

This learning material was produced by the Project Management Unit of the Namibia Training Authority, operating under the auspices of the Ministry of Education, Government of the Republic of Namibia.

Developed, published, printed and distributed by:



Namibia Training Authority.
Rand Street, Khomasdal
Windhoek
Namibia
Tel. +264 61 279550
Fax. + 264 61 279551
E-mail: info@nta.com.na
Website: www.nta.com.na

© 2006 Namibia Training Authority.

ICT Integration for Educators

USE ICTs FOR LEARNERS WITH SPECIAL NEEDS

This work is the copyright of Namibia Training Authority. It may be reproduced in whole or part for study and training purposes, subject to the inclusion of an acknowledgement of the source and provided it is not being used for commercial sale or use. Reproduction for purposes other than those indicated above requires the written permission of the Project Management Unit of the Namibia Training Authority.

The views expressed in this manual do not necessarily represent the views of the Ministry of Education, nor those of the Government of the Republic of Namibia.

Design and layout by Namibia Training Authority.

ISBN: *[DTP to insert nr.]*

Acknowledgement: The NTA gratefully acknowledges the support of Australian Training Products (Pty) Ltd and the Australian Department of Education, Science and Technology for granting permission to reproduce selected text and diagrams from its manuals. The NTA also gratefully acknowledges the support of NIED, Unam, Polytechnic, Microsoft, Schoolnet, GESCI and the ICT Steering Committee for the information provided for this training manual as well as associated materials.

July 2006

This learning material was produced by the Project Management Unit of the Namibia Training Authority, operating under the auspices of the Ministry of Education, Government of the Republic of Namibia.

Developed and published by:

Namibia Training Authority.
Rand Street, Khomasdal
Windhoek
Namibia
Tel. +264 61 279550
Fax. + 264 61 279551
E-mail: info@nta.com.na
Website: www.nta.com.na



© 2006 Namibia Training Authority.

Printed and distributed by:

Namibian College of Open
learning (NAMCOL)
Private Bag 15008
Katutura, Windhoek
Physical Address:
2030/1 Independence
Avenue,
Katutura, Windhoek
Telephone:
061 – 320 5111
Fax: 216 987
Namcol Bookshop – Tel. 061 – 320 5201
Fax: 320 5211



This work is Namibia Training Authority copyright. It may be reproduced in whole or part for study and training purposes, subject to the inclusion of an acknowledgement of the source and provided it is not being used for commercial sale or use. Reproduction for purposes other than those indicated above requires the written permission of the Project Management Unit of the Namibia Training Authority.

The views expressed in this manual do not necessarily represent the views of the Ministry of Education, nor those of the Government of the Republic of Namibia.

Design and layout by Namibia Training Authority.

ISBN: 99945-1-007-X

Acknowledgement: The NTA gratefully acknowledges the support of Australian Training Products (Pty) Ltd and the Australian Department of Education, Science and Technology for granting permission to reproduce selected text and diagrams from its manuals. The NTA also gratefully acknowledges the support of NIED, Unam, Polytechnic, Microsoft, Schoolnet, GESCI and the ICT Steering Committee for the information provided for this training manual as well as associated materials.

Contents

Prologue	4
Introduction	5
Section 1 : Apply ICTs to gather information on learning difficulties and special needs	
Introduction	10
What are learning difficulties and special needs?	11
Use ICTs to gather information on learning difficulties and special needs	17
Use ICTs to gain information on learning difficulties and special needs	22
Check your progress 1	29
Practical activity 1	31
Summary	32
Section 2 : Inclusive education through the use of ICT for learners with special needs and learning difficulties	
Introduction	34
What is inclusive education?	35
Principles of inclusive education	36
Barriers to inclusion of learners with special needs and learning difficulties	38
Use ICTs to reduce barriers to inclusion	40
Model and teach special needs diversity	52
Evaluate personal skills in using ICTs	54
Check your progress 2	55
Practical activity 2	57
Summary	59
List of figures	60
List of tables	61
Glossary	62
Answers to Check your progress	63
Bibliography	65

Prologue

Integrating information and communication technologies (ICTs) across the education sector is a complicated process. After learning many lessons from pilot ICTs in education projects and reviewing local and international experiences, the Namibian Ministry of Education (MOE) worked with partners across the education sector to develop the *ICT Policy for Education* in 2005 and the corresponding Implementation Plan in 2006.

These **ICT Integration for Educators** training manuals have been developed in response to the expectations in this Implementation Plan. It aims to address the changing roles that educators are experiencing to better meet the needs of the information society in which we live. In order to guide learners to translate information into knowledge, educators need to be equipped with many skills that surround the uses and applications of ICTs. To effectively use ICTs in education, educators need to consider all areas of their professional roles. ICT literacy skills are needed to operate a variety of applications and equipment. Also, educators need to be able to apply these skills in designing lessons, assessments and evaluations; engaging in continuous professional development; and using ICTs to support inclusion of all learners in teaching and learning. In all these areas, educators also need to meet the social, legal and ethical requirements of using ICTs in education.

ICTs can be used to enhance teaching and learning and will allow an educator to move from a more traditional educational setting to a role of facilitation and guidance. As educators acquire new skills, classroom practices will also experience change. These manuals will help educators prepare for the challenges ahead. Using ICTs to enhance teaching and learning fits well with Namibia's learner-centred philosophy and its basis in constructivism. With the learner participating in the learning process, ICTs can help learners take control of constructing their understanding, acquiring new skills and allow them to respond to their own learning styles. ICTs allow better communication, collaboration, information access and creative expression of ideas.

Integrating ICTs in teaching and learning allows the educator to shift the pedagogical approach towards a balance between teacher-led and learner-centred collaborative problem solving and critical thinking.

Introduction

Welcome to the training manual *Use ICTs for learners with special needs.*

The purpose of this manual is to give you the knowledge and skills to use ICTs to support and empower learners with special needs.

What is in this manual?

This training manual is divided into 2 sections:

- Section 1 Apply ICTs to gather information on learning difficulties and special needs
- Section 2 Inclusive education through the use of ICT for learners with special needs and learning difficulties.

Each section starts with an introduction and explains the skills you will learn. At the end of the section you will have an opportunity to check your progress by answering some questions.

Skills you will learn:

After you have completed this manual, you will be able to:

- apply ICTs to gather information on learning difficulties and special needs
- outline the procedures to apply inclusive education through the use of ICTs for learners with special needs and learning difficulties.

How to use this manual

Work through the manual from the beginning. You know that it is divided into 2 sections. It is a good idea to complete a whole section in one go if you can. At the beginning of the section you will find a list of *skills you will learn*. Read these carefully and return to them when you have completed your work. It is important that you do not move on until you have learned all the required skills.

Read each section carefully. You may come across new words which you do not know. These should be explained in the *glossary* at the end of the manual. You will learn many new technical terms as you progress through this manual and it is important that you learn them all well.

At the end of each section, you will find an opportunity to ‘*Check your progress*’. These questions have been carefully designed to help you to see how well you have understood and learned the topic. The answers are given at the end of the manual. You can choose to look at the answers before trying to complete the question yourself, if you want to. But the only person you will be cheating is yourself. No-one will take in your manual and mark it for you. You yourself must judge how well you are doing.

You may also find some practical activities. You will need to collect the required equipment and carry out these activities. Your instructor or supervisor will assist you.

At the end of each section, you will find a *Summary*. Again, you should read it carefully to review what you have learned. It is a good idea to check the *Skills you will learn* at the start of the section again and make sure you have achieved them all. If not, you may need to revise the section again.

What these symbols mean

Symbols are placed in the left hand margin to draw attention to the type of information at that point. The symbols used in this manual are:



Read



Demonstrate/discuss - sometimes your instructor will demonstrate / discuss the use of tools and equipment.



Check your progress - these are easy exercises to test your understanding of the theory you have learnt. Typical correct answers are provided at the back of the manual.



Practical activity - these activities help you to practise some of the theory you have learnt.



Learning activity - these activities help you to relate the knowledge and skills in the sections to your own work situation.



Remember/Take Note



Revise



Safety/Caution/Beware

SECTION

1

Apply ICTs to gather information on learning difficulties and special needs

Introduction

In this section of the training manual you will learn how to use ICT tools to access knowledge about learning difficulties and special needs.

You will explore various resources that are available for broadening your understanding of learning difficulties and special needs, and methods for accommodating these in teaching.

Further, you will learn how to go about tapping into these resources through the use of computers and other technologies.

Skills you will learn

By the end of this section, you will be able to:

- define learning difficulties and special needs
- describe the ways in which ICTs may be used to gather information on learning difficulties and special needs
- apply procedures for using ICTs to gain information about learning difficulties and special needs.

What are learning difficulties and special needs?

As an educator you may be confused by different terms such as 'disability', 'special needs' and 'learning difficulties' because they often get linked together. However, the terms have very different meanings.

Learning Difficulties

People with learning difficulties can be described as those people who experience challenges in their learning. This means that a person with a learning difficulty would have a significantly greater difficulty in learning than the majority of people of the same age.



There are many factors that can influence and contribute to these learning difficulties, such as:

- language barriers
- cultural barriers
- environmental disadvantages
- demographic (socio-economics)
- poor teaching practices.

These factors are all 'extrinsic' which means that they are external or 'outside' of the learner. It means that they can be remedied or fixed with appropriate attention, support and proper planning.

There are many different kinds of learning difficulties. Most often they fall into three broad categories that affect learning skill acquisition. These include:

- reading difficulties (often also referred to as dyslexia)
- written language difficulties (also often referred to as dysgraphia) and
- math difficulties (often called dyscalculia).

Other related categories include difficulties that affect memory, social skills and executive functions such as deciding to begin a task.

Common examples of learning difficulties is:

- dyslexia
- Attention Deficit and Hyperactivity Disorder (ADHD)

Sometimes it is difficult to pin down one area in which the learner has difficulty because the areas are all related; many aspects of speaking, listening, reading, writing and arithmetic overlap and build on the same brain capabilities. So, it is not surprising that people can be diagnosed as having more than one area of learning disability. For example, the ability to understand language underlies learning to speak. Therefore, any disorder that hinders the ability to understand language will also interfere with the development of speech, which in turn, hinders learning to read and write.

Special needs

The term 'special needs' is a broad term that refers to learners with disabilities and impairments, both physical and emotional. This includes learners who have visual, auditory (hearing) and/or intellectual disabilities.

In Namibia, the term can also refer to those from disadvantaged groups such as those learners who have been classified as OVC (Orphans and Vulnerable children) and the marginalised groups, such as the San and Ovahimba.



A person has a 'disability' if they have a physical or mental impairment which has a major and long term adverse effect on their ability to carry out normal day to day activities. This includes blindness, deafness, hard of hearing, and those with mental illnesses, epilepsy and severe disfigurements.

Recognising special needs and learning difficulties

As an educator, you may find yourself in a situation that requires you to try and help identify a learner's problems, possibly before a specialist has had a chance to identify or confirm them. Here is a list of tips to help you recognise learners with difficulties:

Hearing impairment (Deafness and hard of hearing)

Deaf learners communicate through sign language as their first language. Various approaches such as speech-reading, total communication, signed English, oral-manualism, auditory-verbal have been promoted in teaching and communicating with deaf learners.

Hard of Hearing learners can make use of their residual hearing through the use of hearing aids.

Some indicators of hearing problems:

- scratches the ears all the time
- experiences a lot of pain in the ear, may cry and the ear will look red
- puss or discharging ears
- recurrent throat infections or sore ears
- many coughs and colds
- does not concentrate on talking/singing
- tilts face to one side
- carefully and intently watches the face of speakers
- lack of attention or experiences behavioural difficulties
- poor academic performance (due to hearing problems)
- does not respond to any sound around him/ her
- unable to locate the source of sound accurately
- likes listening to very loud/noisy sound or sitting close to the TV set when the volume is adequate for others.

Some technological aids

Text telephone, Television Captioning, alert devices (for alarm, vibrators, flash light, etc.), hearing aids such as amplifying instruments (with or without FM system), computer-aided/assisted instruction, educational interpreter, etc. The sound proof classrooms is promoted in offering education to learners with hearing impairments.



A sound proof room/classroom can be really useful to avoid outside disturbances and movements. This can help learners with hearing impairments.

Visual impairment (Blindness and Low Vision)

Blind learners learn through the means of Braille writing and reading.

Learners with low vision have visual impairment but are not totally blind. They use magnifying tools, large print as means of communication, very often they are encouraged to maximally optimise the residual vision.

Some visual problems are farsightedness, nearsightedness, having a blurred vision, cataracts, glaucoma.

Some Indicators of visual problems

- rubs eye consistently
- squint or frowns
- tilts head to one side
- eyelids are often swollen, red-rimmed or encrusted, watery/teary
- eyes itch
- complains of not seeing well, dizziness, headaches
- experience blurred or double vision.

Some technological aids

Perkins Brailers, Braille notetakers, Braille Keyboarding, Speech access technology (software- screen access and hardware-synthesiser), Close-Circuit Television (CCTV)], magnifying technology with or without personal computer (PC) using magnifying soft and hardware, Optical Character Recognition (OCR) which converts/reads/scans ordinary print into an electronic form or synthetic voice, audio tape recorder, radio, touch screen computer.

The lighting in a classroom situation has to take into account the vision needs of the learner with visual impairment.

Learning disability

Learners with learning disabilities are known to have difficulties with developing and/or using mathematical, speaking, reading, writing, reasoning/comprehending abilities and organisational skills.

They also:

- experience difficulties in processes involving understanding or using spoken or written language
- have problems with sound or speech discrimination
- have difficulties with following directions
- have poor memory for letters and words
- makes errors when reading unfamiliar words aloud, cannot break a word into syllables, etc.
- writes awkwardly, omits words in sentences, spells poorly
- have difficulty with word problems
- does not move easily from one idea to another
- is inconsistent in thinking and makes illogical arguments
- display lack of self-confidence
- finds almost everything difficult and impossible
- her/his reasoning on different issues are always somehow muddled.

Some technological aids

Computers used with learners with learning disabilities and difficulties through Computer-Assisted/Aided Instruction.

This is an interactive teaching/learning between the learner and the computer. Various types of software suitable for teaching learners with learning disabilities such as simulation, peer programs, problem-solving games, etc. are available. The overall instruction of the learner with learning disability or difficulty can also be managed through the use of a computer through record keeping, data mining, testing, diagnostic and monitoring progress.

Severe disabilities

This category includes learners with mental disabilities, autism, dual sensory impairments and multiple disabilities.

Mental retardation

The social and academic behaviour of learners with mental retardation fall behind those of their peers (age-appropriate behaviour). Mental retardation varies in levels from moderate, severe to profound.

The varied level of impairment affects the way in which learners acquire knowledge and skills and also how they adapt to their environment. Often a mentally retarded learner would:

- need more help and may even need support all through her/his life
- find learning skills and making relationships more difficult than a child who is not intellectually impaired
- develop more slowly. The milestones such as smiling, sitting, crawling, walking, self feeding, toilet training and even talking, might appear much later than their peers without retardation.

However, the concept of inclusive education promotes inclusion of all - even if the only gain is social skills. Thus, the use of assistive and instructional technology is very much an integral part of teaching and learning social, functional academic and adaptive skills for this group of learners. The Augmentative Alternative Communication (AAC) can also be used.

Autism

Autism is a developmental disability which affects the child's social behaviour and communication abilities (verbal and non-verbal). The abilities of persons with autism are classified as either "functioning at or near a level of independence". Some may even function beyond these levels.

Some indicators of autism

- most tend not to show emotions
- seem to be living in their own world, isolated from the realities of the day
- does not sit still
- does not take kindly to rapid changes in routine/schedule
- rocks the body all the time
- chews nails and rubs eyes and/or ears all the time
- often aggressive and bumps the head against the wall
- does not want to follow instructions or carry out even short educational activities.

The use of Augmentative Alternative Communication, Assistive Technology and Instructional Technology is applied in teaching these learners functional, social and educational skills. Software is available depending on desired set outcomes and the individual needs of the learner with disabilities. Computers can be used in systematically teaching/learning required skills and knowledge.

Use ICTs to gather information on learning difficulties and special needs

The use of various ICTs can help you research information on specific learning difficulties and special needs in order to better cater for all learners. This section will discuss some of these resources, how they work and what benefits they can have on your teaching.

There are seven main ways for you as an educator to use ICTs to increase your knowledge about the learners with special needs and learning difficulties in your classrooms.

1. The Internet



Using the Internet for web research gives you not only the ability to search specific topics, but will provide you with a multitude of information. Using your web browser (such as Internet Explorer, Netscape Navigator or Mozilla Fire Fox), you can find a search engine (like Google, Yahoo, Alta Vista). Type your desired research topic into the search field. By selecting the “search” button, the search engine will search for your specified topic. Most likely, the Internet search will direct you to many articles and web sites associated with your topic.

Web research can often provide too much information. This can be avoided to some degree by making your search more specific. For example, rather than searching for “learning difficulties,” conduct the search on the specific disability, such as “dyslexia”. This type of search may still lead to many resources, but they will be better targeted to your area of interest.

2. Edsnet

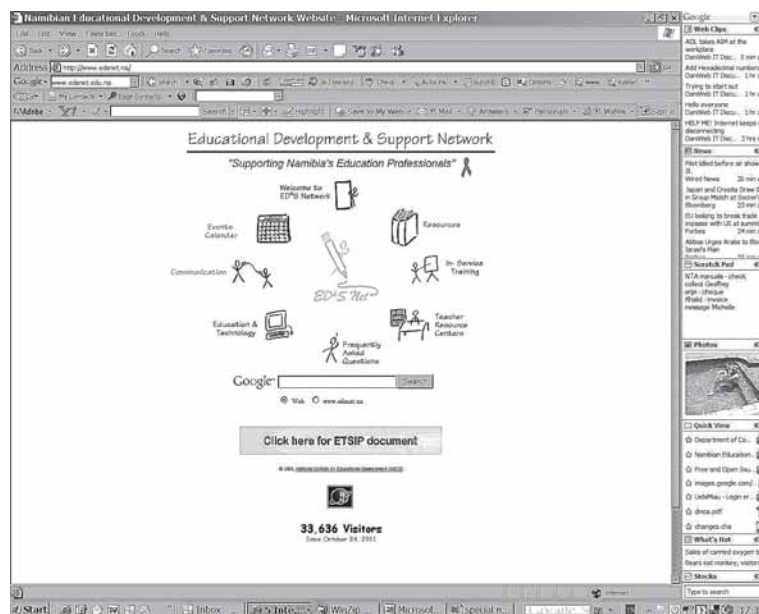


Figure 1: Edsnet homepage

The Namibian Institute for Educational Development (NIED) has created EdsNet, an online resource for educators. Using the Internet, you can search for EdsNet (or find it at <http://www.edsnet.na>) and can access a 'Compensatory Teaching Children with Special Needs' link under 'Resources'. Figure 1 shows the home page for edsnet, and figure 2 shows the link to follow for the compensatory teaching information



Figure 2: Compensatory teaching information link on edsnet

Here you will find various resources such as definitions, curricula, discussion boards, chat rooms, resource pages and contact details for Special Education personnel in Namibia.

3. Special Interest Groups (SIGs)



Figure 3: Example Special Interest Group on Accessibility

The Internet can also lead you to support sources such as special interest groups (SIGs). Special interest groups are groups that target one particular area such as the hearing or visually impaired. These groups often focus on eliminating discrimination and can serve as a resource centre with both written materials and field experts.

4. Discussion forums

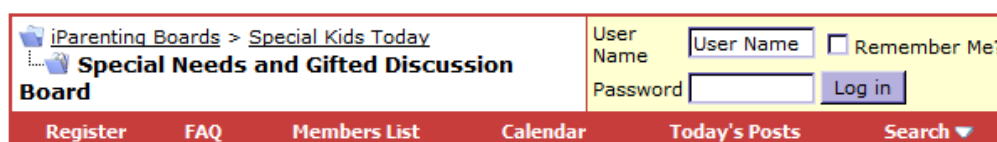


Figure 4: Example Discussion Board for special needs

Discussion forums allow users to post questions and comments online. These entries become a permanent part of the website. Other internet users have access to these comments and may add their own input related to the existing comments or questions. This allows for an ongoing discussion for individuals interested in similar topics. You can reference the forum page at your convenience to view additional comments and questions. Discussion forums and special interest groups may lead you into discussions with field experts. By engaging in “conversations” via email or discussion rooms, you can ask pointed questions to leading experts in your field of interest.

5. Educational software

Educational software has an immense amount of resources for educators. This means special cds or dvds or software packages that have specific educational content. They can be excellent resources, but you will need to search them out. This can be done (and ordered) on the Internet. Educational software not only gives you information about a specific topic, but can also assist with specific teaching methods and activities to be used in your classroom.

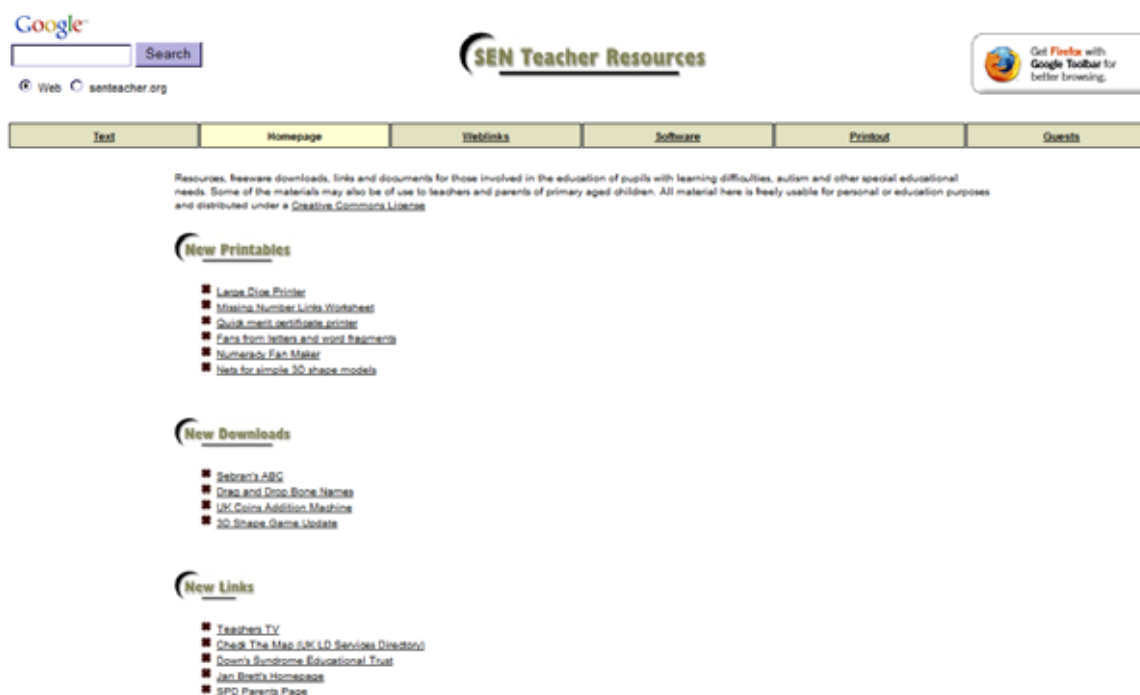


Figure 5: Example of a web page about special needs educational software

6. Audio/visual reference materials



Similar to educational software, audio/visual reference materials can give you pertinent information, while appealing more to your visual and auditory learning styles. Sometimes there will be specific software for particular special needs equipment, but there is also software available for regular ICT tools. This might mean dvds, videos and cdroms. Research shows that information presented in more than one learning style, is better retained by the learners.

7. E-learning Centre

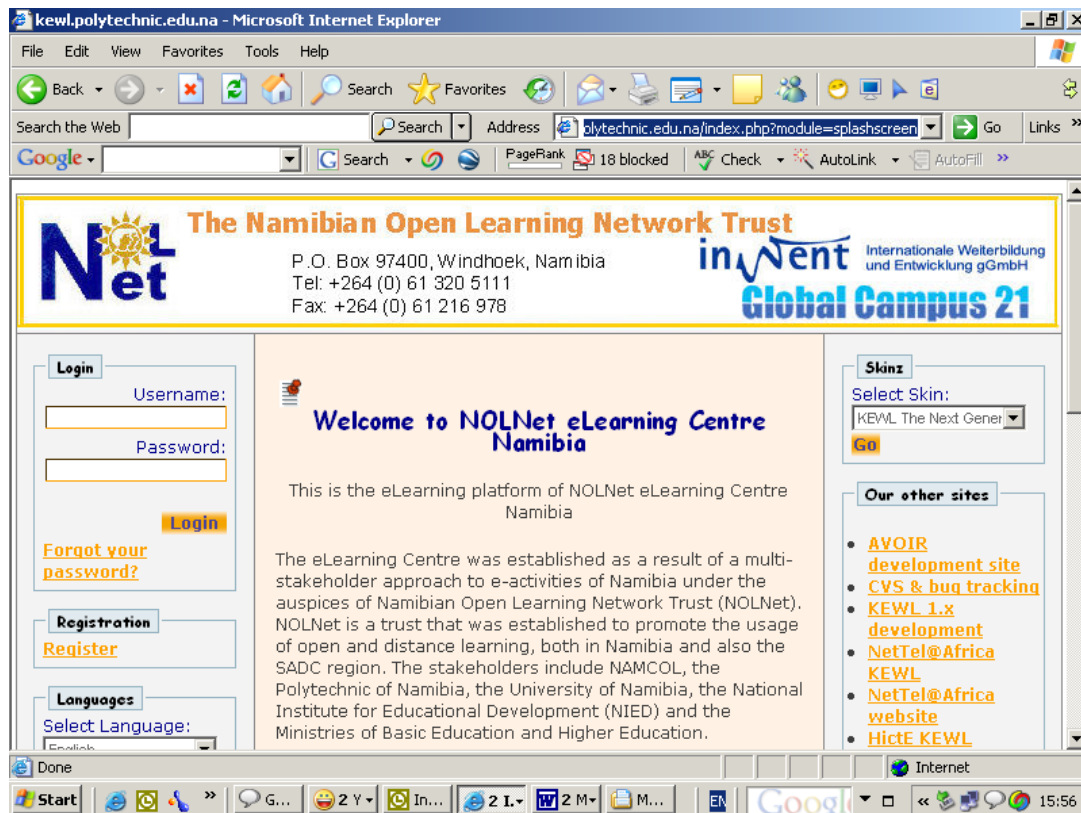


Figure 6: eLC Homepage

Namibia has established an eLearning Centre (eLC) that is a multi-stakeholder centre. This means that there are many different courses and information available through its e-learning platform hosted at <http://kewl.polytechnic.edu.na/> (see Figure 6 above). At the time of going to press, the site hosted around 10 pilot courses, but this will be expanded greatly in the months to come.



Contact the ELC for information about special needs and learning difficulties resources: **The Namibian Open Learning Network Trust**, SECRETARIAT: P O Box 97400, Windhoek, Tel: +264 (0)61 320 5111, Fax: +264 (0)61 216 987

Use ICTs to gain information on learning difficulties and special needs

ICTs can serve as a valuable tool for accessing information on both learning difficulties and special needs. This section will give you instructions on how to use the above-mentioned tools. There are three main ways to access more information, namely:

- internet searching
- educational software and
- audio/visual reference materials.



Internet search

There are different ways to search the internet for information that you need.



What different ways to search the Internet can you think of? How many different search engines do you currently use on a regular basis?

How to perform a keyword search

- Connect to the internet.
- Go to the Start menu and double click on your internet browser (Internet Explorer, Netscape, FireFox etc.) to open it.
- In the “address” field enter the url for a search engine, such as:
 - www.google.com,
 - www.yahoo.com,
 - www.altavista.com.

Press Enter. Your page should display something similar to figure 7 on the next page.



What do you want to search? There are many topics that you might want to search. The more specific the words you use to search, the more specific the information that you will access. The following are examples of searches that might be useful:

- overcoming diversity in the classroom
- discussion forums, teaching children with special needs
- dyslexia
- software for children with special needs
- special interest groups for the visually impaired
- identifying children with special needs in the classroom.



You can try some of these suggested searches or come up with your own based on your interests and needs. Notice, that the more specific your search, the more focused your outcome will be.



Once you have entered your search topic, click on the “Google Search” or “Search” button (if using another search engine).



A list of potential links will appear. Read the headlines and determine what seems most applicable to what you are looking for.



Click on the link that looks most useful for you.



You can continue choosing articles to determine what information is most useful in your search. If the information does not match what you are looking for, return to the search field and enter a new search topic.

Perform a ‘real language search’

Some sites accept whole sentences, for example ask.com (<http://search.ask.com/#subject:ask|pg:1>). This means you can phrase your question as if you were asking someone.

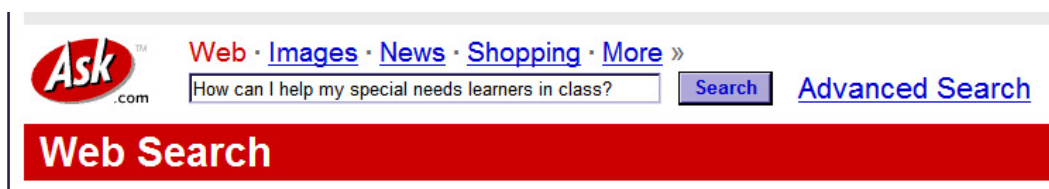


Figure 9: Ask.com homepage



Have a look at the results of the search in figure 10 on the next page. Would any result be of interest to you? How could you refine the search to make it more specific?

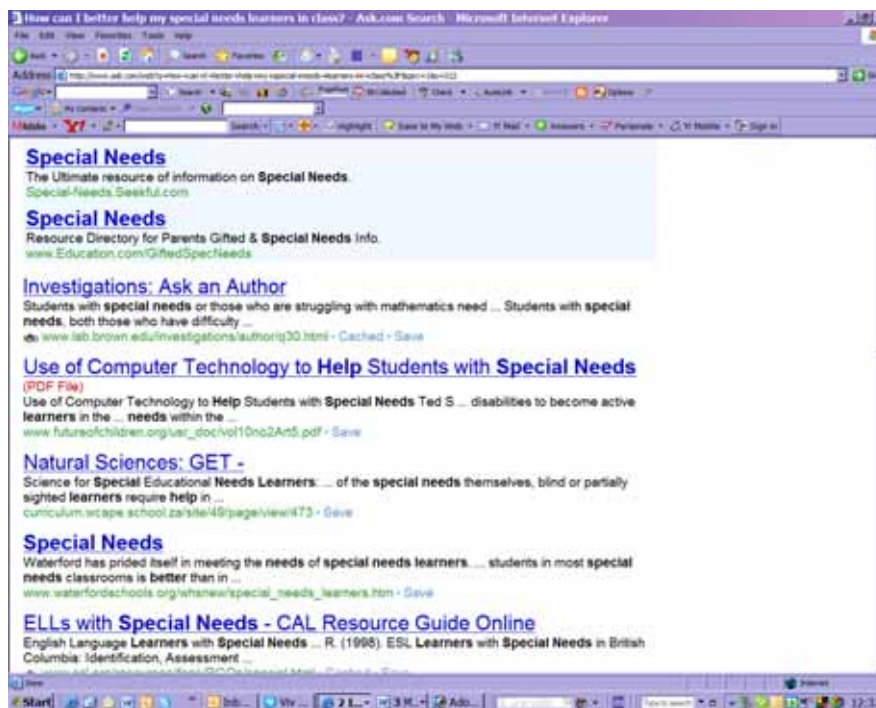


Figure 10: Google Search Results page

Do a 'directory' or 'category' search

Sometimes you need to browse a little bit to try and refine your search to exactly what you are looking for. Directories can be useful for this. They list everything in topics and you can look through and get more direction for your research.

<http://www.yahoo.com> has directories as do many other sites. First do a search for directory search engines. An example of a directory site is given in figure 11 below.



Figure 11: An example directory page

If you were interested in special needs or learning difficulties for your classes, you would choose the category education.

As you can see, all the links are organised into categories for you.



Do a 'keyword' search to find all the 'directories' available. Choose one, and investigate what sort of 'learning difficulties' information you can find. For example, go to Google, and type in 'directories+ search engines'. Choose a result and follow the links to the directory. Then browse through the directories until you find 'learning difficulty' information

The table below may help you find the most appropriate site for information.

What do you need to do?	Site + address	How it can help you
I need a topic	<u>Clusty</u> http://clusty.com/	Brainstorm topic / ideas using result clusters
	Google Directory http://directory.google.com/	Search the subject tree, enhanced by Google results
I need to understand the scope of my	<u>Infomine</u> http://infomine.ucr.edu/ <u>Librarians' Index to the Internet</u> http://lii.org/	Browse annotated educational sites"thinking person's Yahoo" with weekly updatestopic
I need to organise and refine my topic	<u>Clusty</u> http://clusty.com/ <u>Surf Wax</u> http://www.surfwax.com/	ranks results by relevance (like Google) and clusters hierarchically (Vivisimo). Select tabs for blogs, Wikipedia results.preview page ("SiteSnap") and locate key words "Matched in Context." Add "Focus Words" to narrow your next search.
I need to visualize relationships among ideas.	<u>Grokker</u> http://www.grokker.com/ <u>Web Brain</u> http://www.webbrain.com/html/default.win.html <u>Visual Thesaurus</u> http://www.visualthesaurus.com/	(Yahoo search) (small index) visually relate terms. connects related words and meanings.

<p>I need multimedia (images, audio, video) content.</p>	<p><u>Creative Commons search</u> http://creativecommons.org/find/Singingfish - large index, configurable, searches saved <u>Yahoo!Search video, images</u> <u>Lycos MultiMedia</u> - search pictures, audio, video, mp3, <u>AltaVista</u>- select format, size, etc - <u>images, mp3/audio, video</u> <u>Google Image Search</u> - indexes 1billion+, <u>advanced</u> narrows by size or type. <u>Classroom Clipart Fine arts: ADAM, FAMSE, SILS</u>, Richman's list of <u>picture/art sites</u>. <u>American Memory</u> US historical maps, motion pictures, photos and prints, sound recordings. <u>FindSounds</u> - locates sound effects, musical instruments, animals</p>	<p>audio, images, text, video, and other formats that are free</p> <p>browse categories suitable for K-12.</p>
---	--	--

Table adapted from: <http://www.noodletools.com/debbie/literacies/information/5locate/adviceengine.html>

Table 1: Different search engines for different search needs

Educational software

- While performing searches as described above, you can search for educational software pertaining to a specific topic. For example, you can run a search on “educational software for people with dyslexia.” Once you see the results of your search, you may be able to order software, or download it directly.
- Look for links that read something like “**Free Download**”, “**Download Software**”, or “**Order Free Software**.”. Click on this link and follow the instructions for ordering or downloading the free software. Usually several steps are required for downloading or ordering software, including entering personal details.
- Once you have successfully downloaded the software, you will find a link on your desktop that allows you to access the software. Click on this to open, read the instructions and information about what the software offers.
- At this point, you can determine if the software accommodates your particular needs.

Audio/visual reference materials

- You might also have the opportunity to order audio/visual reference materials from the internet or you might access these materials from your local TRC, from the Ministry of Education or from NIED. These materials can be used as either information resources or as teaching aids.
- Once you receive the materials, you should review them using the technologies available: VCR, DVD-player, CD or tape player. As an educator, you should first listen to or view the materials, noting the particular points of interest.
- During the initial viewing/listening, you can determine if the resource is best used for information gathering purposes or as a teaching aid.
- If the resource is best used as an information gathering tool, view or listen a second time and take notes on the topic/s presented. This information can then be shared with colleagues.
- If the resource is suitable as a teaching aid, determine how to best write a lesson plan, including the use of the video or audio material.



CHECK YOUR PROGRESS 1

APPLY ICTs TO GATHER INFORMATION ON LEARNING DIFFICULTIES AND SPECIAL NEEDS

1. Choose the correct description of *learning difficulties* from the options below. Tick the correct answer.
 - a. Learners with learning difficulties are those learners who do not have the mental capacity to learn what mainstream learners are being taught.
 - b. Learners with learning difficulties may have both intellectual and physical disabilities
 - c. Learners with learning difficulties are those who experience difficulties and challenges in learning.
 - d. Learners with learning difficulties are those learners who are unable to learn with mainstream teaching tactics.

2. Choose the correct description of *special needs* from the options below. Tick the correct answer.
 - a. The term *special needs* is a broad term for learners with disabilities and impairments, both physical, emotional and intellectual.
 - b. The term *special needs* is used to describe those learners who should be placed in special classes.
 - c. The term *special needs* is a term used for learners who need many accommodation to be made in order to that they will learn.
 - d. The term *special needs* is a term used by education professionals to describe learners who do not learn as well as the average learner.



CHECK YOUR PROGRESS 1

3. All of the following, except one, are ways that ICTs may be used to gather information on learning difficulties and special needs. Choose the answer that DOES NOT fit. Circle the correct answer.

- a. Special interest groups
- b. Discussion forums
- c. Educational software
- d. Personal meetings with colleagues
- e. Audio/visual reference materials
- f. EdsNet
- g. Communicating with experts

4. Name 3 different types of searches you can do to find information on special needs.



PRACTICAL ACTIVITY 1

APPLY ICTs TO GATHER INFORMATION ON LEARNING DIFFICULTIES AND SPECIAL NEEDS

Example

You have noticed that one of your learners always only copies words and sentences directly from text or from the chalk board. This learner never generates his/her own words on paper and when you have tried to assist, you realize that this learner can not even spell his/her own name. You guess that this learner has a language disability. Now that you have recognised this special need, you can begin your research.

You log onto the internet and enter a search for “language disabilities.” Although this gives you an array of information, it leads you to definitions and explanations of various language disabilities that can help with further identification. After some review, you determine that, based on the definition, this learner may be suffering from dyslexia. You can now run a specific search on “teaching learners with dyslexia.”

Now, try your own identification and search!

Practice Search

First, determine what topic you want to search for. During class, notice those learners you have identified as having special needs or learning difficulties. Have you identified the specific issues? If not, try to identify what special needs or learning difficulties your learners experience. Once you have recognised these areas, choose a topic to research. Log onto the internet and run a search on this specific subject. What did you find?

Summary

Well done! You have completed Section 1 on *Apply ICTs to gather information on learning difficulties and special needs*.

You should now be confident that you understand the multiple ways in which ICTs can help you learn more about special needs and learning difficulties and the ways to go about accessing these resources.

If you feel confident that you have achieved the above, you can move on to the next section where you will learn the procedures to apply inclusive education through the use of ICTs for learners with special needs and learning difficulties.

If you are unsure of any part, go back and revise or ask your instructor or supervisor for assistance.

Section

2

Inclusive education through the use of ICT for learners with special needs and learning difficulties

Introduction

In this section of the manual you will learn how to use ICT tools to reduce barriers, model and teach special needs diversity.

You will also learn the principles of inclusive education and how you can create a more productive environment for learners with special needs in your classroom. In addition, you will explore the technologies available for learners with special needs.

Skills you will learn

By the end of this section, you will be able to:

- define inclusive education
- explain the principles of inclusive education
- explain the barriers to inclusion of learners with special needs and learning difficulties
- explain the ways of using ICTs to reduce the barriers to inclusion of learners with special needs and learning difficulties
- apply ICT tools to reduce barriers to inclusion of learners with special needs and learning difficulties
- describe and apply strategies for using ICTs to model and teach ways of evaluating learners with special needs and learning difficulties
- describe and apply strategies for evaluating personal skills in using ICTs to support inclusion of learners with special needs and learning difficulties.

What is inclusive education?



What do you know about inclusive education? What does it mean to your institution?

Inclusive education is a policy of the Ministry of Education, which determines that learners with minor special learning needs should be accommodated in classrooms and not taken out and separated from mainstream learners.

This means that all teachers need to be able to provide for their needs. This might mean adapting your teaching methods. In this way the material (knowledge and skills) that an educator offers will adapt to the needs of the learners (ie, a learner-centred approach), rather than requiring the learner to adapt to the educational requirements.

Inclusive Education is directly related to the Namibian constitution to prevent discrimination against persons with disabilities and give them the same educational rights and opportunities as everybody else. As an educator, this means that you will be constantly seeking more information and resources to help all of your learners better.

Principles of inclusive education

There are three main principles of inclusive education:

Right to education: ie, Every child has the fundamental right to education.

Access: Education systems should be designed and educational programmes implemented to take into account and accommodate the wide diversity of these characteristics and needs.

Learning together: Every child has unique characteristics, interests, abilities and learning needs. Children who learn together are more likely to be able to live together.



Figure 12: Teachers helping special needs learners

Right to education

Inclusive Education is based on the principle that every child has a fundamental right to education and should be treated individually and equally. All learners must be given the opportunity to achieve and maintain an acceptable level of learning. Teachers need to be able to adjust their teaching styles to accommodate all the diversity present in learners. This is good teaching for all learners. Focus on learner-centred approaches to provide a variety of options for children to learn.

Access

With inclusive education, all learners in a school, regardless of strengths, weaknesses and disabilities, are part of a school community and can feel success. This includes giving all learners access to equal education, both through physical access and opportunities.



Figure 13: A learner with a physical disability

Learning together

Communities are made up of diverse population groups – people of different backgrounds, ethnicities, religions, aspirations, strengths and disabilities. Children should, therefore, also learn to operate in such an environment. If people with learning disabilities and special needs are included in the learning communities, everyone will learn to accommodate each other - a necessary skill for remaining a part of a community in which learners will live and work.

Why Inclusive Education?

Inclusive education is better education for all. It decreases the percentage of failure and increases achievements by all. Inclusive education promotes the implementation of a wide range of teaching methodologies and, therefore, uses the wider abilities and talents of students and teachers. Inclusive education paves the way to a more tolerant society and, therefore, fights prejudice.



Why do you think that over the years 'special education' has changed and "inclusive education" has developed?

Barriers to inclusion of learners with special needs and learning difficulties

Although in theory inclusive education sounds like an optimal learning situation, there are multiple barriers to implementing this style of education. Below we will discuss several common barriers.

1. Attitudinal barriers

Attitudinal barriers may be the most difficult barrier to overcome as it involves altering people's mind-set. Stereotypes, labels and misconceptions often block people from embracing the implementation of inclusive education. In order to overcome attitudinal barriers, it is important to educate people on the rights and opportunities given to people with disabilities, and for educators to be exposed to a diverse population of learners. For educators it is important to both model and teach the value in diversity and how much richer the community becomes, because of all the individual strengths a community incorporates and can call on.

2. Administrative barriers

Schools may feel that inclusive education poses certain administrative barriers, such as specialised staff, transportation, access (physical) or funding for specific forms of support. Also, administration might not understand the concepts of inclusive education well enough to support it. Finally, management might also be under the impression that inclusive education requires complicated and expensive equipment.

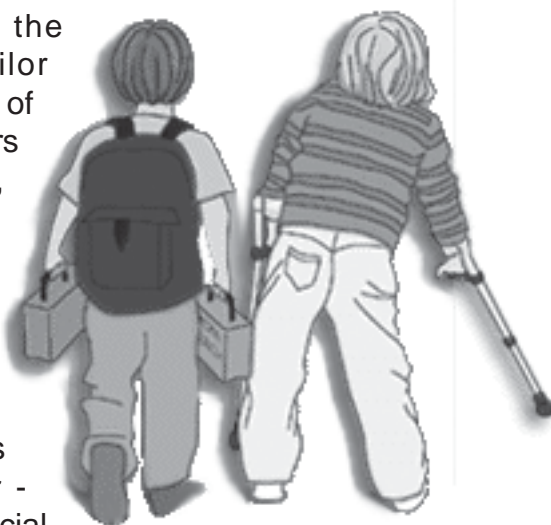
3. Architectural barriers

Unfortunately, many buildings do not cater for people with special needs, as they do not have curb cuts, ramps, automatic door openers, elevators, Braille signage or other similar assistance. These structural barriers can give the impression that people with special needs are unwelcome. Although inclusion is difficult when facilities are physically inaccessible, this should not be used as an excuse for exclusion.

4. Programmatic barriers

Serving people with different abilities in an inclusive environment may also pose programmatic barriers. Staff may not have accurate information on the varying disabilities or even have experience in teaching diverse groups of people with special needs. In addition, staff might not have a clear understanding of inclusive education and how to put the theory into practice.

Using ICTs can help to reduce barriers to inclusion by allowing for a more individual approach to learning. By using a variety of ICTs, such as audio/visual material or specific software on the computers, you can tailor lessons to meet a variety of needs. In addition, computers allow for individual settings, pace and experimentation. Computer work stations can also be adapted to accommodate people with special needs, while special software and hardware can make ICTs more accessible and user - friendly to people with special needs and learning difficulties.



5. What about training as a barrier?

Institutions of higher learning do not really cater for learners with special needs, Braille - sign language, - autism, etc

ICTs can help reduce barriers in the classroom and good examples of inclusion will help wear away at attitudinal and administrative barriers.

Use ICTs to reduce barriers to inclusion

There are different categories of ICTs that can help inclusive education. Some involve using specialist equipment and some are simple uses of ICTs that every educational institution has now or will have shortly. We will give you a brief idea of all the types of technology, so that once you are familiar with using ICTs with all your learners, you can move towards taking greater steps to inclusion.

- i) **Assistive technology** is used in improving ‘the functional capacity of the learner with disabilities’. It is used to emphasise the individual strengths of the learner, to minimise the effect of the disability on the learner.
- ii) **Instructional technology** incorporates tools in teaching and is used in improving “functional capacity of the instructors/ teachers” in teaching learners with disabilities. Data mining allows for teachers to pick up the learner’s patterns/challenges and thus making it possible to plan and teach accordingly,
- iii) **Augmentative/Alternative Communication (AAC)** - Is either an electronic or manual means of facilitating communication for persons who are unable to communicate effectively due to physical impairment, severe disabilities, or the various forms of communication disorders (speech or language). This form of communication, information sharing and socialising involves the use of high-technology (computerised speech selection and transmission, scanning, etc) or low-technology (Picture Communication Boards, Bliss Symbols, Reading Machines, head-sticks, electronic communication aids, using a certain body part such as pointing with hands, using head-sticks, eye movement, foot, tongue, etc.



ICTs, such as computers (for the Internet), visual media such as television or video instruction and applicable software, are fantastic resources for using in a teaching and or learning situation for educating learners with special needs in both inclusive education and special school settings.

Many of the ways to reduce barriers to inclusion involve increasing access, either physical, or through the use of various accessibility settings available on computers.

Access

As previously discussed, ICTs can help reduce barriers to inclusion.

Specifically, computers can be adjusted to accommodate specific needs. To change the settings on your computer:

1. click on the **“Start”** menu to view hardware and software options.
2. click on **“Control Panel”**. You will then see a list of options including, “Printers and other hardware”, “Add or Remove Programs”, “Sound, Speech and Audio Devices” and “Accessibility Options.”
3. Click on **“Accessibility Options.”**

Screen

There you will see a list of options including **Adjust the contrast for text and colors on your screen** and **Configure Windows to work for your vision, hearing and mobility options**. By clicking on either of these, you will be taken through an installment wizard for configuring the screen settings to cater for specific needs. Below these options, you will find a link reading **Accessibility Options**.

4. Click on this to make adjustments to the keyboard, sound, display, mouse and general adjustments.

By adjusting the computer settings to accommodate individual needs, you are making steps towards inclusive education by taking the available technologies usable for all learners. See figure 14 below for an example of large text on the screen



Figure 14: A visually impaired learner makes use of large text on screen

There are also Braille displays available, which translate text on the screen into Braille. This device is flat and can be placed directly under the standard keyboard where the blind person can follow what is displayed on the screen. Similarly, Internet settings can be more accessible for the blind through software that reads the homepage to the reader for example the 'JAWS' reader that reads text aloud that is visible on screen (see figure 15 below for an example of the 'plug in 'jaws reader'').



Figure 15: 'JAWS' reader that speaks aloud when a learner moves over text on screen

For deaf learners, the visual output of a screen can replace the speech in a classroom, which allows for the learner to follow along quite easily while the teacher is speaking.



Figure 16: A deaf learner follows text on screen

See figure 17 below for an example of a teacher helping deaf learners by signing at the same time as working on a computer.



Figure 17: Teacher helps deaf learners with 'sign language' instructions

Keyboard



Figure 18: Keyboard with Braille letters

Settings on workstations can also be altered to assist learners with special needs. For example, blind people, who know Braille, can use standard keyboards with Braille labels.



Figure 19: Learners helped the teacher make Braille letter labels and stuck them on the correct keys



Get your learners who know Braille to make small keyboard labels, and help stick them on the keyboard in the appropriate places.

For the mobility impaired, the on-screen keyboard/visual keyboard can be very helpful. To activate this:

1. go to the **Start** menu,
2. select **Programs** and then **Accessories** then go **to Accessibility**
3. select **On-Screen Keyboard** .

It is often helpful to control the speed and input of the keys pressed. To adjust these settings:

1. go to the **Start** menu,
2. go to **Settings**,
3. go to **Control Panel**
4. go to **Keyboard**. You will then see several tabs displayed:
 - **Speed**
 - **Repeat delay**
 - **Repeat rate**



If you want to learn more about these three options, click on the right mouse button. A small window reading '**What's This**' will appear; click on this window to read more about these options.

By going to the **Start** menu, then to **Accessories** then to **Accessibility** and then choosing the **Keyboard** tab, you will see that you have several options including **Sticky Keys** (this enables simultaneous keystrokes while pressing one key at a time), **Filter Keys** (adjusts the response of your keyboard), and **Toggle Keys** (tells the computer to make a sound when locking certain keys).

Mouse

You can also adjust the mouse settings in order to give better access to those with mobility impairment. To do this:

1. go to the **Start** menu
2. go to **Settings**,
3. go to **Control Panel**
4. click on **Mouse**. Here you can adjust the features of the cursor.

You can also go to the **Start** menu

1. go to **Settings**,
2. go to **Control Panel**
3. go to **Accessibility Options**.
4. click on the **Mouse** tab, you can select **Use MouseKeys**. This enables you to use the numeric keyboard as a mouse.



Figure 20: Learner using a mouse

There is a wide range of hardware and software available to assist with making computers accessible and beneficial to all learners. The following are only a few examples:

1. Screen readers and speech synthesis allow the computer to read the on-screen text aloud to visually impaired learners. More information for the Emacspeak Software can be found at:

<http://www.cs.corness.edu/home/raman/emacspeak/>.

Another option is the Trace Center, which gives information and downloads for other screen readers and speech synthesizers. Information can be found at: http://www.trace.wisc.edu/world/computer_access/unix/unixshar.html.

2. Keyboard filters and word processing that use word prediction and spell checking can be useful for users with learning and language impairments.
3. Sign language software is available for translating English into sign language to help teach deaf learners how to sign, and also translate conventional learning texts into sign language
4. Speech recognition applications allow users to use speech rather than a keyboard to input information into their computer. Information about this type of software can be found at <http://www.kieczka.de/daniel/linux>
<http://www-4.ibm.com/software/speech/dev/>,
<http://freespeech.sourceforge.net>.
4. A television reader allows documents (for example lessons) to be viewed on a very large scale for learners with low vision. See figure 21 below: You can see how the document on the viewer shows a very large image on the screen for the learners.

Learners with low vision can then still follow the lesson:

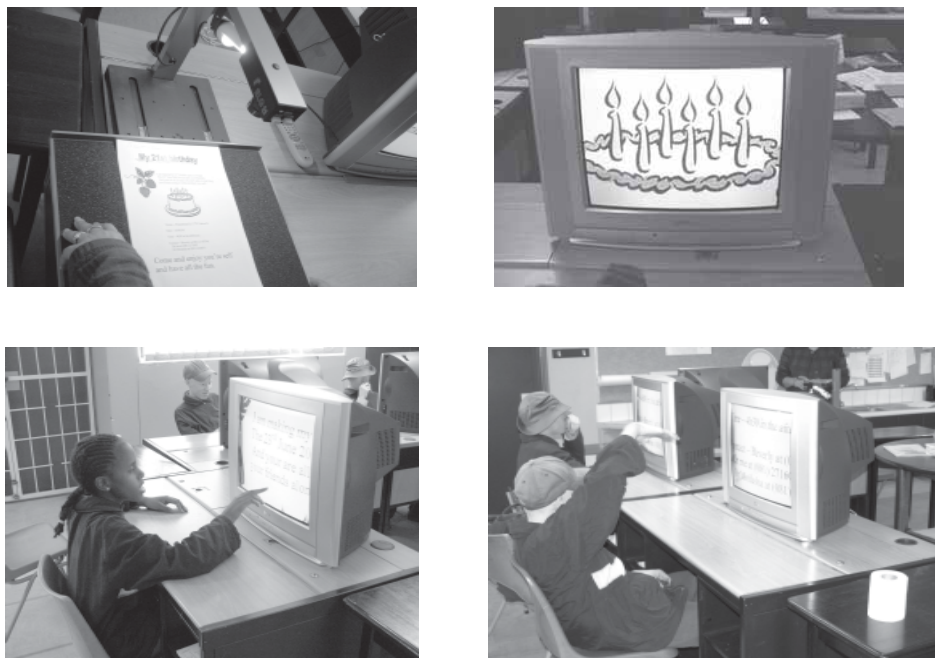


Figure 21: A television reader allows documents to be shown on television screens. The text and images appear greatly enlarged which allows access to materials for low vision learners

5. A Braille printer (and software) can convert a word processed document into a Braille printout. With these sorts of tools your low-vision or blind learners could have access to the same learning materials. Figure 22 below shows a teacher designing a test and printing out a Braille version.

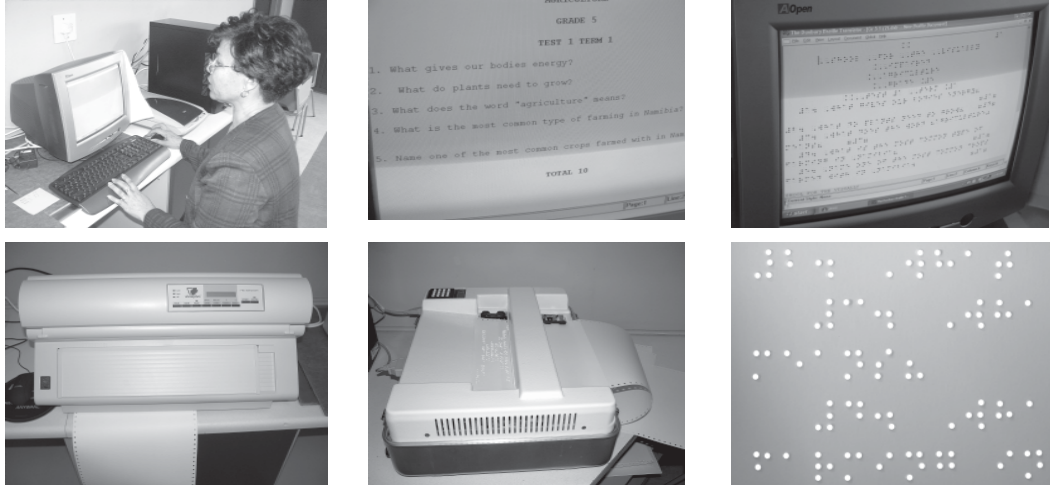


Figure 22: A braille printer can turn word processed documents into Braille handouts for blind learners.

These are only a few examples of types of hardware and software that are available to ensure accessibility and usability for all learners.



Search the Internet to find out information on specific hardware and software of particular interest for your situation as an educator.

Physical barriers can also be eliminated by making provisions at computer work stations. For example, learners in wheelchairs need to be able to reach the workstation. This means that the desk legs need to be wide enough for the wheelchair to fit and low enough that the learner can easily reach the keyboard and mouse. Similarly, the layout of the computer room may have to be adapted to allow for access to all learners.

Finally, other ICTs can also help to reduce barriers. For example, while showing videos always make sure there are subtitles to read. Similarly, both hearing and visually impaired individuals might also benefit from information being presented on an overhead projector or on a computer projector.

Clearly, there are numerous ways of using ICTs to reduce barriers and create inclusion.



Look around your school and find what barriers exist and consider how you might use the existing ICTs to create an inclusive environment.

Table 2 below summarises some options for mouse, keyboard, visual display and auditory options for the different types of special needs and learning difficulties.

ICT Tools are Adapted for SEN/ LD Learners	Mouse and Key Board	Visual Display	Auditory
Physical Impairments	Special mouse and/or keyboard is arranged so that 'switching' and minor muscle movements can replace gross and 'everyday' fine motor requirements for manual input of information. Keyboard options (e.g., StickyKeys, FilterKeys, ToggleKeys or SerialKeys to provide support for using single switch or puff and sip devices); use of MouseKeys (use key pad to control cursor), and knowing, teaching and supporting the use of Keyboard so that shortcuts are all fully explored and used as appropriate		
Visual Impairments	Braille letters and numbers put on keyboard easy reading	Display options (e.g., using High Contrast, adjusting blink rates and the width of cursor; Adjusting the size of objects and text on the screen; using the Magnifier window; Using the Narrator function). Magnifying bubbles are used to augment the visual display	
Hearing Impairments			Sound options (e.g., SoundSentry and ShowSounds; fully using text to speech and language configuration options). Also ensure that ear plugs and other acoustically enhancing audio peripherals are fully explored to enhance learning

Table 2: Options for altering computer settings

ICT Tools are Adapted for SEM/LD Learners	Mouse and Key Board	Visual Display	Auditory
Intellectually impairment	Because II is often co-incident with physical impairments, see above	Use of auxiliary sensory input systems may be an advisable consideration with some learners, thus both visually and auditorily enhanced movements, selections, feedback, etc are used to enhance the learning experience	Use of auxiliary sensory input systems may be an advisable consideration with some learners, thus both visually and auditorily enhanced movements, selections, feedback, etc. are used to enhance the learning experience
Behavioral Disorders (e.g., ADHD, ODD, CD)	Positive reinforcement- see ideas on page 50		
Emotional Disabilities (e.g., depression, anxiety)	Positive reinforcement- see ideas on page 50		

Table 2: Summary of how to accommodate special needs and learners with learning difficulties through changing settings on computers

Table 2: Options for altering computer settings

Table 3 below gives you some ideas for how to use ICTs for positive reinforcement. This would mean using ICTs as a motivation for positive and desirable achievements.

Idea for Using ICT as a 'Possible' Reinforcing Event
Teacher attention and comments VIA networked response
Advice - use of collaborative softwares or functionality (e.g., track changes in MS Word)
Awards - <i>Medals, Certificates, Blue Ribbons, Gold Stars, Ceremonies</i>
Cinema - Watching movies via DVD
Competitions - <i>winning ICT related competitions</i>
Access to computer time (general)
Access to computer time (specific to interest, e.g., Internet time, game time etc.)
Access to printer/printing personal/non-school required items
Correct answers, <i>knowledge of results feedback, solutions to problems - either via software arranged as with CAI, or via networked realtime responses by the teacher</i>
Opportunity to do more work with computer or a particular software
Positive gestures
Public displays on Shared Network space such as: honour rolls, acknowledgements, etc. or displays on teacher-supervised web site

Table 3: Ideas for how to use ICTs for positive reinforcement

Table 4 below gives you some ideas of how to help special needs / learning difficulty learners, according to their learning styles. (also see the training manual on Assessment and Evaluation for more information on learning styles).

Children who are strongly:	ICT Idea
Linguistic	Allow/encourage extra time with <u>word processor</u> , <u>encyclopaedia</u> and <u>dictionary tools</u> . Seek ways to incorporate these into curriculum. Additionally, consider having learner (L.) discuss illustrations and drill with new words; Have L. reading silently/aloud from ICT 'text' and answer comprehension questions or write out an 'interpretation'. Have L. tell stories by writing them out and then reading them aloud. Encourage networked word games such as crossword puzzles, phonetic games, correcting jumbled words.
Logical-Mathematical	Allow/encourage extra time with <u>spreadsheets</u> and <u>data base manager</u> . Seek ways to incorporate these into curriculum. Request charts and graphs as part of this student's reports. Additionally, consider having learner (L.) perform classification and grouping exercises, identify analogies, and use charts and graphs to predict outcomes.
Spatial	Expose to drawing feature in <u>word processors</u> and <u>spreadsheets</u> . Introduce to <u>Digital Imagery software</u> if possible. Request drawings, pictures and schematics from this child. Incorporate these ideas into curriculum when possible. Learners (L.) can draw objects to build vocabulary, design rooms or office spaces and do mazes and puzzles on spreadsheets.
Bodily-Kinesthetic	Encourage the use of <u>spreadsheets</u> by athletes to track favourite teams, sports and personal performance. Download templates from MS Office web site. Encourage use of <u>braille keyboard</u> by visually impaired.
Musical	Encourage use of musical development software if available. Actively arrange opportunities to use Media/Real Players/ JukeBox etc. to arrange artistic groupings of music; Use access to these things also to motivate.
Interpersonal	Use collaborative software to augment this individual's strengths. Have learners create reports that concentrate on interpersonal insights, etc.
Intrapersonal	Have learners maintain logs, diaries, journals, etc. about their own feelings and experiences. Have learners find ways to express themselves using any ICT tool they enjoy and use.

Table 4: Ideas for using ICTs to support inclusion, according to learning styles

Model and teach special needs diversity

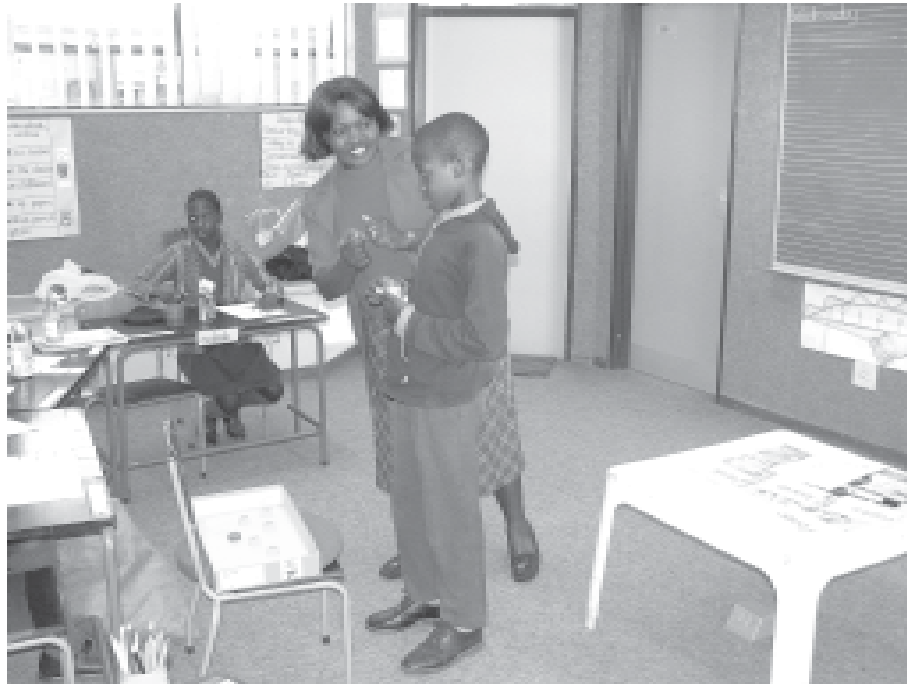


Figure 23: Teacher modelling positive values.

Model

Now that you have learned about the theory of inclusive education and ways in which you as a teachers, can accommodate learners with special needs and learning difficulties, it is important to be proactive in this approach. It is your role as an educator to ensure that inclusive education does not just remain a theory on paper, but that it is incorporated into your classroom.

This means that the way in which you approach inclusion will be passed on to your learners. It is important to transfer positive attitudes and attempt to reduce barriers wherever possible. In addition, valuing diversity yourself and modelling that value will be as important for your learners as teaching them 'how' to value diversity themselves.



Think about the role models you had as a child. How many of them were teachers? What strengths did you admire in them? Think about how you could transfer those skills to your learners by positive role modelling.



Figure 24: Educator teaching special needs.

Teach

By using available ICTs to search for more information about the special needs that you find in your class, you will be better equipped to make appropriately accommodate these learners.

- Make it a point to actively search for learners who you think may have special needs
- Research information on how to better serve these learners.

Similarly, it is your responsibility to incorporate special needs diversity into your classroom. Not only do you need to access the information and make physical accommodations, but as the educator, you have the ability to pave the way for a more inclusive learning environment in your classroom:

- incorporate diversity education into your lesson plans
- direct activities in the classroom that will not only include learners with special needs and learning difficulties, but will encourage a tolerant environment and attitude amongst all learners.

Evaluate personal skills in using ICTs

You should constantly be evaluating your own skills and looking for professional development opportunities to enhance your skills. This applies not only in specific teaching, but also to other areas of your professional role. As you start integrating the use of ICTs for teaching and learning, this will also become part of what you need to evaluate and an area for professional development.

You will need to evaluate:

- your use of ICTs
- how you model inclusion and evaluating diversity
- how you teach inclusion and evaluating diversity
- how you support inclusion

When you have identified an area that you think you could improve on, you may need to modify your strategies. This will mean either finding different ways to support inclusion, or changing the way you teach, or possibly even modelling inclusion in a more active way.

You also may want to identify one of these areas for professional development. You could think of joining a discussion group to give to and gain new ideas from other educators on special needs and learning difficulties. There may be courses you might want to follow.



Go back to the training manual on *Professional Development* and try and identify some possible activities you could do around special needs and learning difficulties.

Realise that the ICTs you have available are incredibly powerful tools for creating a constructive learning environment for all learners, and that it is your opportunity to make use of them. By identifying areas for personal professional development through this evaluation process, you will also be modelling good teaching practices to your learners. By recognising that further training, knowledge and/or assistance can help you, you will be able to effectively modify your teaching strategies to create a productive learning environment for all learners.



CHECK YOUR PROGRESS 2

INCLUSIVE EDUCATION THROUGH THE USE OF ICT FOR LEARNERS WITH SPECIAL NEEDS AND LEARNING DIFFICULTIES

1. Define the term *inclusive education*.

2. List three principles of inclusive education.

a. _____

b. _____

c. _____

3. Match the following barriers to inclusive education to the descriptions with a line.

Barriers

1. Attitudinal Barriers

2. Administrative Barriers

3. Architectural Barriers

4. Programmatic Barriers

Descriptions

a. Structural barriers that can often give the impression that people with special needs are unwelcome.

b. One of the most difficult barriers to overcome. This often includes stereotypes, labels and misconceptions of people with special needs and learning difficulties.

c. Staff may not be informed about the principles of inclusive education or have accurate information on varying disabilities and available provisions.

d. Management might not be familiar enough with the principles of inclusive education to provide the correct support and may also assume that inclusive education requires specialised staff and significant funding.



CHECK YOUR PROGRESS 2

4. Name three ways that you can make ICTs more accessible to learners with special needs and learning difficulties.
- a. _____
- b. _____
- c. _____
5. Tick the appropriate answers
- Modelling inclusive education and the value of diversity means:
- a) telling about special needs
 - b) showing learners how all different learners add value to the classroom
 - c) using ICTs to include learners with disabilities
 - d) using ICTs to search for more information on (ET)
 - e) using ICTs to identify special needs learners
6. Name two ways to actively reach about special needs diversity
- _____
- _____
7. You need to evaluate your personal skills in using ICTs to support inclusion by evaluating (True or False) Tick the correct answer.
- a) Your learners ICT skills True False
 - b) The way you use ICTs in the classroom True False
 - c) The ICT set up in the classroom True False
 - d) Your own attitudes to special needs diversity True False
 - e) Your teaching method for ICT skills True False
 - f) Your teaching strategies for special needs inclusion
 True False
 - g) The barriers to inclusion in your classroom True False
 - h) The ways to reduce barriers to inclusion in your classroom
 True False



PRACTICAL ACTIVITY 2

INCLUSIVE EDUCATION THROUGH THE USE OF ICT FOR LEARNERS WITH SPECIAL NEEDS AND LEARNING DIFFICULTIES

Reducing Barriers

Now that you are familiar with common barriers to inclusive education, start being aware of how you can reduce these at your school in order to create an accessible learning environment for all learners. Walk around your school and notice if all buildings can be accessed by learners with physical disabilities. If no, speak to the school management about making provisions. Similarly, observe the computer room. Is there a work station arranged in such a way that a learner in a wheelchair could access the computer? Again, if not, take action to rectify this barrier.

After you have observed potential physical barriers to inclusive education, begin tackling the other barriers. During your next staff training session, ask the principal to initiate a discussion about inclusive education in order to generate understanding and support. This is a perfect opportunity for you to share your new knowledge and research.



PRACTICAL ACTIVITY 2

Model and Teach Special Needs Diversity

As a teacher, it is your duty and opportunity to model and teach special needs diversity. During the next week, apply the new principles you have learned in this manual in your classes. In the last practical activity, you practiced modeling, so now you need to create directed diversity activities for your learners.

What can you do? Try one of the following suggestions.

- Structure a debate on a topic dealing with inclusion such as “Should people in wheelchairs be allowed in mainstream classes?” or “Hearing impaired learners should only attend special schools” or even. These are just examples of debates that you could start with your learners. After the debate, take time to review the purpose of the activity, touching on the principles of inclusive education.
- Have learners conduct an activity with a prescribed restriction. For example, learners close their eyes to take away eyesight, and then have them perform a task. You could also talk very softly to give them an idea of what a classroom setting would be like without the ability to hear. Finally, learners could be restricted to using only their non-dominant hand while performing a task. Following the activity, enter into a discussion about living with physical disabilities and how classrooms can be more inclusive.
- Review statistics of marginalised groups in Namibia and create an activity around analysis and understanding of these. Again, tie this into your classroom setting and the theory of inclusive education.

Summary

Well done! You have completed Section 2 on *Inclusive education through the use of ICT for learners with special needs and learning difficulties*.

You should now be confident that you have the knowledge and skills to provide an inclusive learning environment for all learners with the aid of available ICTs.

If you feel confident that you have achieved the above – congratulations! You have successfully completed the manual *Use ICTs for Learners with Special Needs*.

If you are unsure about anything, go back and revise or ask your instructor or supervisor for assistance.

List of figures

	Page
Figure 1 : Edsnet homepage	17
Figure 2 : Resources link to follow for compensatory teaching information	18
Figure 3 : Example Special Interest Group on Accessibility ...	18
Figure 4 : Example Discussion Board for special needs	19
Figure 5 : Example of a web page informing about special needs educational software	19
Figure 6 : ELC Homepage	20
Figure 7 : Google home page	22
Figure 8 : Example Google results page	22
Figure 9 : Ask.com homepage	23
Figure 10 : Google Search Results page	24
Figure 11 : An Example directory page	24
Figure 12 : Teachers helping special needs learners	36
Figure 13 : A learner with a physical disability learns at school ..	37
Figure 14 : Visually impaired learner makes use of large text on screen	41
Figure 15 : 'JAWS' reader that speaks aloud when a learner mouses over text on screen	42
Figure 16 : Deaf learner follows text on screen	42
Figure 17 : Teacher helps deaf learners with 'sign language' instructions	43
Figure 18 : Keyboard with Braille letters	43
Figure 19 : Learners helped the teacher make Braille letter labels and stuck them on the correct keys	43
Figure 20 : Learner using a mouse	45
Figure 21 : A television reader allows documents to be shown on television screens. The learners text and images appear greatly enlarged which allows access to materials for low vision learners	46

Figure 22 : A braille printer can turn word processed documents into Braille handouts for blind learners	48
Figure 23 : Teacher modelling positive values	52
Figure 24 : Educator teaching special needs	53

List of tables

Table 1 : Different search engines for different search needs	26
Table 2 : Options for altering computer settings	48
Table 3 : Use ICTs for positive reinforcement	50
Table 4 : Learning difficulties and learning styles	51

Glossary

- Special needs : a broad term that refers to learners with disabilities and impairments, both physical, emotional and intellectual. This includes learners who have visual, auditory (hearing) and /or intellectual disabilities.
- Augment : strengthen or improve
- Learning difficulties: a person with a learning difficulty would have a significantly greater difficulty in learning than the majority of people of the same age
- Demographics : the characteristics of a population, (size, growth, density, distribution, and statistics regarding birth, marriage, disease, and death)
- Impairment : the absence of a physical or mental ability
- visual : relating to eyes and sight
- auditory : relating to ears and hearing
- marginalised : pushed to the edge of society
- Braille : a writing system for visually impaired or sightless people, consisting of patterns of raised dots that are read by touch



Write down additional words that you do not understand.
Ask your instructor to explain the meaning of those words.

Answers to check your progress

Check your progress 1

1. **Answer: c.** Learners with learning difficulties are those who experience difficulties and challenges in their learning.
2. **Answer: a.** The term *special needs* is a broad term for learners with disabilities and impairments, both physical, emotional and intellectual.
3. **Answer: d.** ICTs do not allow for personal meetings with colleagues, although personal meetings can be arranged by using ICTs.

Check your progress 2

1. *Inclusive education* means that learners with special learning needs should also be included in ordinary classes where teachers should be able to provide for their needs through adapted methods.
2. Three from the following list.
 - a. all learners should be treated individually
 - b. teachers should adjust their teaching styles to accommodate all learners
 - c. providing a variety of options for children to learn through student-centered approach
 - d. all learners should feel part of their school, regardless of strengths, weaknesses or disabilities
 - e. making provisions through both physical access and opportunities to provide equal education for all learners
 - f. promotes diversity in education
3.
 1. Attitudinal Barriers = c.
 2. Administrative Barriers = d.
 3. Architectural Barriers = a.
 4. Programmatic Barriers = c.
4. Three from the following list
 - a. Adjust contrast for text and color
 - b. Braille keyboards
 - c. Control speed and output of keyboards
 - d. Adjust mouse settings
 - e. Screen readers

- f. Keyboard filters
 - g. Speech recognition applications
 - h. Physical setting adjustments (desk height etc.)
 - i. Subtitles in videos
 - j. Overhead projectors or computer projectors
5. b)
c)
6. Incorporate special needs diversity into lesson plan.
Direct activities to include & encourage tolerance.
7. a) False
b) True
c) False
d) True
e) False
f) True
g) False
h) True

Bibliography

Bubbenzer & Giannini (2004) "E-learning Development and Implementation". Tele-Akademie-Common Sense

Guskey, T.R. (2000) Evaluating Professional Development. California: Corwin Press

Ministry of Basic Education, Sport, and Culture & Ministry of Higher Education, Training, and Employment Creation (2005) ICT Policy for Education. Windhoek, Namibia: MBESC & MHETEC.

NETA (2006) ICT Integration Manual for Schools in Namibia

NIED (1999) *Towards Improving Continuous Assessment In Schools: A Policy And Information Guide*

NIED Broad Curriculum

NIED Teacher's Basic Competencies Manuals 1-10, Ministry of Basic Education and Culture

Websites:

<http://creativecommons.org/>

<http://edublogs.org/>

<http://elearning.polytechnic.edu.na>

http://en.wikipedia.org/wiki/Main_Page

<http://freespeech.sourceforge.net>

<http://kewl.polytechnic.edu.na>

<http://learninfreedom.org/ed-newsgroups.html> <http://www.ci.bryanisd.org/1Vision/Teacher%20Podcasts/Teacher%20Podcasts.html>

<http://www.aaamath.com/>

http://www.bbc.co.uk/history/society_culture/industrialisation

http://www.bbc.co.uk/history/society_culture/industrialisation/

<http://www.becta.org.uk/>

<http://www.berghuis.co.nz/abiator/lsi/lsiframe.html>

<http://www.cs.corness.edu/home/raman/emacspeak/>

<http://www.curriculumsupport.education.nsw.gov.au/>

<http://www.doe.mass.edu/lawsregs/603cmr7.html?section=08>
www.noodletools.com

<http://www.edchange.org/multicultural/sites1.html>

<http://www.edsn.net.edu.na>

<http://www.ekhad.net/linux/jupiter/>

<http://www.enchantedlearning.com/subjects/rainforest>

<http://www.engr.ncsu.edu/learningstyles/ilsweb.html>

http://www.essentialschools.org/cs/resources/view/ces_res/225

<http://www.kieczka.de/daniel/linux>

<http://www.learningtimes.org/>

<http://www.math.com/teachers/centers/profdev.html> <http://students.msbcollge.edu/elearning/assessment/> <http://www.ncrel.org/sdrs/areas/issues/educatrs/profdevl/pd500.htm>

<http://www.school.za/PILP/>

<http://www.strategictransitions.com/>

http://www.techlearning.com/db_area/archives/WCE/archives/kasse.htm

<http://www.thirteen.org/edonline/concept2class/>

http://www.trace.wisc.edu/world/computer_access/unix/unixshar.html

<http://www-4.ibm.com/software/speech/dev/>,

Sponsored by:

