
Redevoering/debat	1	2	3	v44 [ ] 50
Skoolpublikasies	1	2	3	v45 [ ] 51
Olimpiade/Ekspo…	1	2	3	v46 [ ] 52
Nuwe handboeke	1	2	3	v47 [ ] 53
Lesidees	1	2	3	v48 [ ] 54
Lesplanne	1	2	3	v49 [ ] 55

12. Dui aan hoe greeld gebruik u die volgende in u voorbereiding?

	Weekliks	**Maandeliks**	**Soms**	**Nooit**	
Handboeke	1	2	3	4	v50 [ ] 56
Leerprogramme/skemas	1	2	3	4	v51 [ ] 57
Vaktydskrifte	1	2	3	4	v52 [ ] 58
Kursusmateriaal	1	2	3	4	v53 [ ] 59
Ensiklopidieë	1	2	3	4	v54 [ ] 60
Koerante	1	2	3	4	v55 [ ] 61
Populêre tydskrifte	1	2	3	4	v56 [ ] 62
Insig	1	2	3	4	v57 [ ] 63
De Kat	1	2	3	4	v58 [ ] 64
Skool se mediasentrum	1	2	3	4	v59 [ ] 65
Openbare biblioteek	1	2	3	4	v60 [ ] 66
Radio	1	2	3	4	v61 [ ] 67
Televisie	1	2	3	4	v62 [ ] 68
Rekenaarprogramme	1	2	3	4	v63 [ ] 69
Internet	1	2	3	4	v64 [ ] 70
E-pos	1	2	3	4	v65 [ ] 71
Seminare en kongresse	1	2	3	4	v66 [ ] 72
Vakadviseurs	1	2	3	4	v67 [ ] 73

13. Gebruik u 'n rekenaar vir u voorbereiding?

v68 [ ] 74

Ja	1
Nee	2

14. Beskik u skool oor 'n rekenaar wat aan die Internet gekoppel is wat toeganklik is vir gebruik?

v69 [ ] 75

Ja	1
Nee	2

15. Beskik u skool oor 'n webblad op die Internet?

v70 [ ] 76

Ja	1
Nee	2

16. Het u tuis toegang tot die Internet?

v71 [ ] 77

Ja	1
Nee	2

17. Het u enige formele opleiding ontvang in die gebruik van die Internet? v72 78

Ja	1
Nee	2

18. Is daar 'n behoefte aan opleiding vir die integrering van die Internet in die Afrikaanse kurrikulum? v73 79

Ja	1
Nee	2

19. Het u enige formele opleiding ontvang in die gebruik van e-pos? v74 80

Ja	1
Nee	2

20. Beskik u oor 'n e-posadres? v75 81

Ja	1
Nee	2

21. Dink u daar is genoeg inligting op die Internet beskikbaar vir die Afrikaans T1-onderwyser? v76 82

Ja	1
Nee	2
Weet nie	3

22. Dink u daar is 'n behoefte vir 'n vakspesifieke webruimte vir Afrikaanse onderwysers? v77 83

Ja	1
Nee	2
Weet nie	3

INDIEN U *NIE* DIE INTERNET GEBRUIK NIE, VUL ASSEBLIEF VRAE 23 en 24 IN.

INDIEN U DIE INTERNET *WEL* GEBRUIK , VUL ASSEBLIEF VRAE 25 - 35 IN.

INDIEN U *NIE* DIE INTERNET GEBRUIK NIE:

Moet asseblief nie in hierdie ruimte skryf nie

23. Dui die rede(s) aan waarom u nie die Internet gebruik nie:

Daar is nie Internettoegang by my skool nie	1	v78 84
Ek beskik nie oor Internettoegang by my huis nie	2	v79 85
Dit is te duur	3	v80 86
Ek het genoeg inligting tot my beskikking, het nie die Internet nodig nie	4	v81 87
Ek is bang vir die nuwe tegnologie	5	v82 88
Ek is onseker oor die werking van die Internet	6	v83 89
Daar is niemand wat my kan help nie	7	v84 90
Die Internet kan my nie help met Afrikaanse inligting nie	8	v85 91

24. Sou u belangstel om meer te leer oor die moontlikhede van die Internet? v86 92

Ja	1
Nee	2

INDIEN U *WEL* DIE INTERNET GEBRUIK:

25. Hoeveel maande gebruik u al die Internet? v87 93-95

26. Waar of by wie het u die Internet leer gebruik?

Self	1	v88	96
Voorgraadse studies	2	v89	97
Nagraadse studies	3	v90	98
Diploma/ sertifikaatkursus	4	v91	99
Opleiding/ kursus by die skool	5	v92	100
Opleiding/ werkswinkel deur die Ondewysdepartement	6	v93	101
Opleiding/ werkswinkel deur 'n privaat instansie	7	v94	102
Familielid/vriende	8	v95	103
Kollega	9	v96	104
Groepwerk by die skool	10	v97	105-106
Leerlinge	11	v98	107-108

27. Gebruik u die Internet om Afrikaanse inligting te bekom? v99 109

Ja	1
Nee	2

28. Gebruik u die Internet vir die volgende?

Doel waarvoor u die Internet gebruik:	**Ja**	**Nee**		
Korrespondensie met vriende/familie via e-pos	1	2	v100	110
Korrespondensie met kollegas oor Afrikaanse sake via e-pos	1	2	v101	111
Korrespondensie met kollegas oor organisatoriese sake via e-pos	1	2	v102	112
Inligting vir voorbereiding/klasaktiwiteite	1	2	v103	113
Inligting van algemene aard	1	2	v104	114
Inligting vir my kinders se skoolprojekte	1	2	v105	115
Om goed te bestel	1	2	v106	116
Banksake/betaling van rekenings	1	2	v107	117
Studie doeleindes	1	2	v108	118
Sommer om net te kyk wat is op die internet	1	2	v109	119
Om inligting rakende onderwysbeleid in SA te soek	1	2	v110	120
Om inligting oor Uitkomsgebaseerde Taalonderrig te soek	1	2	v111	121
Om inligting rondom Afrikaans as taal te soek	1	2	v112	122
Om op die hoogte te bly van aktuele gebeure in Afrikaans	1	2	v113	123
Om inligting oor skrywers en boeke te soek	1	2	v114	124
Om lesidees te kry	1	2	v115	125
Om Afrikaanse lesse voor te berei	1	2	v116	126
Vir eie belangstelling en stokperdjies	1	2	v117	127
Om deel te neem aan gesprekgroepe	1	2	v118	128
Ander: Spesifiseer			v119	129

29. Vind u die inligting wat u nodig het, maklik op die Internet? v120 130

Ja	1
Nee	2

30. Is daar 'n persoon wat u kan help en raad gee oor die effektiewe gebruik van die Internet? v121 131

Ja	1
Nee	2

31. Indien ja, wie?

Familielid/vriende	1	v122	132
Kollega	2	v123	133
Groepwerk by die skool	3	v124	134
Leerlinge	4	v125	135
Aanlyn-help	5	v126	136
Die Onderwysdepartement	6	v127	137

32. Het u die volgende vaardighede al bemeester?

Vaardigheid	**Ja**	**Nee**		
Soektogte na inligting	1	2	v128	138
Evalueer van inligting	1	2	v129	139
Skep van eie webbladsye	1	2	v130	140
Aflaai van inligting	1	2	v131	141
Gespreksgroepe (chat)	1	2	v132	142
Forums (threaded discussions)	1	2	v133	143
Adreslys bespreking (listserve)	1	2	v134	144

33. Met watter van die volgende beskrywings van die Internet stem u saam?

Die Internet is:	Ja	Nee			
Baie interessant	1	2	v135		145
Stimulerend	1	2	v136		146
Verwarrend	1	2	v137		147
Frustrerend	1	2	v138		148
Tydrowend	1	2	v139		149

34. Watter van die volgende beskou u as 'n leemte wat deur die Internet gevul kan word?

(1=definitief 2=miskien 3=reeds genoeg inligting beskikbaar)

Inligting:	1	2	3			
Eksamens & vraestelle	1	2	3	v140		150
Voorgeskrewe werke	1	2	3	v141		151
Uitkomsgebaseerde onderrig	1	2	3	v142		152
Afrikaanse outeurs	1	2	3	v143		153
Aktuele taalkwessies	1	2	3	v144		154
Resensies van nuwe werke	1	2	3	v145		155
Redevoering/debat	1	2	3	v146		156
Olimpiade/Ekspo…	1	2	3	v147		157
Nuwe handboeke	1	2	3	v148		158
Lesidees	1	2	3	v149		159
Lesplanne	1	2	3	v150		160

35. Het u u eie webbladsy?

Ja	1	v151		161
Nee	2			

Noem enkele webruimtes wat u as onderwyser nuttig vind (slegs vir interessantheidshalwe):

BAIE DANKIE VIR U SAMEWERKING.

Please note: This questionnaire must be completed only by **Afrikaans First Language teachers.**
Indicate your answer with a cross in the grey square, unless indicated otherwise:

e.g. X

Thank you very much for your co-operation

Please don't write in this area

Respondent number: (For office use only) v1 [ ] 1-3

1. In which povince is your school situated? v2 [ ] 4

Gauteng	1
Northern Province/ Limpopo	2
North-West	3
Mpumalanga	4
Other (specify):	5

2. Where is your school situated? v3 [ ] 5

Rural area	1
City	2

3. How long have you been teaching? [ ] v4 [ ] 6-7

4. How long have you been teaching Afrikaans First Language (L1)? [ ] v5 [ ] 8-9

5. Which grades have you taught Afrikaans L1 in the last 3 years?

	1998	1999	2000		
Grade 4	1	2	3	v6 [ ]	10-12
5	1	2	3	v9 [ ]	13-15
6	1	2	3	v12 [ ]	16-18
7	1	2	3	v15 [ ]	19-21
8	1	2	3	v18 [ ]	22-24
9	1	2	3	v21 [ ]	25-27
10	1	2	3	v24 [ ]	28-30
11	1	2	3	v27 [ ]	31-33
12	1	2	3	v30 [ ]	34-36

6. On what post level are you currently? v33 [ ] 37

Teacher	1
Head of Department	2
Vice Principal	3
Other (specify):	4

7. How old are you? [ ] v34 [ ] 38-39

8. Do you teach other subjects as well? v35 [ ] 40

Yes	1
No	2

9. Please indicate your highest academic qualification: v36 [ ] 41

Diploma	1
B-grade	2
BA(Ed)	3
HED	4
BA(Hons)	5
B(Ed)	6
MA	7
D	8

10. Please indicate your highest qualification in *Afrikaans:* v37 [ ] 42-43

Diploma: 1 year	1
Diploma: 2 years	2
Diploma: 3 years	3
Diploma: 4 years	4
Undergraduate: 1 year	5
Undergraduate: 2 years	6
Undergraduate: 3 years	7
Honours	8
Masters	9
Doctorate	10

11. How important is the following information for you as an Afrikaans teacher?

(1=very important 2=less important 3=unimportant)

Information:	1	2	3			
Exams & papers	1	2	3	v38		44
Prescribed literature	1	2	3	v39		45
Outcomesbased Education	1	2	3	v40		46
Afrikaanse authors	1	2	3	v41		47
Language issues	1	2	3	v42		48
Reviews of new books	1	2	3	v43		49
Public speaking/debate	1	2	3	v44		50
School publications	1	2	3	v45		51
Olimpiad/Expo…	1	2	3	v46		52
New textbooks	1	2	3	v47		53
Lesson ideas	1	2	3	v48		54
Lesson plans	1	2	3	v49		55

12.How often do you make use of the following in your preparation?

	Weekly	Monthly	Now & then	Never			
Textbooks	1	2	3	4	v50		56
Learning programmes	1	2	3	4	v51		57
Subject journals	1	2	3	4	v52		58
Course materials	1	2	3	4	v53		59
Encyclopedias	1	2	3	4	v54		60
Newspapers	1	2	3	4	v55		61
Popular magazines	1	2	3	4	v56		62
Insig	1	2	3	4	v57		63
De Kat	1	2	3	4	v58		64
School media centre	1	2	3	4	v59		65
Public library	1	2	3	4	v60		66
Radio	1	2	3	4	v61		67
Television	1	2	3	4	v62		68
Computer programs	1	2	3	4	v63		69
Internet	1	2	3	4	v64		70
E-mail	1	2	3	4	v65		71
Seminars & conferences	1	2	3	4	v66		72
Subject advisors	1	2	3	4	v67		73

13. Do you use a computer for preparation? v68 74

Yes	1
No	2

14. Do you have access to the Internet at your school? v69 75

Yes	1
No	2

15. Does your school have a web page on the Internet? v70 76

Yes	1
No	2

16. Do you have Internet access at home? v71 77

Yes	1
No	2

17. Did you receive any formal training in the use of the Internet? v72 78

Yes	1
No	2

18. Is there a need to integrate the Internet into the Afrikaans curriculum? v73 79

Yes	1
No	2

19. Did you receive any formal training in the use of e-mail? v74 80

Yes	1
No	2

20. Do you have an e-mail address? v75 81

Yes	1
No	2

21. Do you think there is enough information on the Internet for Afrikaans v76 82

L1 teachers?

Yes	1
No	2
Don't know	3

22. Do you think thare is a need for a subject-specific website for Afrikaanse teachers? v77 83

Yes	1
No	2
Don't know	3

IF YOU DO *NOT* USE THE INTERNET, COMPLETE QUESTIONS 23 AND 24.

IF YOU *DO USE* THE INTERNET, COMPLETE QUESTIONS 25 - 35.

IF YOU DO NOT USE THE INTERNET:

Please do not write in this area

23. Indicate the reasons why you do not use the Internet:

There is no Internet access at my school	1	v78	84
I don't have Internet access at home	2	v79	85
It is too expensive	3	v80	86
I have enough information, I do not need the Internet	4	v81	87
I'm afraid of new technology	5	v82	88
I'm unsure of how the Internet works	6	v83	89
There is nobody that can help me	7	v84	90
The Internet cannot provide me with any information on Afrikaans	8	v85	91

24. Would you like to learn more about the Internet's possibilities? v86 92

Yes	1
No	2

IF YOU *DO* USE THE INTERNET:

25. For how many months have you been using the Internet? v87 93-95

26. How/ where did you learn to use the Internet?

Self	1	v88	96
Undergraduate studies	2	v89	97
Postgraduate studies	3	v90	98
Diploma/ certificate course	4	v91	99
Training/ course at school	5	v92	100
Training/ workshop offered by the Department of Eduaction	6	v93	101
Training/ workshop offered by a private firm	7	v94	102
Family/ friends	8	v95	103
Colleagues	9	v96	104
Groupwork at school	10	v97	105-106
Learners	11	v98	107-108

27. Do you use the Internet to find Afrikaanse information? v99 109

Yes	1
No	2

28. Do you use the Internet for the following?

Purpose of Internet use	**Yes**	**No**		
E-mail to friends and family	1	2	v100	110
Afrikaans matters	1	2	v101	111
E-mail to colleagues in connection with administrative issues	1	2	v102	112
Information for preparation/ classroom activities	1	2	v103	113
General information	1	2	v104	114
Information for your own children's school projects	1	2	v105	115
To order things	1	2	v106	116
Banking/payment of accounts	1	2	v107	117
Studies	1	2	v108	118
Just to have a look at what is on the Internet	1	2	v109	119
Information on South Africa's educational policy	1	2	v110	120
Information on Outcomesbased Education	1	2	v111	121
Information on the Afrikaans language	1	2	v112	122
Information on developments in Afrikaans	1	2	v113	123
Information on authors and books	1	2	v114	124
Lesson ideas	1	2	v115	125
Ppreparation for Afrikaanse lessons	1	2	v116	126
Interests and hobbies	1	2	v117	127
Chat	1	2	v118	128
Other: Specify			v119	129

29. Do you find the information you need easily on the Internet?

Yes	1
No	2

v120 130

30. Is there anyone who can give you advice on the effective use of the Internet?

Yes	1
No	2

v121 131

31. If yes, who?

Family/ friends	1	v122 132
Colleagues	2	v123 133
Groupwork at school	3	v124 134
Learners	4	v125 135
Online-help	5	v126 136
Department of Education	6	v127 137

32. Have you mastered the following skills?

Skill	Yes	No	
Search for information	1	2	v128 138
Evaluate information	1	2	v129 139
Create web pages	1	2	v130 140
Download files	1	2	v131 141
Chat	1	2	v132 142
Threaded discussions	1	2	v133 143
Listserve	1	2	v134 144

33. With which of the following descriotions of the Internet do you agree?

The Internet is:	Yes	No	
Very interesting	1	2	v135 145
Stimulating	1	2	v136 146
Confusing	1	2	v137 147
Frustrating	1	2	v138 148
Time consuming	1	2	v139 149

34. In which of the following categories of information do you think the Internet should provide?

(1=definitely 2=perhaps 3=enough information is already available)

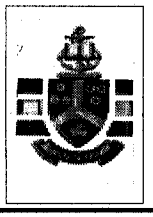
Information:	1	2	3	
Exams & papers	1	2	3	v140 150
Prescribes literature	1	2	3	v141 151
Outcomesbased Education	1	2	3	v142 152
Afrikaans authors	1	2	3	v143 153
Language issues	1	2	3	v144 154
Reviews of new books	1	2	3	v145 155
Public speaking / debate	1	2	3	v146 156
Olimpiad /Expo…	1	2	3	v147 157
New textbooks	1	2	3	v148 158
Lesson ideas	1	2	3	v149 159
Lesson plans	1	2	3	v150 160

35. Do you have your own web page?

Yes	1
No	2

v151 161

Mention any web sites that you as teacher find useful:



Goudmyn Tuisblad

'n GOUDMYN VIR AFRIKAANS-ONDERWYSERS

DEPARTEMENT AFRIKAANS: SKOOL VIR ONDERWYSOPLEIDING

Fakulteit Opvoedkunde

UNIVERSITEIT VAN PRETORIA

GOUDMYN: EVALUERINGSVORM

Vul asseblief die volgende vorm in om te help om hierdie webruimte te verbeter:

Naam & Van:

Skool:

Telefoonnr.:

E-pos:

Is u 'n Afrikaans onderwyser? ◦ Ja ◦ Nee

DUI AAN OF U MET DIE VOLGENDE SAAMSTEM:

1. Die webruimte navigeer maklik. ◦ Ja ◦ Nee
2. Die webruimte beskik oor relevante inligting. ◦ Ja ◦ Nee
3. Die inligting is van goeie gehalte. ◦ Ja ◦ Nee
4. Die uitleg is visueel aantreklik. ◦ Ja ◦ Nee
5. Die inligting is yl. ◦ Ja ◦ Nee
6. Meer praktiese inligting is nodig. ◦ Ja ◦ Nee
7. Ek het oulike idees hier gekry. ◦ Ja ◦ Nee
8. Ek sal graag vir ander hiervan vertel. ◦ Ja ◦ Nee
9. Dit is die moeite werd. ◦ Ja ◦ Nee
10. Ek sal graag wil saamwerk aan die projek. ◦ Ja ◦ Nee

Enige ander kommentaar en voorstelle:

Stuur vorm nou | Maak vorm skoon

Boontoe

URL	INSTITUTION	INFORMATION	DATE	AFRIKAANS
http://education.pwv.gov.za	**National Department of Education**	The official web site of the Department of Education publish policy documents, speeches, links to education-related sites & curriculum issues.	25/7/01	***None***
http://education.pwv.gov.za/teli2	**National Centre for Educational Technology and Distance Education**	The Centre promotes open & lifelong learning through the use of media, educational technology etc. The site hosts links to relevant research and project of the Centre.	25/7/01	***None***
www.wcape.school.za	**The Western Cape Schools Network (WCSN)**	The mission of the WCSN is to give access, guidance, training and support in the educational use of ICTs to the majority of schools in the Western Cape. Web site: - Subject resources - Educational events - Other links	13/6/01	***None*** There is a section for Afrikaans First and Second Language, but without any informtion
http://scope.ncape.gov.za	**Scope: South African- Finnish Co-operation in the Education Sector**	Development of learner, teacher and managerial competencies in the use of ICTs.	31/10/01	***None***
www.school.za	**SchoolNet SA**	SchoolNet is an organisation formed to create Learning Communities of educators and Learners that use ICT to enhance education. They provide: - A SchoolMail service - Domain name administration - Electric Schoolbook - Links to various educational resource sites - Teacher training.	12/6/01	***None***
www.saide.org.za	**The South African Institute for Distance Education (SAIDE)**	SAIDE's Web site provides new research results, reports, curriculum support and links to educational resources.	12/6/01	***None***
www.shoma.org.za	**The ShoMa Education Foundation**	The ShoMa Education Foundation combines content development (in broadcast/ video format/ web-based), provision of physical infrastructures and teacher training	20/6/01	***None***
www.teacher.co.za/edutech	**Edutech Puisano**	Part of newsletter for SA teachers. Discusses possibilities of ICTs for teachers.	31/10/01	***None***

www.learn.co.za	**Learning Channel Campus**	This company focuses on the creation of high quality, curriculum-specific, educational content.	25/7/01	***None*** Subject support *in Afrikaans* for other subjects e.g. Mathematics, Biology, and Geography.
www.sabceducation.com	**SABC's Education Network**	Educator Space with brief descriptions of OBE and C2005; Teaching resources	12/6/01	***None***
www.mweb.co.za/learning	**M-Web's Learning Channel**	Extensive resources are available for learners and teachers in all subjects - lesson plans, links to other resources, complete exam papers, home work help, study methods etc.	25/7/01	***Yes*** Only available to subscribers and in school hours from a LAN.
www.mweb.co.za/LitNet	**M-Web's OnderwysNet**	M-Web hosts a large site for Afrikaans literature issues, LitNet, which has a small section for Afrikaans Language teachers with discussions on the curriculum.	25/7/01	***Yes*** Only available to subscribers.
www.nkp.ac.za/afrikaans *(The Goudmyn)*	**Previously known as the Onderwyskollege van Pretoria - now School for Teacher Training of the University of Pretoria**	The researcher started a web-based resource for Afrikaans Language teachers with relevant curriculum information; lesson plans from students, links to related sites and contributions from teachers.	25/7/01	***Yes***