

CHAPTER ONE

INTRODUCTION AND ORIENTATION

“...It is universally recognised that the main objective of any education system in a democratic society is to provide quality education for all learners so that they will be able to reach their full potential and will be able to meaningfully contribute to and participate in that society throughout their lives”

(Department of Education, 1997:11)

1.1 INTRODUCTION

Chapter one aims to present the rationale and problem statement for the present study, to give an outline of the chapters and to clarify the terminology used during this study. The study aims to determine if adolescents with hearing loss in special schools have access to academic information and whether they are able to use such information.

Information is a wide concept that forms an integral part of any person's life. The simplest illustration of this statement may be the number of current definitions of the term, ranging from “a message received and understood” to complex expositions involving various technical terms. Information as a concept, therefore, has a diversity of meanings, depending on the context in which it is used. For the purpose of this study the term *academic information* will be used when referring to specific information in the school context. Information may be regarded as the core of education, since education aims at equipping individuals to select, assimilate, and apply relevant information in all situations throughout life.

No community, culture, or industry can exist without a flow of information (Freebody & Welch, 1993:11). Information, or the lack thereof, is a decisive factor in either demolishing or maintaining the link between illiteracy, poverty and underdevelopment (WFD Policy, Education rights for deaf children, 2007: 1). The acquisition and utilisation of information, or the *information process*, is associated

with the development of an individual in totality and leads to self-improvement. Most people aspire to higher standards of living, longer lives, and fewer health problems. They desire education for themselves and their children that will increase their earning capacity and leave them more in control of their lives, give them a measure of stability and tranquillity, and the opportunity to do the things that give them pleasure and satisfaction (Harrison, Simpson & Stuart, 1984:1; WFD Policy, Education rights for Deaf Children, 2007:3). One of the keys to realising all of these ambitions is the access and use of information.

Several publications provided relevant in-depth background for this study, particularly the work of Moores (1987), Norton (1992); and Lang (2002:267). These authors present a significant body of knowledge about the barriers adolescents with hearing loss face in gaining access to information. Much less has been published, however, regarding possible ways to surmount these barriers.

Historically, individuals with hearing loss were not afforded tertiary education (Nieuwenhuis, 1980:33, 62, 63), and educational programmes provided deaf people with limited educational opportunities, as well as opportunities for participating in society and making decisions (Special Needs Education, 1993:86). Less than two decades ago UNESCO painted a gloomy picture of training and mentioned that only a minority of 58 countries provided sufficient teacher training regarding disability issues (Framework for Action on Special Needs Education, 1994:62).

Literature in the current millennium still reports that children with hearing loss are often severely delayed when compared to hearing children, especially in earlier development (Yoshinaga-Itano, 2003:24). Adolescents with hearing loss are still seen to have multifaceted problems involving literacy (reading and writing) and language that can influence their attitude to their ability to access and use academic information (WFD Policy, Education rights for deaf children, 2007:1). This also has implications for how they regard academic information and whether they are willing to apply it (Slyh, 1998; accessed 2007-04-17).

It must be stressed, however, that although there is abundant research comparing children who have hearing loss to their hearing peers, there is a definite lack of research regarding the effect of cognitive delays on academic achievement (Yoshinago-Itano, Sedy & Cloulter, 1998:116-1171). This refers to a language base dependent on auditory processing skills that are intertwined with higher-order cognitive processing skills as well as visual patterns (Katz, 2002:496). A growing body of research demonstrates, however, that intensive early intervention can alter the cognitive and developmental outcomes of the young person with hearing loss and facilitate speech, language, and social-emotional development as well as academic achievement (Northern & Downs, 2001:155, 267).

A concept that features significantly in the current study is *information literacy*. Information literacy is a person's ability to access, evaluate, and use information effectively. It calls for a wide range of skills in order to solve problems and make informed decisions; share knowledge; use a variety of information resources, such as books, newspapers and journals as well as computer-based resources such as software, CD-ROMs, e-mail and the Internet; adapt to new technology; and learn independently throughout their whole life (Gregory, in The Association of College and Research Libraries, 2000:28).

It can be argued that access and use of information is the one language-related academic ability that can possibly be developed through training, also in the case of adolescents with hearing loss (Nowell & Marshak, 1994). This would imply cognitive training that involves language and auditory training, vocabulary development, and the teaching of organizational skills (Northern & Downs, 2001:203). Research in the field of information access and use by adolescents with hearing loss can provide valuable information to everyone working with this population.

It is generally accepted that problems in accessing information have an impact on academic achievement (Lang, 2002:267). If adolescents with hearing loss are able to access and use academic information sufficiently, they will be able to fulfil a more significant role in society, as well as to study and work well. The acquisition of academic information will enable adolescents with hearing loss to function in such a

way that they will be able to maintain their independence and improve their knowledge base throughout their education years (Northern & Downs, 2001:462). This underlines the importance of relevant research and suggests directions for educational researchers interested in enhancing academic success.

The current discussion will aim to explain the importance and value of information access and use for adolescents with hearing loss as background to a description of the scope and objectives of the study.

1.2 BACKGROUND: THE IMPORTANCE OF ACCESS AND USE OF ACADEMIC INFORMATION

An information literate society is characterised by the use of theoretical knowledge, scientific decision-making, and problem-solving. Its members depend on accurate and reliable information, and a well-developed infrastructure exists for the production, distribution, retrieval and use of information (Fouché, 1982:41; Martin, 1988:40). Society has so many challenges involving information issues, including recreation, enculturation, and self-actualisation, that the acquisition of academic information can be regarded as absolutely necessary in order to maintain an individual's independence and improve his/her knowledge base (Bench, 1992:20).

Adolescents with hearing loss need to acquire essential knowledge and skills in order to help them to plan and carry out complex projects, and to be critical, creative and reflective thinkers, decision-makers, and problem-solvers. If adolescents with hearing loss are able to learn how to access and use academic information successfully, it will enable them to live independently and to lead a life based on self-exploration and knowledge. This can help to develop their self-esteem and confidence and increase their feeling of independence (Murray, 2000: 8). They will learn to display emotional intelligence, a positive attitude, respect, and positive behavioural traits towards themselves and others. Without appropriate education, an adolescent with hearing loss will not be able to advance in society as an independent, employed, contributing citizen (WFD Policy, Education rights for deaf children, 2007: 2).

Literacy (reading and writing) is traditionally regarded as the most important skill area needed to obtain academic information (Bench, 2001:19-20). Literacy involves the communication of thoughts and process of learning through conversation, reading, and writing , but...“the conceptualisation of the reading process has changed a lot over the years from being a ‘compilation of splinter skills’ to be taught in a prescribed sequence to that of a strategy-based, meaning-making, interactive process acquired by the reader” (Chaleff & Ritter, 2001:190). Research indicates that educational outcomes for adolescents with impairments in secondary schools, especially those with additional disabilities, leave school unprepared to live and function independently. Children should be able to leave school with independent living skills, employment readiness, and a set of ‘learning how to learn’ skills (Davila, 2002:13).

If limitations are placed on literacy, it will continue to prevent many adolescents with hearing loss from reaching their full potential to become information literate (Northern & Downs, 2001:355). However, with the ascent of the information era, characterised by the access and use of modern academic information technology and the globalisation of economical processes, the emphasis has changed from literacy to information literacy. Breivik (in Riedling, 2007:13) emphasises the general education or core curriculum where adolescents should access, organize, and present information “from all the real-world sources existing in today’s information society.” Information literacy involves critical thinking, problem-solving skills, and applying newly acquired knowledge in practice. In fact, the USA’s Department of Labour regards information literacy as one of the five main skills that all workers should possess (Position statement on information literacy, 2009).

The ability to access and use academic information will also lead to an increasing awareness of attitudes, values, and norms in the case of the adolescent with hearing loss (Bench, 1992:20; Marx, 2000:79). This will only be achieved providing he/she learns to:

- Access, evaluate and use academic information efficiently, effectively, critically, competently, accurately, and creatively;

- Be an independent adolescent, pursuing academic information related to personal interests;
- Appreciate literature and other creative expressions of academic information and
- Strive for excellence in academic information seeking and knowledge generation (Information power, 1998; accessed 2009-04-07).

Eisenberg (in Van der Walt, 1992:39) discusses these issues from a different viewpoint by referring to the 'big six information skills', namely the skill to define his/her information needs, to find the relevant information, evaluate it, access it cognitively, interpret it sensibly and to apply and communicate it effectively (Van der Walt, 1992:39; Boekhorst, Koers & Kwast, 1999:57-68); in short, "...the location, retrieval, selection, organization, evaluation and communication of information" (Brake, 1980:1). The question remains – are adolescents with hearing loss able to achieve this?

Adolescents with hearing loss' learning performance and motivation are affected by the extent to which they manage to master academic material. Adolescents with hearing loss learn about learning as they learn other skills (Lloyd; Kameenui & Chard, 1997:177). Adolescents with hearing loss have to learn which skills to use, how to access and how to apply academic information, how to play an active role in mastering academic information and to construct knowledge while interacting with a perceived world (Lloyd *et al.*, 1997:241). Previous knowledge and experiences are the starting points for learning about new things and adolescents with hearing loss should be motivated to keep on mastering new knowledge and academic information.

Role players such as teachers, media teachers, families, friends, clinical personnel, and therapists make an important contribution to the adolescent with hearing loss' ability to access and use academic information (Stevens, 2004:4; Katz, 2002:761). Teachers and media teachers have a great influence on the education of adolescents with hearing loss because they have the most knowledge about this age group, but often they are limited in number and receive little training concerning the

effects of hearing loss on children. Teachers should have knowledge of adolescents with hearing loss' needs and be aware of appropriate educational facilities, available personnel, and suitable educational material (Northern & Downs, 2001:343; 352 & 355-356).

Literacy is valuable for use in everyday life. It is also the means to obtain, evaluate and use information for a wide range of work purposes. Literacy development is essential in order to function well at school and for participating in the classroom (Luckner, Cooney, Young & Muir, 2005: 443). Information is a basic right, as stated in the South African Constitution (chapter 2, article 32). It is important for economical, social, and political reasons (Boon, 1990: 2 & 1992a:232; Britz, 1996:243). Individuals, and specifically children with hearing loss in their school going phase, need academic information (Paul & Quigley, 1994:93-94) in order to develop their full intellectual ability (Boon, 1992: 232).

Adolescents with hearing loss in special schools experience limitations in literacy and information literacy skills. Lack of literacy, and therefore the lack of academic information, can lead to inferior intellectual abilities and limited career options. On the other hand, if an adolescent can succeed in obtaining information, it can lead to development with regard to personal well-being in areas such as career interests, community interests, health matters, and recreational interest, especially as an adolescent gets older (Riedling, 2007:4). Research over the decades has shown that employers are historically more likely to hire people with various other disabilities than people with hearing disabilities (Stapleton & Burkhauser, 2003:2; Lang, 2002:267). One of the reasons may be that literacy achievement of children with hearing loss is far below the average for the population at large (WFD Policy, Education rights for deaf children, 2007:2).

Well developed literacy and the acquisition of academic information will lead to more employment opportunities for adolescents with hearing loss after completing school and better prospects for pursuing career opportunities (Boon, 1992:4). An information literate person who is able to access and use academic information is also able to:

- Determine whether information is factual or analytical, objective or subjective;
- Distinguish between primary and secondary information;
- Determine the amount and quality of information that is needed;
- Distinguish between the different types of formats and
- Determine whether the information is recent and of value for specific purposes
(Developing the information literate person: the UTS Statement, 2009).

These skills are relatively complex because there are different kinds of information: academic, personal, functional, business, marketing, statistical, political, etc. (Boon, 1992: 232). Pascual-Leone (in Sugden, 1989:235) distinguished between three sources of academic information which can take up mental space in the user, namely the executive, operative, and the figurative scheme of academic information. This refers to the ways in which academic information is absorbed and applied. Information is presented in written form such as books, journals, magazines, articles and files, but also by means of oral communication like radio, television and audio-visual methods, and increasingly through technological means such as computers (Owusu-Ansah, 2003:221; Spitzer, Eisenberg & Lowe, 1998:25-26).

Adolescents have to know how to access and utilize all of these sources: "...whether information comes from the computer, a book, a government agency, a film, a conversation, a poster or any number of other possible sources, inherent in the concept of information literacy is the ability to dissect and understand what you see on the page or the television screen, on posters, pictures, and other images, as well as what you hear" (Lenox & Walker, 1993:4-5). Furthermore, certain environmental factors play a role in the access and use of information including the learning environment; society and people's perception; education opportunities (Hull, 1998:587); qualification of the teachers and also issues such as the aim and the role of South African Outcomes Based Education (Truax, 1992:403; Kerschner & Chaplain, 2001:50).

From the foregoing, it is clear that the information era presents several challenges to hearing adolescents and adolescents with hearing loss. Ultimately, information literate people are those who have learned to learn. They know how to learn

because they know how knowledge is organized, how to find information and how to access and use academic information in such a way that others can learn from them (Foster, 1993:344-345).

1.3 RATIONALE

In the preceding paragraphs the importance of information access and use was discussed. This significance is specifically relevant in the case of adolescents with hearing loss on the brink of adulthood. If these adolescents with hearing loss are experiencing barriers due to a disability such as a hearing loss, they are unable to make full use of information that is available to them. Not all individuals and/or groupings within a specific structure have the same access to academic information. Research shows that people with a hearing loss are often limited in their utilisation of academic information both in quantity and quality (Kerschner & Chaplain, 2001:98; 104; Moores, in Kuder, 1997:144; 150). A good example of this is the fact that they have a tendency to concentrate more on the lower level skills of decoding and transcription, instead of trying to acquire background or content knowledge which can be achieved by means of accessing relevant information, extended reading, and discussion of text (Lloyd *et al*, 1997: 239-240).

The uncertain quantity and expanding quality of information pose large challenges for society, because the “sheer abundance of information will not in itself create a more informed citizenry without a complementary cluster of abilities necessary to use information effectively” (Avery, 2006:280). Neyhuss and Austin (1978:351) found in their research that adolescents with hearing loss are generally seen as “disabled” persons unable to access information. This can be attributed firstly to their limited access to auditory information but secondly to the language and communication loss they experience because of the hearing loss. On the other hand, Branson and Miller (1993:33) found that some people with hearing loss have proven to be just as successful as hearing peers in a world where information plays a crucial role. It is important to establish why some people with hearing loss succeed and some do not.

Marx (2000:45) emphasises that adolescents with hearing loss need the same career opportunities and training as their hearing peers in order to participate successfully in society. Unfortunately, lack of academic information can lead to financial losses due to the inability to acquire a job or career and to a loss in the areas of academic success, self-concept, and social acceptance (Hugo, 1987:9; Lang, 2002:267).

Children with hearing loss have different abilities that influence their educational experiences before entering high school (Stewart & Kluwin, 2001:5 & Fouché, 1982:42). Factors that can also have an influence on the access and use of academic information are insufficient teaching methods, reading, communication, and literacy problems (Harrison, 1991:84). Although the method of communication has an influence on the adolescents with hearing loss' ability to learn, they are able to utilise literature, the Internet, and technology, as well as to go to certain colleges and universities depending on their individual goals (Stewart & Kluwin, 2001:121-123).

When adolescents with hearing loss are presented with suitable knowledge of the use, access, and application of academic information, they will express a need to obtain further knowledge and skills necessary to adapt in an ever-increasing society (Marx, 2000:3; 63; 79-81). Academic information is a prerequisite to education, task performance and scholastic achievement. Adolescents with hearing loss, especially those in special schools, need to benefit from academic information regarding general knowledge, career, professional needs and/or interest in a specific subject area. Well-trained teachers, appropriate teaching methods, and applicable academic information will enable them to stay abreast of new developments (Marschark, 2003:S41-S47 [Supplement]; Boon, 1990:2) and to understand the world in which they live.

Effective teaching practice in the education of adolescents with hearing loss is dominated by considerations of language, literacy and the communication facility. The type of academic information that teachers apply when teaching adolescents with hearing loss should reflect all that the adolescents with hearing loss need in

later life for successful integration into the hearing world (Lloyd *et al.*, 1997:181). A school is therefore an institution or enterprise, which focuses on the dissemination of knowledge, and on didactic principles as conditions for effective instruction and learning. Against this background the following facts are relevant.

- People with hearing loss are often unemployed or unsuccessful in the workplace; they are either not working or are doing menial work (Special Needs Education, 1993:81-82; Muller, 1984:87 and Goldstein, 1989:95).
- People with hearing loss tend to have low academic achievement despite the fact that they may have normal intellectual abilities (Nowell & Marshak, 1994; WFD Police, Education Rights for Deaf Children, 2007:1).
- People with hearing loss are often socially and emotionally unprepared and thus unsuccessful in the present-day information society (Zapata, 1994:124).
- Children with hearing loss are at risk for delayed development of verbal skills and reduced academic achievement (Northern & Downs, 2001:357). Early hearing deficits might have far-reaching perceptual and academic consequences (Northern & Downs, 2001:82) as well as social and emotional problems (Northern & Downs, 2001: 250).
- The profound effect of a hearing loss on communication, social, and academic achievement is often not realized by school officials, boards of education, and other significant persons (Northern & Downs, 2001:350).
- Intervention programmes, specifically early intervention, provide some children with the ability to overcome developmental lags in language and academic skills (Northern & Downs, 2001:3, 155).
- Despite overall documented improvements in education of children with hearing loss, the academic achievements of these children remains unacceptably low (Northern & Downs, 2001:355).
- Students with hearing loss face barriers in gaining access to information (Lang, 2002:267).

Although Gregory, Bishop and Sheldon (1995:258) indicate that lack of sufficient, available and understandable information stretches further than only a lack of

academic knowledge, it seems that this situation occurs due to a lack of “...expectations, appropriateness of behaviour and understanding of how various systems function”. In the information era in which we live, it is apparent that information is a prerequisite for participating in different cultural, socio-economical, and political processes. Adolescents with hearing loss appear to have different needs, problems, and background factors which influence their process of adaptation or coping in society.

The challenge of finding ways to facilitate social adjustment faces the adolescents with hearing loss as well as their teachers and media teachers. These professionals are regarded as the specialists in providing education that is tailored to the needs of young people with hearing loss and, in the spirit of South Africa’s current educational dispensation; it is incumbent upon them to support their colleagues in all schools that include adolescents with hearing loss. Based on this rationale, a statement of the problem can be formulated. Research is necessary to determine the extent of access and use of academic information by adolescents with hearing loss in special schools.

1.4 STATEMENT OF PROBLEM AND FINDING A SOLUTION

The central problem statement of this study is formulated against the framework of the preceding introduction and rationale. From the literature and from observation of society, it appears that adolescents with hearing loss do not have the ability to access and use academic information. It is possible that much of this can be attributed to the fact that they are not information literate – and furthermore that this phenomenon can be observed during their schooling years. The following research question can therefore be based on the preceding discussion: “*To what extent are adolescents with hearing loss in special schools able to access and use relevant information for academic purposes?*”

The study aims to determine the access and use of academic information by adolescents with hearing loss in special schools and subsequently to develop suggestions that strive to address these needs and provide support for teachers and

media teachers in special schools. In an attempt to answer the research question and to propose a solution, the study will consist of two parts, namely:

- A critical review of the existing literature on information literacy in general and the use of academic information by adolescents with hearing loss in special schools and
- a descriptive survey designed to investigate the quantitative and qualitative access and use of information by adolescents with hearing loss in special schools.

The survey is divided into Phases 1 and 2. Phase 1 aims to determine the access and use of academic information as perceived by the adolescents themselves, their teachers and media teachers. Questionnaires will be applied to determine the perception of the access and use of academic information. Phase 2 involves the direct assessment of access and use of academic information by adolescents with hearing loss and involves the process of how academic information is accessed and used in the media centre. This is observed by the researcher, noting what the pupil is doing while interacting with the print. The researcher takes note of the adolescents' skills in accessing and using the relevant information, the process they follow and whether they comprehend the assignment that is given to them in the media centre. The researcher makes notes according to a checklist.

1.5 OUTLINE OF CHAPTERS

A brief description of each of the chapters of the study follows.

CHAPTER 1: ORIENTATION AND STATEMENT OF THE PROBLEM

This chapter provides the rationale and statement of the problem of the study, the outline of the chapters, and the clarification of terms used in this study. The rationale for the study is discussed.

CHAPTER 2: INFORMATION LITERACY

In this chapter, information literacy is discussed. The types of information in everyday life are clarified and the various types and purpose of academic information described. The prerequisite skills for acquiring information literacy are described before the information literacy process is discussed. The characteristics of an information literate person are highlighted in order to emphasize why it is important to be information literate. Attention is given to the factors that influence information literacy such as personal, environmental, and physiological influences. The importance and role of the school media centre is described as well as information literacy programmes to be applied in the special schools. The chapter concludes with a summary.

CHAPTER 3: INFLUENCE OF HEARING LOSS ON THE ACQUISITION OF INFORMATION LITERACY

This chapter focuses on the influence of hearing loss on the acquisition of information literacy. The onset and identification of hearing loss and the intervention and role players in the life of the adolescent with hearing loss are described. The consequences of a congenital hearing loss are described in order to understand the impact of hearing loss on auditory processing and perception; communication, speech and language development; literacy, and academic achievement.

The chapter also describes the importance of educational placement with regard to inclusive education and the value of special education. Special attention is given to the influence of hearing loss on the development of academic literacy with regard to access and use of academic information. The barriers that adolescents experienced to develop academic literacy are discussed. The Information literacy skills of adolescents with hearing loss are discussed keeping in mind the advantages for the adolescent with hearing loss as well as the development of information literacy programmes. The South African context and teacher training gives some insight of the situation as it reflects the diversity of the adolescent population of the country.

CHAPTER 4: METHODOLOGY

This chapter describes the empirical study. The research design for the current study stemmed from the research problem or question, increasing the validity of the research findings, because it focused on the logic of the research done through systematic and objective gathering of information from a representative sample. Ethical clearance was obtained from the Research Committee of the Faculty of Humanities at the University of Pretoria. Ethical considerations were maintained in that informed consent was obtained from participants. Furthermore the researcher guaranteed confidentiality, ensured that no harm would be done to participants, and avoided all violation of privacy. The chapter provides a description of the research aims, research design, selection procedures, equipment and materials. The justification for and management of a pilot study are explained. The characteristics of participants and the procedures for data collection are discussed in detail, and the compilation of questionnaires expounded. The chapter is concluded with the data analysis and statistical procedures that were used.

CHAPTER 5: RESULTS AND DISCUSSION

This chapter presents an overview and discussion of the results obtained according to the various sub-goals of the study. There are four sub-goals. Sub-goal 1 was to determine the participants' perception of their own ability to find academic information. Sub-goal 2 related to the perception of the teachers with regard to the ability of adolescents with hearing loss to use and access academic information, while sub-goal 3 aimed to determine the perception of the media teachers with regard to the adolescent with hearing loss's ability to use and access academic information. Sub-goal 4 determined and described the *quantity* and *quality* of work rendered by selected adolescents during the execution of an assignment in the media center. Subsequently, the integration and discussion of the results are presented. The chapter ends with a conclusion.

CHAPTER 6: CONCLUSION AND RECOMMENDATIONS

The final chapter contains the conclusions and recommendations of the study and a critical evaluation of the study is provided. Recommendations are made regarding further research possibilities. The recommendation of the researcher mainly concerns the implementation of an information literacy programme. The recommendations are based on the vision and aims of the special school, the roles of the various role players such as the audiologists, teachers and media teachers. The development of an information literacy programme for adolescents with hearing loss in the media centre is described with its aims, implementation, principles and ways to promote it. The interaction with academic resources is accentuated and the relevance of higher as well as lower-order ability skills is described.

The chapter proceeds with a critical evaluation of the study where the limitations of the study are discussed and its value is highlighted. The contribution of the study is described with regard to its educational value on national and provincial level as well as for the Department of Education and the relevant role players.

Recommendations for further research are given and the chapter ends with a conclusion.

1.6 CLARIFICATION OF KEY TERMS

It is necessary to clarify the following terms in order to facilitate the issues of the study and to avoid misunderstanding:

Table 1.1: Clarification of Key terms

TERM	CLARIFICATION
Ability	Ability concerns “the basic capacity to carry out a behaviour” (Killen, 2007:13).
Academic information	This is the information that an adolescent needs in school in order to be able to do homework as opposed to information needed for sport, hobbies and activities.
Adolescent	A young person who has undergone puberty but who has not reached full maturity; a teenager (Answers.com, 2009).
Barriers to learning	Factors that prevent adolescents from accessing education provision. These factors can be located within the adolescent, the centre of learning, the education system or in the broader social, economic and political context (Department of Education, 2003:131).
Books	Can be a published work of literature, science, or reference, or a work intended for publication (MSN. Encarta, 2009).
Deafness	A hearing loss that is so severe that the child is impaired in processing linguistic information through hearing, with or without amplification (Deafness and Hearing loss, 2009).
Dewey Decimal Classification	The DDC attempts to organize all knowledge into ten main classes. The ten main classes are each further subdivided into ten divisions, and each division into ten sections, giving ten main classes, 100 divisions and 1000 sections. DDC's advantage in using decimals for its categories allows it to be both purely numerical and infinitely hierarchical. It also uses some aspects of a faceted classification scheme, combining elements from different parts of the structure to construct a number representing the subject content (often combining two subject elements with linking numbers and geographical and temporal elements) and form of an item rather than drawing upon a list containing each class and its meaning (Wikipedia, the free encyclopaedia, 2009).
Hearing loss	Hearing loss is generically used to describe a “wide range of hearing losses” including deafness and is defined by IDEA (The Individuals with Disabilities Education Act) as “an impairment in hearing, whether permanent or fluctuating, that adversely affects a child’s educational performance” (Deafness and Hearing loss, 2009).
Inclusive education	“Inclusion is about recognising and respecting the differences among all learners and building on the similarities” (Department of Education, 2001:17).
Information	Information is the process of communication or reception of



TERM	CLARIFICATION
	facts or ideas; knowledge that is obtained from investigation, study or instruction” (Longman’s New Universal Dictionary, 1982:508).
Information education	Is a process of acquiring “...knowledge of, attitudes towards and skills in information, as a major determinant of the way in which people exploit reality, develop, live, work and communicate in an information society” (Boon, 1990:2)
Information literacy	According to Lenox & Walker (1993:192), information literacy is “a person’s ability to access and understand a variety of information resources. It is also a set of abilities requiring individuals to “recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information” (Avery, 2003:279). It forms the basis for life-long learning.
Information literacy programme	A specific programme with the purpose to provide adolescents with the “knowledge and skills to excel in their studies, their teaching, and their lifelong learning pursuits” (Shinew & Walter, 2003:47).
Information literacy skills	The ability to “retrieve, obtain, assess and organize information relevant to one’s needs that is vital skills in today’s information society” (Drake, 2005:82).
Information literate society	Such a society has “theoretical knowledge, scientific decision-making and problem-solving skills and depends on accurate and reliable information. They acknowledge the existence of a well-developed infrastructure for the production, distribution, retrieval and use of information” (Fouché, 1982:41 & Martin, 1988:40).
Knowledge	Knowledge is born “of literacy, continuous self-education through reading and study, learning and action, observation and experience” (Keown, in Weissel, 1998:625).
Media library skills	Focuses on helping students “understand how to use specific resources” e.g. how to use an encyclopaedia, a poetry index, and the online catalogue as well as the Dewey Decimal Classification (Taylor, 2006:6).
Outcomes	Outcomes refer to results in terms of students learning, development and performance (Drake, 2005:364).
Outcomes-based education	Implies “focusing and organizing everything in an educational system around what is essential for all students to be able to do successfully at the end of their learning experiences. This means starting with a clear picture of what is important for students to be able to do, then organizing the curriculum, instruction, and assessment to make sure this learning

TERM	CLARIFICATION
	ultimately happens" (Spady, 1994:1).
Outcomes-based material (OBE material)	Refers to curriculum-based outcomes, hand-outs, posters, assignment materials, newspaper articles, brochures in order to reach specific outcomes (Spady, lecture at University of Pretoria, 2005).
Participant	Refers to the adolescent/teacher/media teacher taking part in the study
Quality of academic material	How useful the information is (Longman Dictionary of Contemporary English Advanced Learner's Dictionary, 2009).Determines the "usefulness" and the insight of the material (Avery, 2003:269).
School books	Are applied for the 'teaching of children' in schools (Merriam-Webster Online Search, 2009).
Signing	It is the use of "language to communicate to or between people who cannot hear well" (Longman Dictionary of Contemporary English - Advanced Learner's Dictionary, 2009).
Special needs education	Refers to a special school that has specialised skills available among its staff and has developed learning materials to specifically assist learners with ...impairments and "learners with disabilities and impairments" (Education White Paper 6, 2001:21 & 7).
Special school	The place or institution where young people with special needs are educated (Education White Paper 6, 2001:21 & 7); the place or programme where an environment is created for learning that maximized the language acquisition processes of children with hearing loss (Northern & Downs, 2002: 344).

1.7 CONCLUSION

In reviewing the literature, the aspect of access and use of academic information by adolescents with hearing loss is clarified. Teachers at special schools face unique challenges and therefore require support from their respective schools and the Department of Education with regard to media centres at special schools. A need for research becomes evident in order to determine to what extent schools and the

Department of Education provide support to teachers of adolescents with hearing loss. Through research one can better understand the problems and approach solutions by planning and implementing programmes that improve retention and academic success and decrease failure rate for deaf students. This study aims to determine the access and use of academic information in special schools by students with hearing loss.

The study is of educational value. It will provide insight on national and provincial level regarding the access and use of academic information by adolescents with hearing loss in special schools. The topic fills a void in the literature and will be published in a scholarly journal (De Vos, 1998:61). The Department of Education will benefit from the study, due to the lack of sufficient information regarding the aspect of information access and use by adolescents with hearing loss. Teachers and media teachers at special schools will also benefit from the study seeing that it will give insight into needs and benefits of academic information amongst adolescent with hearing loss. The study will assist in the selection of teaching methods to improve the access and use of academic information to pave the way to tertiary or post-secondary education.

On national level the study will be of intrinsic value, due to exchange of further information and research to be undertaken on how to improve future access and use of academic information in special schools. The study will also lead to awareness of the importance of academic information amongst people with hearing loss. Successful access and use to academic information will lead to a productive human resource in South Africa.

1.8 SUMMARY AND CONCLUSION OF CHAPTER 1

In the introductory chapter, the importance of an information society is accentuated as well as the importance of access and use of academic information. The value of literacy and the importance of academic information for young people is the fact that in combination they lead to better career opportunities. The rationale describes the value of information skills for academic achievement. It shows that lack of access

and use to academic information leads to fewer career opportunities and low academic achievement. The problem statement of the research study was discussed. A brief discussion of the chapters was presented and the demarcation and terms were clarified. A conclusion as well as a summary was provided at the end of the chapter.

CHAPTER TWO

INFORMATION LITERACY

2.1 INTRODUCTION

The era of information is progressing at a tremendous speed, with both the volume of new information and the pace at which it accrues presenting several challenges to people with information needs. Individuals are faced with a wide diversity of information choices (SALIS, MSSW & UNESCO Workshop Proceedings and Workshop Report, 2006:64). Every community consists of different types of people with different information needs. Society needs information for intellectual, economical, social, financial, political, and cultural reasons (Freebody & Welch, 1993:11). The need for information arises from daily activities in all aspects of community life such as housing, transport, educational services, community services, health and social services, and labour. At one stage or another in their lives, all people express the need for “...information, recreation, enculturation and self-actualization” (Fouché, 1982:41).

The concept *information literacy* is explained as follows in the Final Report of the American Media Centre Association Presidential Committee on Information Literacy (ALA, 1989:1): “to be information literate, a person should be able to recognize when information is needed and be able to locate, evaluate and use effectively the needed information”. Information literacy can lead to more successful pursuit of careers, life quality, goal achievements, and to future success in life. It will also lead to lifelong learning, the ability to think critically, and to problem-solving (Bundy, 2004:4-5 & Joyce, 2006:33-36).

Martin (1988:40) described an information literate society as “...a society which is characterized by the use of theoretical knowledge, scientific decision-making and problem-solving, dependence on accurate and reliable information, and the existence of a well-developed infrastructure for the production, distribution, retrieval and use of information”. To function well in an information literate society,

individuals need to develop information literacy skills in order to access and use information efficiently. Foster (1993:344-345) made the statement that for a person to be part of an information literate society he or she should be able to recognize when information is needed and to locate, evaluate, and use the needed information effectively. Ultimately, information-literate people are those who have learned how to learn. They know how to learn, because they know how knowledge is organized, also how to find information and how to use information in such a way that others can learn from them. This knowledge and these abilities relate to information literacy skills.

Dickenson (2006:23-27) stressed the fact that a century ago our society underwent a transformation from a farming community to an industrial one, because the world moved from an economy based on manufacturing to one that is based on information. Communities faced a “global” economy influenced by electronic communication, and an increasing amount of information that was made available to all people. Owusu-Ansah (2003:220-221) indicated that in the print society “...literacy is the ability to read and write, and through this to be a fully participating member of a democratic society”. With the arrival of the information era, characterised by access to and the use of modern academic information technology and the globalisation of economic processes, the emphasis has shifted from literacy to information literacy.

The present-day information age is typified by computer networks, telecommunication systems and databases. Faced with this profusion of potential information, users have to be aware of what is available, when to use it and how to find out about it. It is important to note that *information* does not only imply the printed word, but other communication sources such as the visual, media, computer, network, and basic literacies as well (Owusu-Ansah, 2003:221).

Information is the source of all education. Information is both the resource for and the product of organizations in the information era, and cultivation of information is the primary task for both the individual and the community. Information literacy, or the individual’s ability to develop skills to access and use academic information, is

therefore regarded as a vital competence. Information literacy involves media literacy, information literacy programmes, computer literacy and thought skills (Behrens, 1990:353). From a media teacher's perspective, an information literate student is seen as a student who can organize a research strategy and then identify, locate, access, and evaluate the relevant information.

To have *information* is to be able to state a fact, but using *information* to solve a problem is a process of inquiry. The adolescent with hearing loss must be motivated by the use of the *information*, not the finding of it (Dickenson, 2006:23-27). Information literacy skills should be integrated with the school's curriculum, as well as be reinforced inside and outside the educational setting of a child with hearing loss (Spitzer, Eisenberg & Lowe, 1998:73).

When communication occurs between people, information exchange can also occur. This communication typically relies on language and can involve a certain set of symbols and/or signs conveying a message. The message can be in written form, or an oral message, or a manual sign - "...any representation of facts concerning any subject or object, which representation is perceptible or may be transformed into a perceptible form" (Geldenhuys, 1994:1).

According to Gregory (In Woolsey, Harrison & Gardner, 2004:263-279), information literacy demonstrates a person's ability to access, evaluate, and use information effectively. Access skills refer to print-related skills (e.g. word identification, knowledge of the language of print) and use skills refer to interpretation skills that adolescents use to perform tasks such as answering questions, making inferences and offering generalizations. Access is similar to word identification or decoding skills and interpretation is similar to comprehension skills (Paul, 2009:375).

Academic information refers to the material resources that a pupil needs in order to successfully complete homework, assignments, projects or research. This differs from information needed for sport, hobbies and other activities. Academic information expands the adolescent's range of knowledge and can generally be found in the media centre at school. The different material resources that can be

found in a school media centre can consist of schoolbooks, non-fiction publications, magazines, newspapers, encyclopaedias, dictionaries, outcomes-based material and educational videos. There can also be computers in the media centre with Internet that the adolescent with hearing loss can access and use.

Information is therefore not only acquired via visual (written) media, it can also be conveyed orally (radio, television), as well as technologically (computers). As Lenox and Walker (1993:4-5) remarked: "...whether information comes from the computer, a book, a government agency, a film, a conversation, a poster, or any number of other possible sources, inherent in the concept of information literacy is the ability to dissect and understand what you see on the page or the television screen, on posters, pictures, and other images, as well as what you hear".

2.2 TYPES OF INFORMATION IN EVERYDAY LIFE

There are different types of information that people use in everyday or professional life. Information can be found in libraries, community resources, special interest organizations, media, and on the Internet. This information increasingly comes to individuals in unfiltered formats, raising questions about its authenticity, validity, and reliability. Information is also available through multiple media (graphics, video, and sound in addition to formatted text). All these qualities as well as the quantity of information pose challenges for information users, and demand the ability to use information effectively (SALIS, MSSW & UNESCO Workshop Proceedings and Workshop Report, 2006:64).

Information can consist of factual information that is made up of facts and refer to sources such as dictionaries, almanacs, atlases, directories, government documents) or analytical interpretation of facts, and are found also in sources such as books, periodical articles, and governmental documents) (*Getting Started - Types of Information Sources*, 2006).

Objective information provides a sense of the whole subject and topic and typically appears in sources such as encyclopaedias and textbooks, while subjective

information reflects opinions and personal viewpoints and may give assistance in evaluating a subject. Subjective information typically appears in sources such as books and periodical articles (*Getting Started - Types of Information Sources*, 2006).

Primary information appears in its original form with little or no annotation or editorial modification, e.g. manuscripts, interviews, newspaper accounts, literary work and diaries. Secondary information examines, analyses, or interprets primary information. Secondary sources range from articles criticising a painting or novel, to interpretations of scientific research (*Getting Started - Types of Information Sources*, 2006).

Spitzer *et al.*, (1998:23) described the different types of information as "...printed words, illustrations, photographs, charts, graphs, tables, multimedia, sound recordings, computer graphics or animation". As stated previously, information should therefore not only be connected to the printed word, but to other literacies as well, such as visual, media, computer, and network literacy, which are briefly described below.

Visual literacy is the ability to "...understand and use images, including the ability to think, learn, and express oneself in terms of images" (Spitzer *et al.*, 1998:23). Visual symbols are used to express ideas and to convey certain messages. Visual communication can also be conveyed by using a camera or a computer graphics programme.

Media literacy refers to a person's ability "to access, analyze, and produce information for specific outcomes" (Spitzer *et al.*, 1998:24). Media sources involve using television, motion pictures, radio, newspapers, and magazines. It is widely accepted that media literacy can help to create ideas, reinforce and modify a person's values and attitudes, and help to shape people's expectations that could lead to certain actions.

Computer literacy refers to a computer as a tool that can facilitate and extend a person's ability to learn and process information, for example when using electronic

mail and/or presentation software (Spitzer *et al.*, 1998:25). Network literacy is similar to and related to computer literacy. It involves to using the World Wide Web, and in order to use it a person needs to be computer literate. The components of computer literacy include recognising the existence of global network resources and services, understanding how the system works, and how information is generated, managed, and made available to everyone.

To be information literate is to be able to use all kinds of information and to apply information literacy skills, strategies and tools, combining retrieved information with other resources. Network literacy can help a person to resolve work related problems and improve a person's quality of life (Spitzer *et al.*, 1998:25). A person who is competent in network literacy will have the advantage of applying networked information to his/her problem solving needs, and performing his/her basic life activities (Spitzer *et al.*, 1998: 25-26). Visual, media, computer, and network literacies relate directly to information literacy, and overlap and interpenetrate each other.

Behrens (2000:5-7) provides an analysis of printed information. She identifies three forms of reference sources, namely:

- Hard copy, which refers to information that is printed on paper, for example books and newspapers that are accessed manually. Pages are turned over manually and no special equipment is required in order to read.
- Microform, which refers to information that is photographically reduced, and that is stored as images in plastic form such as microfiche and microfilm and requires electro-mechanical equipment (readers) in order to be read. The information is read on the screen of the reader; and
- Electronic information, which refers to a computer that stores information and converts it to electrical impulses that are recognized by the computer. The electronic impulses represent numbers or characters, and are referred to as data. A computer is able to write the data on a variety of storage devices such as disks, floppies, flash disks, and CD-ROMs, all of

which form part of the computer system that one uses. Computers can also be linked to a network via the Internet.

It is evident that the type of information determines the type of access. If the information source is in hard copy or microform, it can be accessed manually. However, if the information source is electronic, one can use online searching to access such information (Behrens, 2000:9). Libraries play a vital role in storing information of all types and formats. The information should be organized in such a manner that it is accessible for retrieval.

The school media centre, which should make information accessible to adolescents including those with hearing loss, should optimally be organized in such a manner that it is accessible for retrieval of information in all types of formats. For this purpose, a media centre uses bibliographic control methods, such as a catalogue that lists all the information sources found in the media centre. A special school's media centre should also be able to access other libraries or the Internet (Behrens, 2000:11).

2.3 PREREQUISITE SKILLS FOR ACQUIRING INFORMATION LITERACY

There are several skills that a person needs in order to acquire information literacy skills for the information literacy process. According to Hart (1978:34), social, cognitive, and emotional development needs to take place. Cognitive or intellectual skills relate to sensory abilities, perception, comprehension skills, communication and language abilities, attention span, memory, problem solving skills and decision-making skills, abilities demonstrated through intelligence quotient and judgment skills, as well as the ability to apply newly acquired knowledge. All of these skills and abilities are basic to the learning skills that enable individuals to acquire information literacy skills. A number of the relevant skills are discussed in more detail below.

2.3.1 Auditory processing skills

One of the factors that play a role in the information literacy process is the auditory processing process. Perception is a cognitive process that supplies information from the moment that a person senses and observes something and forms an abstract thought or opinion. A hearing person appears to develop abstract ideas logically and instinctively, since language development is an important mediating tool for the development of thought processes. The adolescent with hearing loss finds it difficult to distinguish between subtle nuances in communication such as those conveyed by tone of voice or ambiguous word use, and often cannot make meaningful interpretations of auditory input (Hugo, 1987:7). **Figure 2.1** illustrates the auditory process from the stage of initial experiences up to the stage where total language ability develops, as will be discussed in Chapter 3.

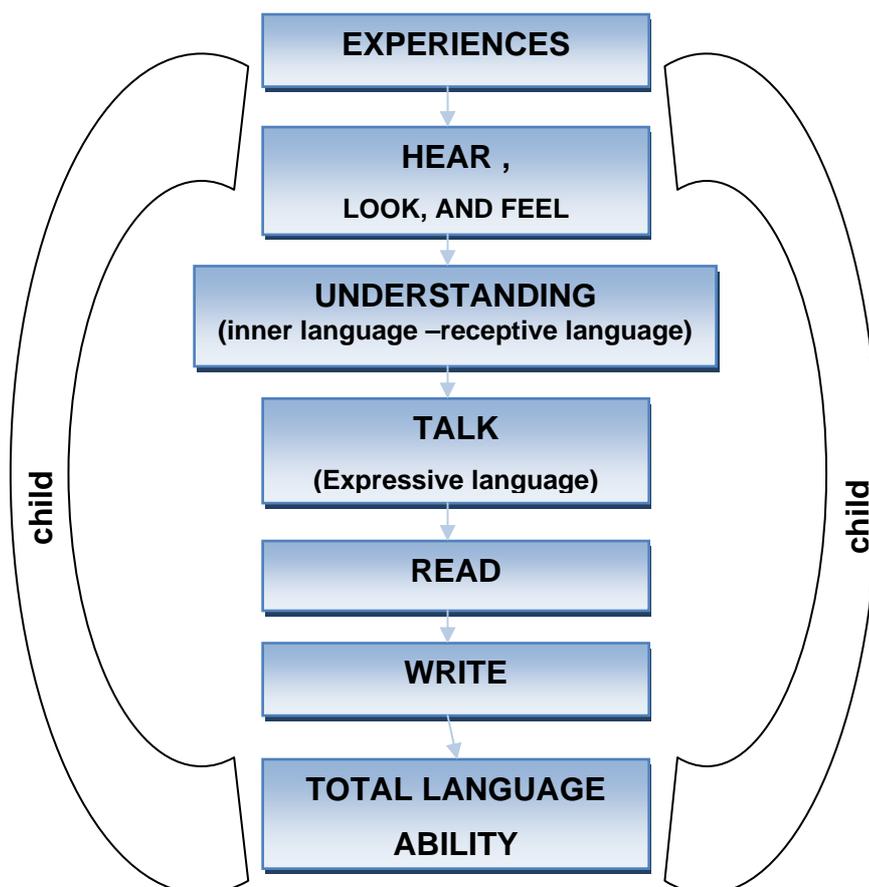


Figure 2.1: The communication and language process (adapted from Hugo, 1987:37)

From **Figure 2.1** one can observe that auditory processing starts from the stage where the child undergoes the sensory experience of hearing (together with looking and feeling), and progresses to understanding (which constitutes inner language and is dependent on receptive language). This underlies the expressive language that is manifested in reading and writing. The measure in which a child masters these abilities determines that child's total language ability.

The auditory processing skills are related to the oral language which appears to be acquired effortlessly by the hearing person (Katz, 2002:496 & 759) but not by the person with hearing loss. Sampson (1991:14) stressed that the process of reading should not be considered separate from the processes of writing, talking, thinking, and reasoning, as seen in **Figure 2.2**.

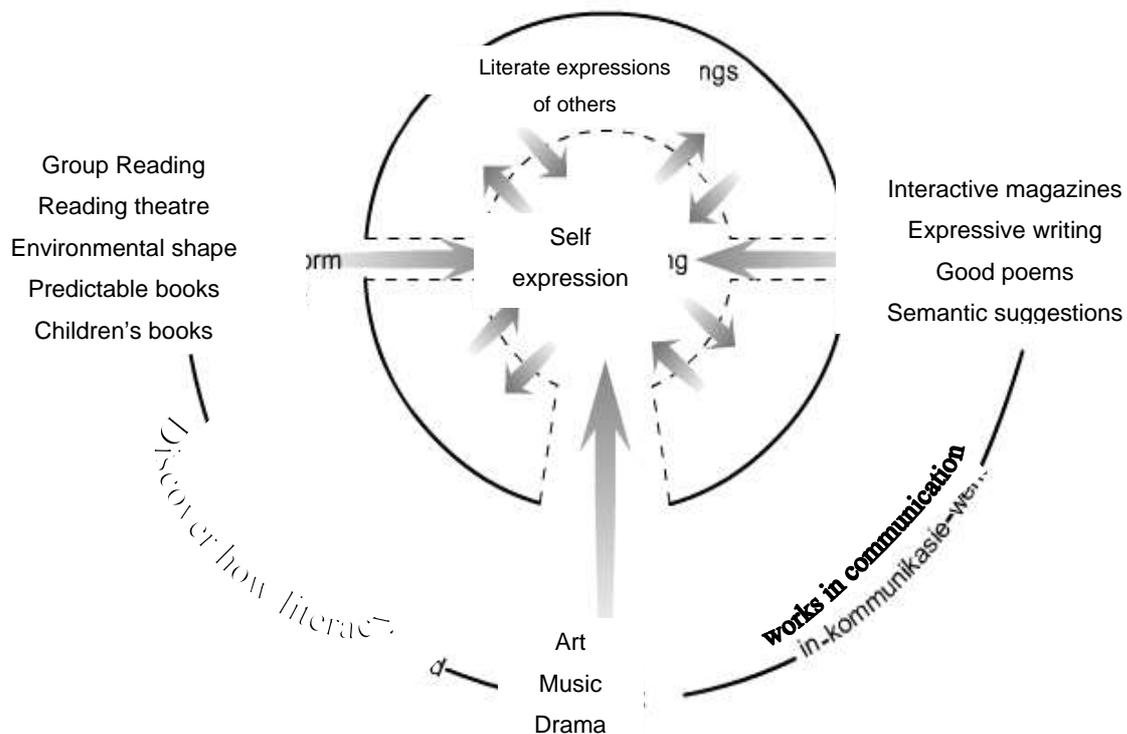


Figure 2.2: Communication process in relation to literacy (adapted from Sampson, 1991:14)

Figure 2.2 shows the communication process in relation to the process of literacy – a person first has to express him/herself in art, music and/or drama, as well as in written form such as reading, theatre, books and children's books. Information skills such as the appreciation of interactive journals, good poetry and semantic

presentations develop from literacy skills. This implies, however, that there is to be a constant interaction between the processes of writing, talking, reading, and reasoning.

2.3.2 Sensory observation

Sensory abilities refers to the senses of touch, hearing, and seeing, whereas perception is a cognitive process that supplies information from the moment that one feels/hears/sees things, observes, and forms a specific thought or opinion. It is apposite to discuss the process of *sensory observation* here, as it is underlying to the language process and therefore a prerequisite for information literacy.

Sensory observation relates to the ability to communicate with other people and to process information. If a person has poor sensory observation skills, it can delay the processing of information. Sensory observation has an influence on the development of language.

It is often assumed that children born with limited sensory abilities will not learn language normally or adequately (Carey & Gelman, 1991: 294), but recent findings have indicated that those children can and do master language. In order to interpret these findings meaningfully, it is necessary to distinguish between *abilities* and *skills*. A person may have the basic *ability* to hear or see, but may not have developed the *skills* to utilize the ability *fully*. On the other hand, a person may have limited *ability* (e.g. hearing ability), but can develop excellent *skills* in working with the measure of ability that he does have. A child with limited sensory abilities may have good sensory perception skills and therefore be able to make full use of the measure of sensory ability that is present.

If a person does not possess sensory perception skills, it can delay the information process because this means information can not be transferred efficiently. A person needs to utilize all his/her available senses fully to be aware of what is going on the world because sensory inputs help the brain to process information.

2.3.3 Cognitive and intellectual development

Cognition refers to a person's intellectual abilities that enable him/her to communicate, solve problems, achieve academic progress, and to be able to learn. Cognitive development is linked to a person's experience, background and frame of reference, i.e. the ability to learn from experiences and how to apply the knowledge gained from them. If the child with hearing loss experiences problems with cognition, it will lead to reading and academic problems. Although there is much research regarding differences between children with hearing impairment and their hearing peers, there is a definite lack of research regarding the effect of cognitive delays on the academic achievement of children with hearing loss (Morris & Blatt, 1986:321-322). The reason is that it is very difficult to interpret the results when tests of cognitive ability are administered to adolescents with hearing loss.

Comprehension and knowledge strategies are very important elements that play a role in a person's ability to access and use academic information. *Comprehension skills* rely on strategic thought processes. Comprehension strategies may be influenced by the reason why a person reads, whether for relaxation or for acquiring information. Cooper (1993:5) holds the opinion that comprehension skills are very difficult to learn and are linked to a frame of reference or prior knowledge. This also implies that if a person has come in contact with things in a specific situation, that context will support understanding, whereas a person who has not yet had personal experience will find no help from the context (Coetzee, 1977:51). An experience-based frame of reference supports language performance and enables the person to express the associated thoughts/concepts in words.

Cognitive and intellectual skills are therefore linked to more aspects than a person's ability to communicate, to solve problems in order to achieve academically, and to learn. Cognition and intellect are also linked to a person's past experiences, background, and frame of reference. *Intelligence* is usually considered to refer to a person's ability to understand the world with all the problems connected to it. It is linked to perceptual, language and numeric skills. Intelligence implies that one is

able to solve problems, whereas intelligence quotient reflects one's level of intelligence as measured by specific tasks.

A child's potential in the area of intelligence is influenced by personal experiences, physical environment, values and acquired knowledge. It is linked to perception, language, and numerical capabilities. The Intelligence quotient (IQ) refers to the demonstrated ability to solve a specifically selected set of problems, and is used to determine a person's level of expected academic performance, whereas intelligence refers to the ability to solve problems in general. The adult level of intelligence is usually determined at the age of 16 years (Louw, 1991:11-12).

An IQ, in effect, tells you what your score is on a particular intelligence test, compared to your age group. The test has a mean score of 100 points and a standard deviation of 15 points. This means that 68 percent of the population scores (obtains an IQ score) within the interval 85 to 115, and that 95 percent of the population scores within the interval 70 to 130 (*The Intelligence Quotient (IQ). The first intelligence tests used in the field of psychology*, 2008).

Cognition skills are necessary to form a realistic internalized reproduction of a text. Cooper (1993:13) emphasizes the fact that a reader should be able to link that which he/she is reading to familiar experiences: "...the meaning that the reader constructs or assigns does not come from the printed page; it comes from the reader's own experiences that are triggered or activated by the ideas the author presents". Smith (2006:764-773) concluded that cognition levels and processes are involved in becoming information literate, and in this connection discussed aspects such as knowledge, comprehension, application, analysis, synthesis and evaluation regarding a person's ability to access and use academic information.

2.3.4 Speech, language and communication

Parents facilitate their child's language development from birth (Schirmer, 1994:19). Bader (in Hull, 1998:121) pointed out that a child's language development should be

seen in the light of the environment and in particular the learning environment of his/her early childhood years.

Figure 2.3 indicates that the language environment can be influenced by a person's religious or spiritual environment. Adherence to particular principles can help a child to develop certain strategy applications that he/she can utilize to handle situations/problems (Sampson, 1991:311).

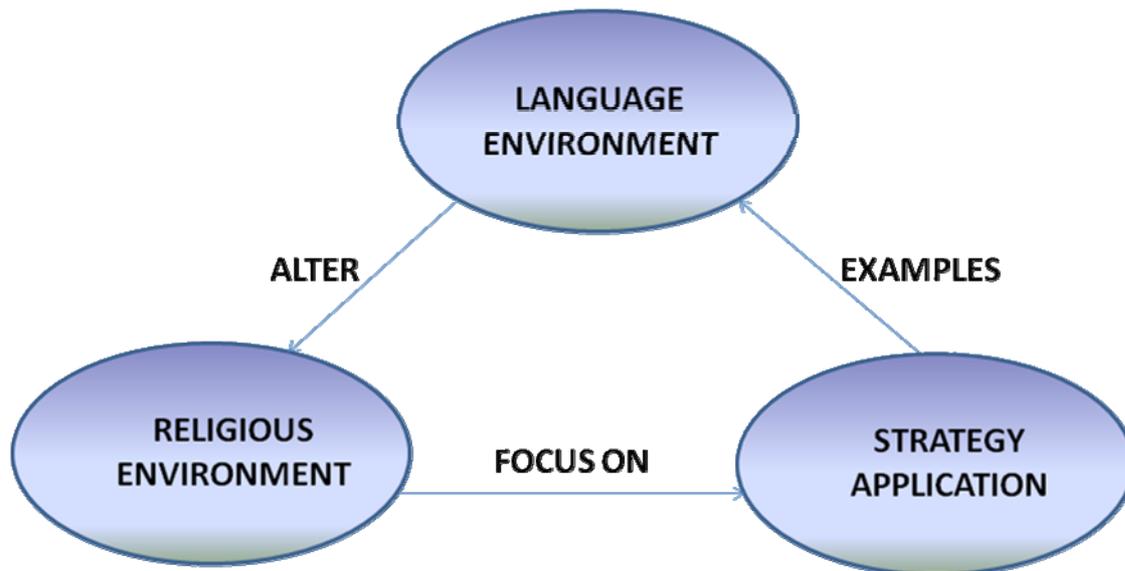


Figure 2.3: Socio-psychological linguistic viewpoint of the language process (adapted from Sampson, 1991:311)

The complexity of language acquisition has been studied since early times, among others by Psammetichus I, a Pharaoh of ancient Egypt (Schirmer, 1994:4). In the 1990's it was studied in a systematic manner with relation to the development of syntax and semantics. Highfield (1999:8) made the statement that long before a baby produces his/her first word, he/she "has an ear for" the language of his/her home. The development of hearing-for-language demonstrates the extraordinary importance of this crucial ability. At one month or less, the infant is able to discriminate different phonemes. At the age of 4 ½ months, a baby can recognise an uncompleted sentence and at 7 ½ months a baby can distinguish between the various phoneme sequences (words) of a language (Owens, 2001:151-153).

Language development is a prerequisite for the development of information literacy skills. Language and communication are linked to information literacy, which in turn

is linked to certain values, systems of knowledge and a set of skills to access and use information (King & Quigley, 1985:59). *Communication* is the transfer of information, whereas *speech* concerns the way people talk and the transfer of words. *Language* is a system of rules for using sounds, symbols and words to communicate meanings, ideas, and thoughts. Spoken and written language and communication are complex processes that rely on decoding skills regarding the "...higher order cognitive, metacognitive, and linguistic skills, such as interference, syntax, and semantics, as well as lower order decoding skills and letter and word recognition" (King & Quigley, 1985:xi-xii). Language ability cannot be disassociated from reading comprehension.

Language problems lead to reading problems and can prevent a child from scholastic achievement. Encoding and decoding of written language (literacy skills) are related to the development of spoken language. Encoding and decoding skills determine the ability to read and understand, and are therefore significant areas to be tested or evaluated; however, this is an intricate and difficult process (Foster, 1993:245; Hugo, 1987:86; Moores, 1996:171, 286). The complexity of language development becomes apparent when one considers the wide diversity of aspects related to spoken and written language:

- the analysis and decoding processes involved in language comprehension (King & Quigley, 1985:xiii)'
- the ability to skim written symbols quickly in order to read or decode graphic symbols fluently (Cooper, 1993:15);
- phonemic synthesis ability that is closely associated with the ability to articulate, spell, and perceive language (Katz, 2002:517);
- text analysis to link main and subordinate ideas with one another;
- text evaluation to understand and appreciate the style, clarity, and coherence of both narrative and expository texts (Cooper, 1993:14);
- integration of information from different sources, and in the case of written language, juxtaposition of texts to confirm comprehension;

- tangentially related comprehension skills such as interpreting diagrams, understanding chronological order, etc. (Human Sciences Research Council, 1989:55 & Cooper, 1993:12-14);
- vocabulary for various areas of interpersonal and academic language use, as well as awareness of vocabulary strengths and deficits;
- factors that can influence the development of a positive attitude towards reading (Coetzee, 1977:8).

Schirmer (1994:6) emphasized the link between language acquisition and cognitive development. Highfield (1999: 8) confirmed this and mentioned that failure at school level often indicates a poor or incomplete mastering of language due to low level of intelligence, physical handicaps, hearing loss, and/or incomplete education. Having a language base helps a person to develop certain strategies involved in learning to read. This has an impact on information literacy and proves that it is important for each school to develop the language base of every child "...whatever language a child has developed" (Cooper, 1993:10). It is clear that certain language limitations lead to problems with regard to writing and reading (Highfield, 1999:8).

2.3.5 Reading and writing skills

Cognitive development influences the ability to make inferences, integrate information in a text, understand the story structure, and monitor understanding. General or procedural knowledge plays a role regarding reading comprehension processes (Garrison, Long & Dowaliby, 1997:78-94). Adolescents differ in their ability to comprehend text (Glazer, 2007:70). Research has shown that both single word reading skills and the ability to construct integrated text representations contribute to overall reading ability (Oakhill & Cain, 2000:51).

Reading comprehension problems can stem from poor decoding skills, poor linguistic competence, or a combination of both. Decoding refers to word recognition, linguistic competencies to one's ability to extract semantic information from words and to derive sentence and discourse meaning. Reading comprehension begins with the processing of print. Word identification causes difficulties for the child with

hearing loss, because letters in the alphabetic script represents the phonological form of the word. This grapheme-phoneme correlation presupposes access to phonological information, which is obstructed because speech sounds are not heard properly by the child with hearing loss. Speech identification is dependent upon the incomplete information derived from speech reading (Wauters, 2005:2).

Cooper (1993:10-11) refers to “schemata” as the structures that “...represent the generic concepts stored in our memory”. Reading and literacy play a role in the cognitive adaptive capabilities of the person and one should not underestimate the power of the written word. The environment where a person lives exerts a significant influence on literacy. The cognitive skills that are required (King & Quigley, 1985: xiii) to become information literate can be seen in **Table 2.1** (Eissenberg & Berkovitz, 1990:12) and this table also indicates the link between information literacy processes and cognitive skills. **Table 2.1** corresponds to **Figure 2.1**, which depicts the information literacy process (California media and Media Centre Educators Association, 1994:5).

Table 2.1: Information literary processes and cognitive skills (Eissenberg & Berkovitz, 1990:12).

INFORMATION LITERACY PROCESS	COGNITIVE SKILLS
Identifying the formation need	Knowledge
Explaining the relationship between information sources and the approach to finding a solution	Understanding
Choosing relevant information from different options	Application
Investigating elements and analyzing the relationship between the information sources	Analysis
Restructuring and organising the information	Synthesis
Evaluating information in relation to specific information needs	Evaluation

Table 2.1 indicates that each aspect of the information literacy process is linked to cognitive skills. It should be stressed, however, that the steps mentioned in **Table 2.1** are not necessarily followed in that fixed order. It will depend on a specific

situation that develops because of a specific need, as well as on the student who investigates the problem (Eissenberg & Berkovitz, 1990:13). Cognitive skills such as those involved in acquiring knowledge and understanding, as well as skills in application, analysis, synthesis and evaluation are therefore very important in the process of becoming information literate.

2.4 INFORMATION LITERACY SKILLS AND PROCESS

Eissenberg (in Van der Walt, 1992:39) refers to the “big six information skills” as prerequisites to becoming information literate. These specific information literacy skills refer to the abilities to:

- access academic information efficiently;
- evaluate it;
- use it effectively, critically, competently, accurately, and creatively;
- be an independent learner, to pursue academic information related information, as well as information with regard to personal interests;
- appreciate literature and other creative expressions of academic information;
and
- strive for excellence in academic information seeking and knowledge generation.

A student should therefore be able to define his/her information needs, know where to find the relevant information, evaluate it, access it cognitively, interpret it sensibly and know how to apply and communicate it effectively (Van der Walt, 1992:39; Boekhorst, 1999:57-68). Brake (1980:1) summed it up as “...the location, retrieval, selection, organization, evaluation and communication of information”.

Information literacy complements literacy in that it refers to the ability of adolescents with hearing loss to access, use and evaluate information from different sources, to enhance learning, solve problems and generate new knowledge (Sayed & De Jager, 1997:12). Information literacy is in effect part of literacy and assists in the development of academic literacy skills. Dickenson (2006:23-27) stressed that

information literacy skills support curriculum based inquiry, and help to cultivate a learning process for students' daily lives. There are specific factors that influence the information literacy process. By acquiring *information literacy skills* and *participating* in a *special education information programme* (as will be discussed later), an adolescent with hearing loss will be able to access and use academic information in the same way as his/her hearing peers. Information literacy skills are acquired through an information literacy process.

The process of an information literacy programme is described by the California Media and Media centre Educators Association (CMLEA), 1994:5) in 11 steps as depicted in **Figure 2.4**.

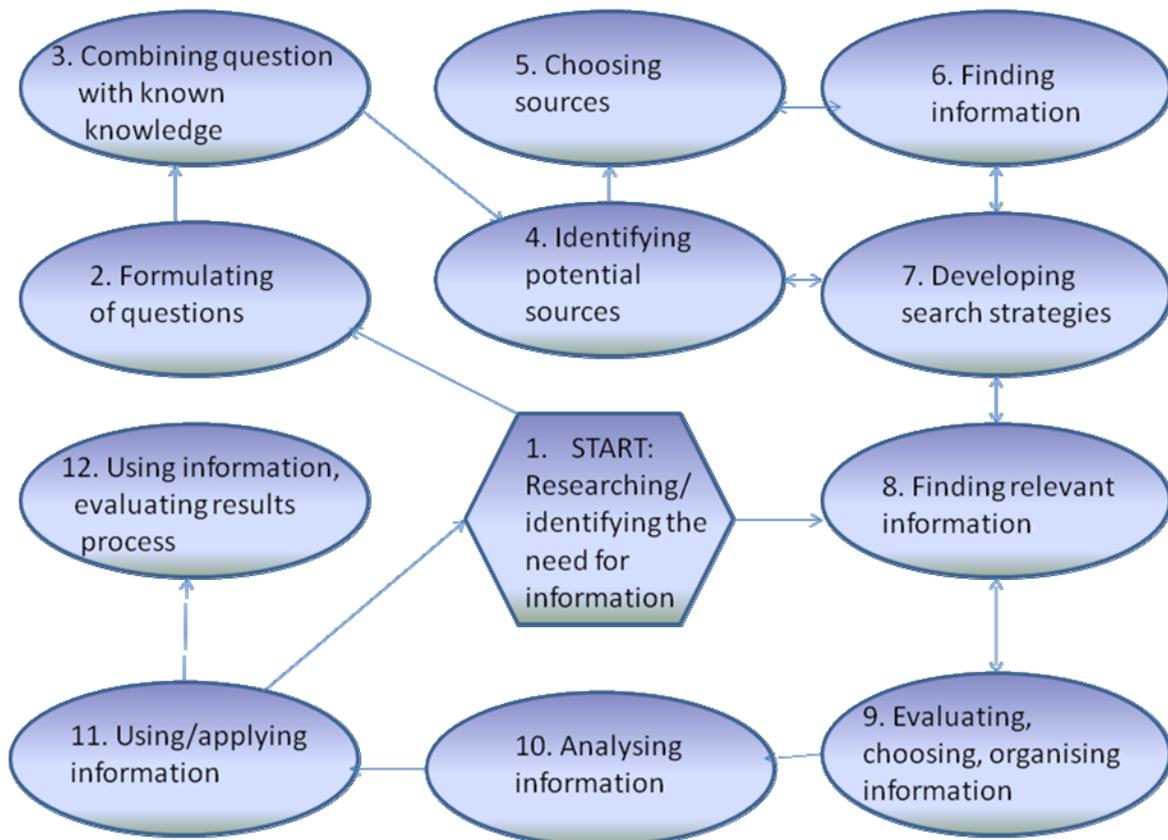


Figure 2.4: The information literacy process (adapted from California Media and Media centre Educators Association (CMLEA), 1994:5).

Figure 2.4 describes how an information literate person starts to look for information, formulates the question in a proper manner, and combines it with his/her background

knowledge. This question leads him/her to identify relevant information sources and select the right sources according to learned search strategies. Then he/she will be able to find the relevant source, evaluate and analyse it, and apply it to his/her need. An information literate person should be able to ask the following questions:

- Can I find information regarding the specific topic?
- Am I able to evaluate the sources?
- Is it possible to establish the author of the sources?
- Can I determine whether the publisher of the information source is reputable?
- Will I know how to determine if the information is correct?
- Can I determine if there are any biases in the information presented?
- Am I able to determine whether the information is up to date?
- Is it possible for me to determine whether the style of the writing is suitable for my needs?
- Do I know how the information sources are arranged in the media centre? Is it logical and should I use the catalogue or computer?
- Will I be able to determine whether a computer is needed to access and use the information and do I know how to access and use a computer?
- If some of the options are not viable, will I be able to determine if there are other alternatives available? (Behrens, 2000:5).

These questions show that a person applying information literacy skills should pay attention to the selection of information sources, determine if the process that was followed was logical, and appraise how the information was organised. If a person can succeed in this, he/she will be able to reach his/her goal.

Figure 2.4 indicates the relationship of the language process to other processes. In the 1970's William Godwin (in Pumfrey, 1991:1) gave a striking description of the value of reading: "...he that loves reading has everything within his reach. He has but to desire and he may possess himself of every species of wisdom to judge and power to perform". Human beings are not born as readers, but a language base develops the thought processes that lead to the reading strategies as seen in **Figure 2.3**.

The reading process can be portrayed in the same way as the language process. Schirmer (1994:113) describes reading as a process of interaction between the reader and the text. Reading leads to the expansion of behavioural patterns and skills. Marschark (1997:136) refers to reading skills as "...the ability to distinguish arbitrary marks on a background, whether stone, paper, or computer screen". According to Neyhuss and Austin (1978:319), the hearing person acquires complex behavioural patterns that occur automatically. This statement refers to a language foundation based on auditory processing skills that are intertwined with higher-order cognitive processing skills (Katz, 2002:496), as well as visual patterns.

If a person is capable of developing his/her language and literacy skills, it can lead to information literacy, as well as academic literacy, which leads to *critical thinking* and *problem-solving skills*. Such a person will be able to apply his/her newly acquired *knowledge* to various practices. In fact, the USA's Department of Labour regards information literacy as one of the five main skills that all workers should possess (Information Power: *Information: Building Partnerships for Learning*, 1998).

Harrison, Simpson and Stuart (1984:1) indicated that the information literacy process leads to self-improvement, and pointed out: "Almost everybody today aspires to higher standards of living, longer lives, and fewer health problems, education for themselves and their children that will increase their earning capability and leave them more in control of their lives; a measure of stability and tranquillity; and the opportunity to do the things that give them pleasure and satisfaction".

2.5 THE INFORMATION LITERATE PERSON

Information literate people are those who have learned how to learn, because they know how knowledge is organised, are able to find information, and can apply it in such a way that other people can learn from them. They are prepared to become life-long learners because they are always able to find the necessary or relevant information for any task or decision (Doyle, 1992:2).

Mokhtar and Majid (2006:35-36) and Dickenson (2006:23-27) gave an explanation of competencies and indicators of information literacy that are used in developing teaching programmes, but that also demonstrate the advantages of information literacy, as seen in Table 2.2.



Table 2.2: Teaching information literacy for in-depth knowledge (adapted from Mokhtar& Majid, 2006:35-36 & Dickenson, 2006:23-27).

COMPETENCIES OF INFORMATION LITERACY	INDICATORS OF INFORMATION LITERACY
1. Learners will be able to recognize the nature and extent of information	i Will be able to define and articulate his/her need for information
	ii Will be able to identify the variety of information sources
	iii Will understand the purpose, scope and appropriateness of a variety of information sources
	iv Will know and take into consideration the costs and benefits of obtaining the needed information
2. Learners will learn to access the information effectively and efficiently	i. Will be able to select appropriate methods or information retrieval system for finding relevant information for his/her need
	ii Will construct and use well-planned search strategies
	iii Will be able to retrieve information using a variety of methods
3. Learners will be able to evaluate information and its sources critically and competently, and be able to incorporate selected information for their own knowledge base	i. Will be able to assess the information that he/she obtained
	ii Will be able to summarize the main ideas extracted from the information
	iii Will articulate and apply criteria for evaluating the information and sources
	iv Will validate understanding and interpretation of the information with other learners
	v. Will determine if it is necessary to revise the initial query
4. Learners will strive for excellence in their information-seeking efforts to expand their knowledge base	i. Will be able to understand bias and authority issues when he/she obtains the information
	ii. Will be able to distinguish between accurate and inaccurate, reliable and unreliable information



COMPETENCIES OF INFORMATION LITERACY	INDICATORS OF INFORMATION LITERACY
	iii. Will feel encouraged to seek and revise new search strategies and methods until he/she feels the information is enough or adequate
5. Learners will learn to use information appropriately and creatively	i. Will generate main ideas to construct new concepts ii. Will learn how to compare new information to prior information he/she acquired to determine its value, confirm contradictions and other specific or unique characteristics iii. Will then be able to apply new and prior information to the planning and construction of his/her new knowledge or product iv. Will reassess and revise the development process for the new knowledge or product v. Will then communicate the new knowledge or product effectively to other people who can benefit from it
6. Learners will now be able to understand many of the legal, economic and social issues surrounding the use of information and have learnt ethical and legal access and use of information	i. Will adhere to laws, regulations, institutional policies and etiquette related to the access and use of information sources
	ii. Will also acknowledge information sources when communicating the new knowledge or product that they generated iii. The learners will honour and acknowledge the ownership of information
7. Finally, the learners will be able to contribute positively to the learning community and the society and will have learnt the	i. The learner will now be able to recognise and respects different opinions in discussions, as well as all forms of printed and non-printed information sources



COMPETENCIES OF INFORMATION LITERACY	INDICATORS OF INFORMATION LITERACY
importance of information in everyday life and participate effectively in groups to pursue and generate information	ii. Will be encouraged to proactively seek to understand different perspectives to form informed opinion iii. The learners will share knowledge and collaborate with others to generate new ideas or products that can benefit the learning community and society where they live.

It is evident from **Table 2.2** that information literacy programmes can develop certain competencies that will learners to fully benefit from all information resources.

Thinking is more than just the ability to identify and connect two facts. Identification simply creates a moment disconnected from purpose. Recognition requires that one either remembers or intends to use the item in some process with which one is currently occupied. The difference between learning and mere recitation is the insertion of self-interest. Interest, as Dewey (1944:126) defined it, is "the engrossment of self in an object". Emotion, instead of preventing the thinking process, gives impetus to the problematic situation that keeps the thinking process alive. As Dewey (1944:145) noted, "thinking, in other words, is the intentional endeavour to discover specific connections between something that we do and the consequences that result, so that the two become continuous". True learning comes as meaning connects certain actions with responses that initiate other actions.

The *independent learning* category does not imply that learning is devoid of interaction with others. In fact, quite the contrary, Dewey argued that interaction is necessary to provide context. He noted that what individuals think about facts changes when they form associations. Facts are now viewed for the effect that they can have on others, as Dewey noted in his well-known publication *The Public and Its Problems* (1954). This work made it clear that collective groups are still composed of individuals. This collection of individuals, arriving at learning experiences and contexts of knowledge, must be aware of all learning experiences. Marschark (2003) applies Dewey's ideas to some of the information literacy standards, and in this way elaborates on the characteristics of the information literate person.

Weiss (2004:13-15) also examined the qualities of an information literate person, and the following skills can be added to those described in **Table 2.2**. An information literate person:

- can retrieve information from a variety of media;
- is able to decode information in a variety of forms, statistical and graphical;
- uses computer-based services for goal-orientated learning tasks;

- is able to analyze, write, present, and communicate such information to create the necessary knowledge and insight and
- Uses information technologies to create or use networks of co-learners in the pursuit of knowledge and to share information.

In addition to the aforementioned aspects, an information literate person will know how to formulate questions based on information needs, to develop successful search strategies, to assess the different sources of information, to organise information for practical application, and to integrate and use it for critical thinking and problem-solving in life. When an information literate person identifies his/her information needs, he/she will realize the value of information.

Cavaleri (2005:378-39) recognizes five *dimensions of thought processes or learning* of the information literate person. These thought processes are:

- attitudes and perception regarding learning processes;
- acquisition, understanding and integration of knowledge;
- expansion and refining of knowledge;
- meaningful use of knowledge and
- Productive thoughts.

The term *productive thoughts* refers to a person's ability to put assembled information back into the information cycle as input for further information activities of the person him/herself or other users (Behrens, 1992:3). If all these skills are mastered, such a person will be regarded as an *information literate person* in his/her environment. This will enable a person to face the demands of the information knowledge era.

Information literate people are therefore classified as people who have learned to learn. They know how to learn because they know how knowledge is organized, how to find information and how to access and use academic information in such a way that others can learn from them (Foster, 1993:344-345).

An information literate person who is able to access and use academic information is also able to distinguish between factual and analytical, as well as between objective and subjective information. Such a person knows the difference between *primary* (encyclopaedias, dictionaries) and *secondary* information (comments, reviews etc) and is aware of all the different information sources. An information literate person can also determine the amount and quality of information that is needed for specific purposes, and know whether the information is recent and of value for these purposes.

Based on the foregoing discussion, it is clear that an information literate person can access information. This implies that he/she recognizes the relevant information and knows that it is the basis for intelligent informed decision-making; is able to formulate questions based on his/her information needs and is able to develop appropriate search strategies; and is a competent reader. Such a person can also evaluate information, that is, establish authority; determine the accuracy and relevance of the information; recognize different viewpoints; distinguish between different factual points of knowledge; and create new information to replace inaccurate or even missing information when needed. Finally, an information literate person can use information (organize it for practical application; integrate new information into an existing body of knowledge; and apply academic information in critical thinking and problem solving) (Doyle, 1992:2).

The attainment of information literacy is especially important in the school environment. An information literate learner is able to know that he/she needs information, can define a problem; can ask the right question, knows how to answer it and to provide a solution; can find the relevant information, organise it and knows how to apply it to find a solution. These qualities will provide a solid foundation in a learning environment such as a school.

Information literacy skills will lead adolescents with hearing loss to become independent and learning-centred. Learners will take responsibility for their own learning skills and competencies, thereby becoming dynamic learners and thinkers who are able to be creative, analytical and efficient. They will be able to find the best

current information that they need to help them to do their work more efficiently. If adolescents with hearing loss are information literate, they will be able to keep up with the increasing amount of information that they encounter.

Truax, Foo and Whitesell (2004:321) expressed their belief that each child with a hearing loss has the unique ability to reach his/her potential if parents and professionals provide the necessary home and school activities and/or environment to help him/her to develop as a productive member of society. The information process is therefore associated with the development of an individual in totality and leads to improvement in human well-being.

Most people aspire to higher standards of living, a longer life, fewer health problems, and education for themselves and their children that will increase their earning capacity and leave them in greater control of their lives; give them a measure of stability and tranquillity; and the opportunity to do the things that give them pleasure and satisfaction (Harrison, Simpson & Stuart, 1984:1). One of the keys to all of these achievements for the adolescent with hearing loss is the ability to access and use academic information.

Information literacy is therefore essential "... to a citizenry to prepare to participate in the political decision making that affects their lives" (Lenox & Walker, 1993:316). It is also central to the economic development and growth both of the individual and the company or country. Information literacy leads to self-discovery and is the pathway to knowledge and a meaningful role in society.

2.6 OTHER FACTORS THAT INFLUENCE INFORMATION LITERACY

There are several factors that influence the acquisition of information literacy. These factors include personal influences, environmental factors, physiological influences, the nature and functioning of school media centres, and information literacy programmes.

2.6.1 Personal influences

Personal development, growth, age, personality traits, habits, intelligence, self-concepts, values, attitudes, decision-making, and aims for the future all impact significantly on the development of any skill (Louw, 1991:17). Personal influences such as cognition, values, emotions, judgments, and personal aims determine how the totality of a person develops and serve as the foundation of a person's ability to become information literate. Personality traits may have some bearing on how motivation, interest, training and background will influence a person's capability to work with (i.e. access and use) information in all forms (Louw, 1991:13).

Motivation encourages a person to complete things or projects, and interest directs a person to learn more or do more regarding a topic and this will influence academic achievement (Killen, 2007:41). Training and background involve the environment that contributes towards the formation of cognitive and intellectual skills.

Personal influences are linked to emotional feelings. Any person can experience negative feelings such as feelings of rejection; however, the inability to understand abstract concepts such as death, loss, and sympathy can also cause negative feelings. The comprehension of these abstract concepts usually poses few problems to hearing people. They develop an understanding logically and instinctively. Abstract meanings are brought to the foreground through language skills where they can be analyzed, understood and applied (Marx, 2000:66). People with hearing loss may experience problems with abstract concepts. This can have an impact on information processing, as information sources can contain abstract concepts that people with hearing loss may find hard to grasp.

2.6.2 Environmental factors

Environmental factors influence cognitive development. The most significant of these influences is socialization, which can take place within the family, associations, school events, work and group culture (Louw, 1991:17). Other environmental influences are

people that one meets, such as friends and relatives; communication media such as television, radio, and reading material; and visual influences such as culture and art. All of these play significant roles because they are all sources of information, whether direct or indirect, and they add to a person's level of information literacy (Louw, 1991:25). An unstable environment can prevent a person from becoming information literate, but it should be kept in mind that people differ from one another in how they react to environmental influences. Chapter 3 (section 3.7.9) will indicate how environmental factors influence adolescents with hearing loss.

Environmental factors also refer to social interactions between a mother and her child, interpersonal contact between people, behavioural traits of people, moral development, and sexual development (Louw, 1991:13). Where poor relationships exist between people, it can obstruct or slow down cognitive and intellectual development, because of poor stimulation. Louw (1991:29) indicates that environmental experiences can influence all aspects of one's life, and it is apparent that negative experiences can exert a negative influence. Although parents and teachers typically wish to avoid such consequences as far as possible, the characteristics of adolescence are often instrumental in the vulnerability of this age group. The maturational changes in the brain contribute to age-specific behaviour (Spear, 2000:417). The age related behaviours commonly seen in most adolescents reflect their need to attain independence. Definitive characteristics include eating and sleeping behaviours, but also reactions to perceived negative reactions to their self-perceived best efforts. Immature brain physiology is one of the main reasons why adolescents have poor judgement, especially with respect to emotional signals from others (Preston, 2004: 36). This can have an effect on the adolescent's cognitive and intellectual development, including his/her literacy development. The implication seems to be that there is a significant burden on media teachers to provide appropriate psychological as well as intellectual support if hearing impaired adolescents are to attach a positive connotation to literacy activities.

2.6.3 Role of school media centres

Effective media centres are essential if adolescent with hearing loss at school are to become information literate. Because schools vary in their mission and cater for a variety of pupils, an information literacy programme should be designed according to the specific needs of the pupils instead of following a prescribed set of criteria (Boon, 1992:40). An information literacy programme should bear the curriculum in mind, because it links or ties information literacy to all the students' experiences (Snaveley & Cooper, 1997:53-62). Information literacy instruction is highly effective when offered in context with content-based courses and assignments (Jacobson & Mark, 2000:256-279).

With so many resources available, students now have more ways than ever to find information on how to do their schoolwork and projects and to add to their daily knowledge base. Students should be placed at the centre of the curriculum and be encouraged to use a variety of information resources for the information they need. Students should be able to find these sources at the media centre. Media teachers need to work together with other teachers in students' day-to-day lessons (AASL, 2000:40).

Teachers should seek the expertise of their school media teacher or specialist as partners in the curriculum planning process. This is necessary to provide pupils with the best possible education. Students have to be encouraged to develop media skills to cope in a complex world with an ever increasing wealth of available information from which they have to construct their own meaning. Adolescents with hearing loss also need to make informed choices regarding academic information sources and how to access them. For these reasons, teachers and media teachers need to receive training and acquire the necessary expertise to assist adolescents with hearing loss to access and use academic information in the media centre (Gross & Kientz, 1999:21-25).

It has been reported that pupils' academic achievement improved when media teachers spent more time collaborating with teachers, provided training to teachers,

made input to curricula, and managed information technology for schools (Russell, 2005). Collaboration between adolescents with hearing loss, media teachers and other teachers implies shared goals, shared vision, and a climate of trust and respect (Muronago & Harada, 1999:9-14). Callison (1999:38-40) remarked that collaboration is only visible or attainable after many years of training; it cannot be achieved in a short time. In fact, it could take from two to five years (Haycock, 1999:28).

Collaboration between teachers and media centres involves an understanding of the strengths, weaknesses, attitudes and interests of the pupils. The media teacher adds the understanding of information resources, the training of information literacy skills, and methods to integrate the use of these skills with the content to be learned (Doiron & Davies, 1998:20). The lack of time in school is, however, a serious constraint, as the media centre is not always open at convenient times (Bishop & Larimer, 1999:15-20).

According to Mancall, Aaron and Walker (1986:18-27), the role of the school media centre is to apply a media programme to help pupils develop thinking skills. This programme should take into account the existing research on how children process ideas and information, and assist them with the development of an information skills programme in all curriculum areas. Apart from the lack of time to access and use academic information at school for assignment or relaxation purposes, financial costs could impact on the resources that are available in the media centre. Another constraint is a lack of qualified teachers.

In spite of these obstacles, there are benefits to be derived from using a media centre. Murray (2002b:6) noted benefits that contribute to the development of students' self-image and confidence to achieve academically, which accrue from working in the media centre. They are the following:

- finding opportunities for teamwork or collaboration with other students;
- gaining independence;
- achieving success;
- working in a friendly learning environment;

- experiencing a challenge in the learning environment and
- experiencing a feeling of personal value or acceptance.

Fuhler *et al.* (2006:647) argue that if the media teacher is committed to instructing adolescents with hearing loss how to access and use academic information, these adolescents with hearing loss will be able to acquire the following information literacy skills:

- to apply cognitive strategies for making sense of text;
- to form questions related to their topic of search;
- to survey and summarize information;
- to apply metacognitive strategies;
- to monitor comprehension;
- to display motivation for learning;
- to be knowledge-driven and
- to take part in social interaction.

Media teachers facilitate the development of pupils from a stage where the teacher assists the pupil, to a stage where the pupil is able to work independently, drawing from a vast amount of information sources. Working independently will enable pupils to develop into citizens who play a vital role in society. Independence involves the processes of decision-making, knowing where and how to establish a business, and recognizing deception and disinformation. Pupils who work successfully in a media centre will learn to appreciate the power of information, knowing that information can be applied to address problems and answer questions in their lives and lead them to become lifelong learners (Nassimbeni & May, 2006: 12-21; Bundy, 2004:4-6). This means that through resource-based learning, students will assume more responsibility for locating the materials from which to learn. This learning approach develops lifelong learning skills, because students will learn from the same sources that they will use in their daily lives such as books, newspapers, databases, documents, topic matters, and others.

Information source skills across the curriculum in all subject areas or topics should begin in the earliest grades. This requires collaboration between the school departments, the provinces, and the school principal to integrate media centre instruction into the curriculum, and to promote collaboration between content teachers and the media teacher (Rader 1995:13). It is clear that there is a need for media centres at schools. Information literacy can be achieved through information literacy programmes, as described in 2.6.4.

The task of implementing information literacy programmes is the responsibility of the *media teacher*, in collaboration with content teachers. At school it is the content teachers who promote a literacy culture. They can make adolescents with hearing loss aware of information, cultivate a knowledge base and improve their knowledge, experience, and imagination (Truax, 1992:403). Teachers understand how language develops and which factors play a role in the development process, and they can promote the literacy process (Truax, 1992:404). In cooperation with media teachers they can improve information literacy, by devising questionnaires to determine the needs of pupils; giving presentations; establishing contact with the parents; storytelling; making posters; encouraging book clubs and giving vouchers to the child who reads more books than other children; cultivating and encouraging pupils' interest in reading; and using the television as aid in the media centre (Marx, 2000:76).

2.7 INFORMATION LITERACY PROGRAMMES

The main goal of information literacy programmes should be to cultivate lifelong learners. As discussed in the previous sections, media teachers have the primary responsibility of implementing information literacy programmes. Adolescents with hearing loss in schools need a life-long learning process that is learner-directed and that can lead them to acquire the necessary ability and skills to achieve contextualized, customized, transformative, collaborative learning and learning on time (Lepani, 1998).

Adolescents and adults who participate in information literacy programmes require a certain set of attitudes and skills to access and use information. Information literacy programmes are offered at primary, secondary and tertiary levels and have to be correlated with the school curriculum. Behrens (1990:353, 1992:3), Boon (1992:3), Marais (1992:75-79), Van der Walt (1992:39-46) and Veldsman (1994:46-65) all provide valuable information regarding information literacy programmes. They emphasize the important role of information literacy programmes in the successful achievement of skills of information literacy, and underscore the potential of information literacy programmes to play a vital role in developing the ability and necessary skills to manage information.

Gilton (1994:5) stressed that information literacy programmes stretch beyond a search through a catalogue or other reference material. In fact, information literacy programmes should not only refer to techniques, but should allow adolescents with hearing loss to gain an awareness of how information systems form a link between information needs, sources and the channels that are required to satisfy those needs (Darch, Karelse & Underwood, 1997:24). The reason for this is that students face a daily load of information resources. Information literacy programmes address multiple challenges involved in using information sources effectively and responsibly (Ku, Sheu, & Kuo, 2007:67-77). According to these researchers, information literacy programmes promote the “ability to locate, manage, critically evaluate, and use information for problem solving, research, decision-making and continued professional development”.

Learning in this regard has to take place in the school environment and preferably during task completion. Support should be directed at specific tasks and take into account the needs of the pupils of the particular school. The aim of an information literacy programme should be to encourage active continuous learning. It is clear that an optimal learning environment helps the adolescent to solve problems and teaches him/her to be innovative. This learning support should be available on demand at an adolescent with hearing loss' own pace.

Information literacy is the product of applying information literacy education programmes, which focus on information sources and systems and which cultivate skills that are necessary to manage information while also transferring values that result in the will to know more. The information literacy programme process can only occur if new information is generated and put back into the learning cycle. Information literacy programmes aim to facilitate the development of adolescents with hearing loss regarding their attitude to information, and to expand their knowledge of applicable information and systems. These programmes also aim to develop skills to locate and apply information with a focus on problem-solving skills and creative thinking skills, and to repackaging the new information in such a manner that it can lead to further development of individuals and communities.

The content of an information literacy programme should educate pupils about the value of academic information. The purpose of information literacy programmes should be to teach pupils the required information literacy skills, to inform him/her of the techniques and problems associated with it, and to provide pupils with all the techniques, methods and systems regarding the access, use, and application of academic information. An information literacy programme should also accommodate the students' growth in skills and understanding throughout their training years (Ku, Sheu & Kuo, 2007: 67-77).

An information literacy programme should aim to teach information literacy skills through the development of knowledge of existing information sources, observation of information, cognitive development, and analysis, correlation and synthesis of information. The purpose of information literacy programmes is to cultivate lifelong learning as a critical outcome of all learning that is acquired by information literacy skills (Nassimbeni & May, 2006: 12-21). It must be stressed that these skills cannot be transferred without knowledge content, which is a prerequisite because an information literacy programme is a support activity.

In an information literacy programme, adolescents with hearing loss should learn to access, use all kinds of academic sources or information by themselves, and be able to use multimedia sources when and where needed to complete a specific task or

assignment. Information literacy programmes should strive for lifelong learning that is aimed at the future. It should promote learning outcomes, adjust to all types of people and circumstances, stay abreast of the latest technological developments, and be based on information science and educational principles (Boon, 1992: 8). Different information literacy programmes can be presented in different formats for adolescent with hearing loss' participation. By participating, adolescents with hearing loss can learn to work on their own, encouraged by the media teacher (Lorenzen, 2005).

Participative activities can take the form of classroom discussion, assignments, storytelling, and teacher- driven questions. Active learning and teaching practice is an integrated part of instruction of information literacy programmes and depends on language acquisition, literacy, and learning, as well as all associated skills depending upon human interaction, facilitation, and encouragement (Planning for literacy instruction, 2003).

Active learning is one of the outcomes that the content teachers and media teachers should attempt to help adolescents with hearing loss to achieve, because it will help them to participate in class. To achieve academically, it is important for the child with hearing loss to identify word/sound distinctions. These auditory discrimination skills or auditory processing skills, which are intertwined with higher-order cognitive processing skills are associated with the development of academic competencies that are necessary for academic success in schools (Katz, 2002:496). A child needs to “hear” phonemic distinctions; otherwise, he/she is doomed to failure in reading and writing (Alpiner & McCarthy, 1993:178). The listener's ability to distinguish between individual phonemes in words relates to the speaker's intelligibility, whereas the listener's ability to detect the speech is related to the speaker's audibility.

In information literacy programmes, the adolescent with hearing loss has to become an active participant who has to learn to create his/her own knowledge after interacting with information from a variety of information sources. This requires frequent opportunities to handle all kinds of information, as the processes of locating, interpreting, analyzing, synthesizing, evaluating, and communicating information

optimally should occur in every subject across the curriculum and topics (Spitzer *et al.*, 1998: 39).

Information literacy programmes need presenters. The presenters of an information literacy programme need to consider the design of the programme. Qualified presenters can present information literacy programmes that are best suited to the needs of their pupils and that focus on the lifelong learning process of pupils, providing that the programmes correlate with the curriculum of the adolescents with hearing loss at the particular schools. Teachers are faced with the challenge to teach information literacy programmes that require a shift in focus from teaching specific information resources to facilitating the development of a set of critical thinking skills involving the use of information.

2.8 SUMMARY AND CONCLUSION OF CHAPTER 2

Chapter 2 focused on information and information needs in society, the different types of printed information, and the skills that are required to acquire information literacy. The information literacy process was discussed, as well as the characteristics of the information literate person. The factors influencing information literacy were described. Information literacy programmes were described and presenters of information literacy programmes were characterized. The format of information literacy programmes and the advantages of information literacy for adolescents with hearing loss were presented.