

APPENDIX A

Evaluating Education Portals

LIST OF WEBSITES

NAME OF WEBSITE	URL	RANGE	AUDIENCE
Schoolnet (Resources)	http://www.schoolnet.com/	Networking Portal	<ul style="list-style-type: none"> • Learners • Teachers • Administrators
Teach-nology (Resources)	http://teach-nology.com/	Networking Portal	<ul style="list-style-type: none"> • Learners • Teachers • Administrators
WCSN (Resources)	http://www.wcape.school.za/subject/	Networking Portal	<ul style="list-style-type: none"> • Learners • Teachers • Administrators
Educator Network	http://www.theeducatorsnetwork.com/	Networking Portal	<ul style="list-style-type: none"> • Learners • Teachers • Administrators
SchoolNet SA	http://www.schoolnet.co.za	Networking Portal	<ul style="list-style-type: none"> • Learners • Teachers • Administrators
SchoolNet Canada	http://www.schoolnet.ca/	Networking Portal	<ul style="list-style-type: none"> • Learners • Teachers • Administrators
Global SchoolNet	www.globalschoolnet.org	Networking Portal	<ul style="list-style-type: none"> • Learners

NAME OF WEBSITE	URL	RANGE	AUDIENCE
			<ul style="list-style-type: none"> • Teachers • Administrators
ABC Teach Network (Resources)	http://abcteach.com/	Resource based Portal	<ul style="list-style-type: none"> • Learners • Educators • Parents
African & South African Links Page (Links)	http://employees.csbsju.edu/esass/safricanlinks.htm	Resource based Portal	<ul style="list-style-type: none"> • Educators • Learners
Classroom Connect (Resources)	http://www.classroom.net/	Resource based Portal	<ul style="list-style-type: none"> • Educators • Learners • Parents • Administrators
Teachers Pet - Educators Resources (Resources)	http://www.teacherspet.co.za/educatorsresources.htm	Resource based Portal	<ul style="list-style-type: none"> • Educators • Learners • Parents
Computer Lesson Plans Resources)	http://www.lessonplans.com.au/lessons.htm	Resource based Portal	<ul style="list-style-type: none"> • Educators
Cool Math (Resources)	http://www.coolmath.com/	Resource based Portal	<ul style="list-style-type: none"> • Educators • Learners • Parents
River Deep (Resources)	http://riverdeep.net/current/2002/01/012102_nose.jhtml	Resource based Portal	<ul style="list-style-type: none"> • Educators • Learners • Parents • Administrators
Chemistry.org (Resources)	http://www.chemistry.org/portal/Chemistry	Resource based Portal	
NSTA	http://www.nsta.org/	Resource based Portal	<ul style="list-style-type: none"> • Educators

NAME OF WEBSITE	URL	RANGE	AUDIENCE
(Resources)			<ul style="list-style-type: none"> • Administrators
Owl and Mouse Software (Software)	http://www.yourchildlearns.com/owlmouse.htm	Resource based Portal	<ul style="list-style-type: none"> • Educators • Administrators • Learners
School Tool (Resources)	http://www.schooltool.org/	Resource based Portal	<ul style="list-style-type: none"> • Administrators
TeachersFirst (Resources/Links)	http://www.teachersfirst.com/cnt-erth-mh.shtml	Resource based Portal	<ul style="list-style-type: none"> • Educators • Learners • Parents
Fsdev (Resource)	http://fsdev.org	Resource based Portal	<ul style="list-style-type: none"> • Educators • Administrators
Math Explorers (Resources)	http://members.shaw.ca/ron.blond/TLE/index.html	Resource based Portal	<ul style="list-style-type: none"> • Learners • Educators
Math Goodies (Resources)	http://www.mathgoodies.com/	Resource based Portal	<ul style="list-style-type: none"> • Learners • Educators • Administrators
Teachers Library Resources	http://www.teacherslibrary.org.uk/	Resource based Portal	<ul style="list-style-type: none"> • Educators
Enchanted Learning (Resources)	http://www.enchantedlearning.com/Home.html	Resource based Portal	<ul style="list-style-type: none"> • Educators • Learners
Mathematics Web Association of South Africa (Resources)	http://www.easymaths.org/	Resource based Portal	<ul style="list-style-type: none"> • Educators • Learners • Parents
SA Child (Links)	http://www.sachild.co.za	Resource based Portal	<ul style="list-style-type: none"> • Educators • Learners
SA Schools (Resource)	http://www.saschools.co.za/index.htm	Resource based Portal	<ul style="list-style-type: none"> • Educators • Learners • Parents

NAME OF WEBSITE	URL	RANGE	AUDIENCE
Technology Magic (Resource)	http://ada.lesley.edu/faculty/flescher/team1.htm	Resource based Portal	<ul style="list-style-type: none"> • Educators • Learners
New England College EdLinks (Links)	http://www.necedlinks.org/	Resource based Portal	<ul style="list-style-type: none"> • Educators • Learners
M-Web Learning (Resources)	http://www.mweb.co.za/hub/learning/default.asp	Organizational Portal	<ul style="list-style-type: none"> • Educators • Learners • Parents • Administrators
SABC Education (Resources and Links)	http://www.sabceducation.co.za/	Organizational Portal	<ul style="list-style-type: none"> • Educators • Learners
U.S Department of Education. (Resources)	http://www.ed.gov/	Organizational Portal	<ul style="list-style-type: none"> • Educators • Learners • Parents • Administrators
Yahooligans teacher guide (Resources)	http://www.yahooligans.com/tg/	Organizational Portal	<ul style="list-style-type: none"> • Educators • Learners • Parents • Administrators
Discover Our Earth (Resources)	http://atlas.geo.cornell.edu/education/index.html	Organizational Portal	<ul style="list-style-type: none"> • Learners
Microsoft Education (Resources)	http://www.microsoft.com/education/	Organizational Portal	<ul style="list-style-type: none"> • Educators • Learners • Parents
The Cleveland Press Shakespeare Resources)	http://www.ulib.csuohio.edu/shakespeare/	Organizational Portal	<ul style="list-style-type: none"> • Educators • Learners
DiscoverySchool.com (Resources)	http://school.discovery.com/	Organizational Portal	<ul style="list-style-type: none"> • Educators • Learners • Parents

NAME OF WEBSITE	URL	RANGE	AUDIENCE
E-Matric (Resources)	http://www.ematric.co.za/	Organizational Portal	<ul style="list-style-type: none"> • Learners
Learn.co.uk (Resources)	http://learn.co.uk	Organizational Portal	<ul style="list-style-type: none"> • Educators • Learners
Learn.co.za (Resources)	http://www.learn.co.za/	Organizational Portal	<ul style="list-style-type: none"> • Educators • Learners
Lesson plan page (Resources)	http://www.lessonplanspage.com/	Organizational Portal	<ul style="list-style-type: none"> • Educators
North West Regional Educational Laboratory	http://www.ncrel.org/	Organizational Portal	<ul style="list-style-type: none"> • Educators • Learners
US Department of Education	http://www.ed.gov/	Organizational Portal	<ul style="list-style-type: none"> • Educators • Learners • Parents • Administrators
Center for Children and Technology	http://www2.edc.org/CCT/cctweb	Resource based Portal	<ul style="list-style-type: none"> • Educators • Learners
Regional Alliance for Mathematics and Science Education	http://ra.terc.edu/	Resource based Portal	<ul style="list-style-type: none"> • Educators • Learners

NETWORKING PORTALS

THE EDUCATORS NETWORK

ORGANIZATION DETAILS	
WEBSITE ADDRESS	http://www.theeducatorsnetwork.com/
CONTACT DETAILS	General Information: Info@theeducatorsnetwork.com Feedback: feedback@theeducatorsnetwork.com
DESCRIPTION AND CONTENT	
<p><i>The Educator network</i> website provide teachers with resources and tools that will make improve their teaching and learning skills. The information contained on the site is as ca,</p> <ul style="list-style-type: none"> • Resource – this section includes information on various subject area from arts to vocational studies • Tools – here users can find lesson plans, certificates, language tool and flashcards • Worksheets – worksheets generators, basic mathematics sheets, maps and calendar can be found in this section. • Lessons – users can search this section for lesson plan by grade and subject areas. Information included in this section includes resources on how to write lesson plans, useful educational software • Quick link – this section is a reference section and includes dictionaries, thesaurus, newsletter, website for teachers and information of classroom management. 	

CREDIBILITY AND AUTHENTICITY	The information found on the website is credible as it has been voted the best educational website.
CURRENCY	Generally the content of the website is up to date. Section on the website like
ORGANIZATION AND PRESENTATION	
SPEED	The website time for the website is moderate as are a number of graphics used on the homepage.
READABILITY	The typography and colours used on the home reads very well as there is high contrast between the text and the background colour. Sub pages of the site do read well but the print quality is very poor due to colours used. The screen appears to be clean and uncluttered. The site reads very well on the 800x600 screen resolutions.
MENU	The navigation system used in the website is intuitive and easy use. The home page has links to the main parts of the site, adequately explains the navigation structure and the information on the home page fits on one page, i.e. the user does not have to scroll down. The selection of fonts, graphics and styles helps the user to move around and understand the site.
SITEMAP	The website has not made use of a sitemap, it has instead used a drop-down menu, which when a user places the mouse over the category of their choice and follow the arrows until they have reached their desired page
HYPERLINKS	There are many hyperlinks which are broken and the different types of hyperlinks are not clearly marked.
DESIGN	The site design is not consistent, as the pages have got a different look and feel. The presentation of content is consistent with the way in which users use that piece of content.
SUPPORT	The website has provided users with email address to contact them for queries, comments and feedback. Instructions sheets have been provided for first time visitors to the site.
INTERACTIVITY	The website engages their user quite extensively. Users are required to their areas of interest when searching for lesson plans and the site pulls out result based on the user's needs. They can also use the online worksheet and lesson plan to get the desired results.
SEARCH FACILITY (RELIABILITY OF SEARCHES)	The search facility used is very accurate and it also pulls out related website and resources based on the user's criteria.

GLOBAL SCHOOLNET FOUNDATION

ORGANIZATION DETAILS	
WEBSITE ADDRESS	http://www.globalschoolnet.org/
CONTACT DETAILS	Phone: 760-635-0001 or 619-475-4852 Email: helper@globalschoolnet.org Fax: 760-635-0003
DESCRIPTION	
<p>The mission of the Global SchoolNet is to provide a curriculum that made the world a laboratory and promoted the quest for lifelong learning and to transform the way learners learn and interact with their community. The website produced interactive, collaborative content and tools, professional development focused on successful implementation and conference keynote presentations.</p>	
CONTENT	
<p>About - history, services, news and updates Teacher awards – awards information, view candidates Memberships Global Schoolhouse - projects, news day, online expeditions, conferring, making a difference, new lists, resource links Programs and partners – cyber-touch, friendship, children of dreams</p>	

CREDIBILITY AND AUTHENTICITY	The website is credible and have received numerous awards and recognition. The Global Schoolhouse has been selected as a 2000 StudyWeb-featured site. This honour is bestowed upon the best educational resources on the web by StudyWeb Researchers and The editors of the 4anything.com network have chosen The Global Schoolhouse as one of the best of the web within our educational resources category. We believe that www.globalshoolhouse.com provides great value to our 4anything users!
CURRENCY	The content found on the website is up to date.
ORGANIZATION AND PRESENTATION	
SPEED	The website downloads very quickly and the graphic elements have been selected carefully to minimize download time.
READABILITY	The typography used is clean and easy to read. The number of typefaces is limited. The colour of the text and the background improves legibility and the print out quality is very high. It site has been optimized at 800x600 screen resolution.
MENU	The navigation system is user centred and easy to use. The homepage has links to other part of the site and adequately explains the navigation structure of the website.
SITEMAP	The sitemap used on this website is adequate and provides access to all parts of the website.
HYPERLINKS	The hyperlinks in this website are all functional different types of hyperlinks have clearly defined, and the user is made aware is to where the links are taking them.
DESIGN	The screen appears to be clean and uncluttered. The design of the site is consistent
SUPPORT	Both technical and professional support is offered on this website.
INTERACTIVITY	There is not a lot of activity used on this website except for the online conferencing and expeditions.
SEARCH FACILITY (RELIABILITY OF SEARCHES)	There is no search facility offered on this website.

SCHOOLNET CANADA

ORGANIZATION DETAILS	
WEBSITE ADDRESS	http://www.schoolnet.ca
CONTACT DETAILS	
DESCRIPTION AND CONTENT	
<p>Schoolnet Canada's aim is to connect all Canadian schools and libraries to the Internet. The content has be categorized as follows:</p> <ul style="list-style-type: none"> • Learning resources – resources on all curriculum areas, educational support, federal and related institutions. • SchoolNet Today – press releases and SchoolNet magazine. • Services – connectivity, content/knowledge, youth materials, multimedia skills development, employment and volunteering 	

CREDIBILITY AND AUTHENTICITY	SchoolNet Canada website is credible as it is linked and supported by reputable institutions and organizations like SchoolNet and the Canadian Government.
CURRENCY	The website is generally up to date.
ORGANIZATION AND PRESENTATION	
SPEED	The site downloads very quickly and graphics elements have been selected carefully to minimize download time.
READABILITY	There is colours and typefaces used makes it easy for the user to read the website and quality of printing is very. Some of the screen pages appear not be clean and cluttered.
MENU	The website has made use of one menu systems, which is intuitive and easy to use. The navigation system is user centred and users have been provided with a link back to the main page form all pages ad there is also a link back to a main level from page.
SITEMAP	The sitemap provided on the website is comprehensive and adequate as it includes links to all the parts of the website which cannot be accessed on the menu system.
HYPERLINKS	The hyperlinks used are all functioning properly but have not been differentiated as to whether they are internal or external links
DESIGN	The site design and clean and easy to use and there is consistency in the design and selection of fonts, styles, bullets and graphics used.
SUPPORT	The website offers its users both technical and professional support.
INTERACTIVITY	There is not a lot of interactivity used in the website
SEARCH FACILITY (RELIABILITY OF SEARCHES)	The search facility is produces accurate results. The search results include the description of the link and to which curriculum area it is linked to.

WESTERN CAPE SYSTEM NETWORK

ORGANIZATION DETAILS	
WEBSITE ADDRESS	http://www.wcape.school.za/subject
CONTACT DETAILS	Telephone:(021) 683-8719 Fax : (021) 683 6766
DESCRIPTION	
<p>The Western Cape System Network (WCSN) is an educational (running on a non profit basis) networking organisation, which supplies Internet services to primary and secondary schools in the Western Cape, and promotes the use of the Internet in education. The WCSN makes every attempt to support all computer environments, from stand-alone PCs to several different types of networks and access technologies from dial-up modems to dedicated data lines. It was founded in November 1993 with 10 schools, and is totally self-funded. “Today, more than 900 schools in the Western Cape have been connected”.</p>	
CONTENT	
<ul style="list-style-type: none"> • Subject areas resources – this section has information on all the subject areas • WCSN Members Schools- here users get a complete list of all the WCSN member schools, complete list of all schools with web pages and a completed list of all WCSN connected members • Technical support – this sections has both technical and professional help for users • Links – this section has links to other school networking portals • Contact Us – contact details of the organisation • Taxi Mail – Taxis Mail is a freely software that can be used without restriction, it is a Win32 UUCP mail package which uses Pegasus Mail. Taxi Mail is designed for standalone operation (on a single machine), or to provide email to users on a peer-to-peer network, or server-based network, where the modem is on the same machine that Taxis is installed on. • Archive – here users can find a list of the past conferences 	

SCHOOLNET

ORGANIZATION DETAILS	
WEBSITE ADDRESS	http://www.schoolnet.com/
CONTACT DETAILS	SchoolNet, Inc. 110 Summerfield Rd Chevy Chase, MD 20815 Phone: 301 986-9350 Fax: 301 907-4959 Email: Alvin@schoolnet.com
DESCRIPTION	
CONTENT	
<p>Resources :</p> <p>Administrator Links: SchoolNet has developed a collection of helpful resource links for School Administrators, from curriculum and instruction, technology and school and district administration. Please click on the Administrator Link above and select the category most appropriate to your needs.</p> <p>Parent Links : SchoolNet has developed a extensive collection of resource links for Parents with children in school. Please click on the link above and select the category of resources that meet your needs.</p> <p>Student Links : SchoolNet has chosen a extensive collection of resource links for students from elementary school to high school. Please click on the link above and select the appropriate category of resources.</p> <p>Teacher Links : SchoolNet has worked with teachers to develop an extensive collection of resource links especially for teachers. Please click on the Teacher Link above and select the category of resources that meet your needs</p> <p>Education Library - The Doyle Report is a free weekly publication covering the cross roads of education reform and the technology revolution.</p> <p>News: In the SchoolNet news section users will find the latest press releases and information about SchoolNet.</p> <p>Press Releases - recent and historic press releases from SchoolNet.</p> <p>Press Kit- the press kit contains information for analysts and news organizations. Get information about SchoolNet--who we are and what we do.</p> <p>SchoolNet in the News - find out what other people think about SchoolNet. Read articles about SchoolNet products and interviews with SchoolNet employees.</p>	

SchoolNet@Work -find out where SchoolNet is helping educators learn about our technology solutions.	
CREDIBILITY AND AUTHENTICITY	This website contains credible information and has it was amongst the 2002 SIIA Codie Awards Finalist in three education categories.
CURRENCY	The information contained in this website is generally up to date.
ORGANIZATION AND PRESENTATION	
SPEED	The page download very quickly and the graphics elements have been selected carefully to minimize download time.
READABILITY	The typography is easy to read The number of typefaces used are limited and there is a high contrast between the colour of the background and text.
MENU	The home page has one menu system which is provides access to main parts of the website. The sub pages has two menu systems which are easy to use and links back to the main level of the website are provided.
SITEMAP	No sitemap.
HYPERLINKS	All the hyperlinks are functioning properly but were not clearly defined.
DESIGN	The site design is consistent throughout and the overall presentation is attractive and inviting. The pages are clean and uncluttered.
SUPPORT	Both technical and professional help has been provided to users in the “solutions pages”
INTERACTIVITY	This website in not interactive.
SEARCH FACILITY (RELIABILITY OF SEARCHES)	The search facility is reliable.

SCHOOLNET SA

ORGANIZATION DETAILS	
WEBSITE ADDRESS	http://www.school.za
CONTACT DETAILS	Help desk tel: +27-21-674-9140 E-mail: info@school.za
DESCRIPTION	
<p>SchoolNet SA offers various technical and education-support products and services to assist schools to harness the potential value of the use of Information and Communication Technologies (ICTs) in education. Most services are offered in conjunction with the Western Cape Schools Network (WCSN). Services include domain registration, internet connectivity, technical support centre, refurbished and computer installation and conference and workshops.</p>	
CONTENT	
<p>Projects - Telkom Super Centers, Thintana i-Learn, World, I*EARN, Global Teenager.</p> <p>Services - SchoolMail, DNS Info, Electronic Schoolbook and the helpdesk.</p> <p>Resources- A warehouse of information for Educators and Learners.</p> <p>Research and Reports - A list of reports from Partners, Government and SchoolNet SA Reports.</p> <p>Events - What is happening in and around SchoolNet SA.</p> <p>News - A list of digital press release and articles.</p> <p>Links - Useful links of Projects, Government Partners and others.</p> <p>Contact Details - Addresses, Phones and E-mail's. SchoolNet SA staff contacts</p> <p>About - Find what SchoolNet SA is All about and more.</p> <p>Archives - A compilation of resource and preserved information.</p> <p>PSN's - Provincial Affiliates of SchoolNet SA.</p> <p>Electronic Schoolbook - For South African Schools to update their details in the Database.</p>	

CREDIBILITY AND AUTHENTICITY	The website is credible and authentic
CURRENCY	The information contained on the website is up to date.
ORGANIZATION AND PRESENTATION	
SPEED	The site loads very quickly and the graphics elements have been carefully minimized to reduce download time/
READABILITY	The colours of the text and background reads well and enhances the quality of print jobs. The site has made use of two typefaces and the typography is clean.
MENU	The site navigation system is easy to use and the home page has links to main parts of the site and adequately explains the navigation structure of the website. The sub pages has links to main parts of the website and the link back to the home page.
SITEMAP	No sitemap has been used in this website.
HYPERLINKS	Hyperlinks are working properly but are not clearly defined.
DESIGN	The page design are clean and consistent throughout the website. The design and selection of fonts, styles, bullets and graphics are consistence.
SUPPORT	SchoolNet SA operates a National Technical Support Centre in order to provide all manner of support services to schools and an email address has been provided for user to provide feedback and queries. Help desk telephone number has also been provided.
INTERACTIVITY	There is not a lot of interactivity used in the website.
SEARCH FACILITY (RELIABILITY OF SEARCHES)	The search facility is powered by Atomz and the search results include the date and time when the resource was uploaded, a brief description of the resource and the URL.

TEACH-NOLOGY

ORGANIZATION DETAILS	
WEBSITE ADDRESS	http://www.teach-nology.com
CONTACT DETAILS	
DESCRIPTION	
<p>TEACH-NOLOGY - <i>The Art and Science of Teaching with Technology</i> represents a vision that embraces the future of teaching in a world driven by technology. Their goal is to actualize this vision by offering a range of services that are designed to assist and support educational agencies in their attempt to develop the knowledge, competencies, or skills that teachers need to effectively incorporate technology in teaching. They assist educators in their quest to meet the challenges of the 21st Century. Teachnology, Inc. provides a free web portal designed specifically for educators that includes tutorials aimed at enhancing the knowledge and use of technology as related to teaching; educational lectures, workshops, seminars, demonstrations for pre-service and/or in-service teacher education programs; and professional development consultations that are designed to offer K-12 schools the support mechanisms needed to successfully plan and implement programs focused on technology in teaching.</p>	
CONTENT	
<p>Teachers directory Current trends Administrators Higher Education Literature in Education</p>	

CREDIBILITY AND AUTHENTICITY	
CURRENCY	The information is generally up to date
ORGANIZATION AND PRESENTATION	
SPEED	The website takes a long time to download
READABILITY	It is difficult to read the pages as the pages are cluttered and the site has made use of different typefaces and colours.
MENU	The navigation structure is easy to use, as users have been provided with a comprehensive top menu item.
SITEMAP	There is no site map on this website.
HYPERLINKS	The hyperlinks are functional but have not been clearly defined
DESIGN	The site design is cluttered and makes it difficult for the user to move around and understand the site.
SUPPORT	The support offered on the website is as follows: <ul style="list-style-type: none"> • Ask an educational expert • Ask a technology expert • Feedback • Message board
INTERACTIVITY	There is little interactivity on the site
SEARCH FACILITY (RELIABILITY OF SEARCHES)	The search results are reliable and include the description of the link and URL.

EDUCATIONAL WEB PORTALS

ABC TEACH NETWORK

ORGANIZATION DETAILS	
WEBSITE ADDRESS	http://abcteach.com/
CONTACT DETAILS	sandkems@abcteach.com
DESCRIPTION	
<p><i>abcteach</i> website is targeted at teachers, student teachers, learners and parents. The purpose of website is to provide educationally sound suggestions that help with learning and teaching. The website provides easy, online materials for immediate use by kids, student teachers, teachers, parents and other visitors to the site. The material can be printed directly from the website and no downloads necessary. Teachers have permission to reproduce these pages for classroom use.</p>	
CONTENT	
<ul style="list-style-type: none"> • Basics - Activities, Reading, Reading Comprehension, Maths, Writing, Handwriting, Colours, Shapes • Theme Units - Animals, Habitats, Holidays, Month to Month, Sports, Countries • Research/Reports - Research Forms, Report Helpers, Book Report Forms, Maps, Flags • Reading Comprehension - Reading comprehensions for fictional and informational reading practice. Useful for teaching test-taking skills • Teaching Extras - Assignment Sheets, Awards, Bookmarks, Calendars, Centre Signs, Certificates, Labels, Maps, Special Paper • Shape Books - Animals, Holidays, Nature, Sports, Countries, Flags • Games/Puzzles - Crossword Puzzles, Number Puzzles, Online Crosswords, Online Games, Puzzles, Printable Games, Word Searches, Unscrambles • Fun Activities - Colouring Pages, Dot to Dots, Diagrams, Mazes, Recipes, 	

CREDIBILITY AND AUTHENTICITY	The authors of the website and their background has been included on the website and this enhances site's credibility and authenticity.
CURRENCY	The information found on the website is generally up to date.
ORGANIZATION AND PRESENTATION	
SPEED	The site downloads very quickly and the site used small graphics very.
READABILITY	The contracts between the background colour and the text is high and enhances the readability of the site and the typefaces used is clean and prints very well
MENU	The home page design has links to main parts of the site and adequately explains the navigation structure of the website. There are fixed links back to the main parts and the home page for all pages. The navigation is easy to use.
SITEMAP	The sitemap used on the website is adequate and provides access to all the parts of the website which are not available from the menu buttons
HYPERLINKS	All the hyperlinks works well except that the different types of hyperlinks are not clearly marked.
DESIGN	The design is user centered and consistent throughout the pages and the screens appear to be clean and uncluttered.
SUPPORT	The website offers good support to both first time and experienced Internet users. The "Tech support" section of the website include both technical and professional help and users can use this forum to share activities, ask questions and offer helpful advice
INTERACTIVITY	The interactivity used on the site e.g. chat facility works well and a detailed explanation on using this facility has been provided.
SEARCH FACILITY (RELIABILITY OF SEARCHES)	There is a search facility contained on the site, is accurate and reliable and uses a free text search.

AFRICAN & SOUTH AFRICAN LINKS PAGE

ORGANIZATION DETAILS	
WEBSITE ADDRESS	http://employees.csbsju.edu/esass/safricanlinks.htm
CONTACT DETAILS	dlamb@csbsju.edu
DESCRIPTION AND CONTENT	
<p>This website includes links to website in Africa, is enables browsers to access links to other African Resources and Lesson Plans. The links have been categorised as follows:</p> <ul style="list-style-type: none">▪ General African Links (History of Africa/African Maps etc.)▪ South African Links (Museums online etc.)▪ Lesson Plans and units of teaching about Africa	

CREDIBILITY AND AUTHENTICITY	The credibility and authenticity of this site could not be determined as it does not have any information regarding the organization or individuals responsible for website.
CURRENCY	The website is not up to date as it has a number of broken links.
ORGANIZATION AND PRESENTATION	
SPEED	The site downloads very quickly, as the graphics used are very small and have been used sparingly.
READABILITY	The website is clean and easy to read and the colours used on the site prints well
MENU	The website has a single page and there are no menu buttons on the site,
SITEMAP	No sitemap was used on the site
HYPERLINKS	There were a number of broken/dead hyperlinks and some pointing to the wrong addresses. There are inconsistencies in the way in which the site opens up the linked websites, other websites opens up in new browsers and other doesn't.
DESIGN	The design is clean and easy to read.
SUPPORT	No support was offered on the site
INTERACTIVITY	There was no interactivity used
SEARCH FACILITY (RELIABILITY OF SEARCHES)	No search facility.

CLASSROOM CONNECT

ORGANIZATION DETAILS	
WEBSITE ADDRESS	http://www.classroom.net/
CONTACT DETAILS	Phone toll-free: (800) 638-1639 Fax your questions: (888) 801-8299 Email: connect@classroom.com
DESCRIPTION	
<p>Classroom Connect is a provider of professional development and online curriculum resources that foster successful use of the Internet in education. They offer the K-12 education community a customized subscription service package that includes the professional learning programmes and standard-based classroom learning materials available, complete with face-to-face training and ongoing customer support. Through years of experience they found that this integrated approach helps educators effectively use the Internet as part of daily classroom instruction, which ultimately helps students develop key critical thinking skills while meeting core learning requirements in math, languages arts, science and social studies.</p>	
CONTENT	
<ul style="list-style-type: none"> • Classroom Collection – reading materials in all subject areas • Professional Collection – resources on assessment, curriculum and lessons plans, professional development, special education, organizations and publications. • Reference Shelf – fact finders, directories, dictionaries and thesauruses, time keeping, libraries and museums • Learning Resources – connected lessons, field trips, web units, the Quest channel, hot lists • Class Assessments – students portfolios and notebooks, class assignments • Connected Universities and Conferences – libraries, current conferences, past conferences. 	

CREDIBILITY AND AUTHENTICITY	The website is part of the Harcourt Inc. – a provider of professional development and online curriculum resources and has also won a number of awards (best online program, best education solution) making the website credible and reputable.
CURRENCY	The information found on the website is up to date.
ORGANIZATION AND PRESENTATION	
SPEED	The home page downloads very quickly as the page design is clean and does not have a lot of graphics but the secondary pages take long to download because of the colours and numbergraphics used.
READABILITY	The typography used is clean and easy to read and there is a high contrast between the background colour and the text to enhance the quality of printing. The website is optimized to read well on the 800 x 600 screen resolution.
MENU	The navigation structure is easy to use and the users are made aware of where they are on the website all times.
SITEMAP	The sitemap used in this website is comprehensive and has links to all the other parts of the website.
HYPERLINKS	The different types of hyperlinks are not clearly marked. There were a couple to broken links found on the website
DESIGN	The home page design is clean and easy to read as compared to secondary pages, which have a lot of information and appear to be cluttered.
SUPPORT	Email addresses for specific individuals to assist the users with any queries and feedback. Instruction sheets have also been added on the website to help user in using the website.
INTERACTIVITY	The interactivity used on the site works very well, especially where learners are required to perform experiments online and receiving feedback/results of their experiments.
SEARCH FACILITY (RELIABILITY OF SEARCHES)	There is no search facility provided on this website.

DISCOVERY SCHOOL.COM

ORGANIZATION DETAILS

WEBSITE ADDRESS	http://school.discovery.com/
CONTACT DETAILS	feedback@discoveryschool.com

DESCRIPTION

DiscoverySchool.com is part of the Discovery Communication, Inc. The website provides teaching materials for teachers, resources for students, and advice for parents about how to help their kids enjoy learning and excel in school. The site is constantly reviewed for educational relevance by practicing classroom teachers in elementary school, middle school, and high school.

CONTENT

- **For teachers** – this section includes *lesson plans* (original lesson plans, all written by teachers for teachers and sorted by subject and grade or both), *teaching tools* (tool that help teachers create their own teaching materials), *custom classroom* (teaching tools available online - plus the ability to save documents in their own personal account, create and save puzzles with Puzzlemaker, create, save and administer quizzes with Quiz Center, and create and save worksheets with, Worksheet Generator, *teacher's store and conversation*
- **For learners** – provides tools to help learners study, games, and tons of great clip art to use and many learning adventures.
- **For parents** – this section provides parents with comprehensive book reviews, the educational software, videos, games, and toys for kids; tools to help their children with homework and assignments; tips and advice on everything from surviving their your children's research report and watching TV programs with children.
- **Store** – here users can find and order all the teaching tools and videos, CD ROMS, books, worksheets and learning plans.

CREDIBILITY AND AUTHENTICITY	The website is part of the Discovery Communications, Inc group of companies and this enhances the credibility and authenticity of the website.
CURRENCY	The information of the website is generally up to date.
ORGANIZATION AND PRESENTATION	
SPEED	The download time is fairly quick as there are few graphics used on the home page.
READABILITY	The site has made use of different typefaces and colours, which reads and prints very well. There is contrast between the text and background.
MENU	The home page has one-menu system, which provides access to main pages of the site. Main pages of the website have two menu systems; the top menu system is similar to the one found on the home page and side menu button provides access to sub pages of website. The navigation structure is easy to use and there is a link back to main page from all pages, and there is a link to a main level from each page and these are fixed links that do not rely on the browser button.
SITEMAP	The sitemap available on the website is adequate and provides information that cannot be accessed from the menu.
HYPERLINKS	Different types of hyperlinks used are not clearly defined, for example internal links, bookmarks or links to external websites.
DESIGN	The design aids navigability and the selection of fonts, graphics and styles helps the user to move around and understand the site. The screens are clean and uncluttered and the site has been optimized at 800 x 600 screen resolution.
SUPPORT	An email address has been provided for users to send emails for support and feedback.
INTERACTIVITY	The interactivity used in the website between the users and technology works very well for example when teachers search the lesson plans based on the criteria they have selected and get result on customized results.
SEARCH FACILITY (RELIABILITY OF SEARCHES)	The search facility on the website is free text based and produces results which includes the URL and the page description.

E-MATRIC

ORGANIZATION DETAILS	
WEBSITE ADDRESS	http://www.ematric.co.za/
CONTACT DETAILS	mailto:andrea@edgree.co.za
DESCRIPTION	
<p><i>eMatric</i> website is part of the eLearning Systems and eDegree and its focus or core business is the development and/or delivery of multimedia-rich, on-line learning material in the General Education and Training Band (ABET Levels 1 – 4). The website is targeted at Grade 12 learners and it provides them with useful information, like past examination papers, career guidance, news and views etc.</p>	

CONTENT	
<ul style="list-style-type: none"> • Ad Alley /Virtual job centre - users are able to select the job that they may be interested in, adverts with information about certain positions in that field are also available. • Career Village – users can post their own <i>eMatric</i> resume and achievement profile and <i>eMatric</i> will keep all their details on file and assess their personality, talents and competence in various areas (based on the WAIS testing mechanism) and also provide them with a certificate of competence (which they will be able to print out) and users can use <i>eMatric</i> to keep track of their achievements • Day in the Life- provides information about various career options and the details that the job entails • Take a Break – up to date information on music, issues, web cams and online games • Knowledge Mall –browsers are able to shop for knowledge and browse through the isles of history, English, geography and general knowledge. • Exam Centre – provides past exams papers for matric final exams and memorandums. • Chat – users are able to provide feedback, ask questions and generally share information in the chat server. 	
CREDIBILITY AND AUTHENTICITY	The credibility and authenticity can be attributed to the fact that the website is part of the eLearning Systems and eDgree website which is supported reputable companies like Johnic, PriceWaterhouseCoppers.
CURRENCY	The website and information on the website is generally up to date because most of the sections of the website, for example the exam sections and new and events section is mostly current information.
ORGANIZATION AND PRESENTATION	
SPEED	The websites load quickly and the graphics used are very small.
READABILITY	The screens are clean and uncluttered, the text size is legible in different screen resolutions, and website was optimized at 800 x 600 screen resolution. The typography is easy read as there is contrast between the text and the background and these pages do print well expect in the News and Events where there text is not legible due to the background colour used.
MENU	There is only one menu system used and it makes the navigating the site very difficult as there are no labels on the graphics to indicate where they are linking to, the user has to place the cursor on the graphic to find out where it links to.

SITEMAP	No sitemap has been provided.
HYPERLINKS	All the hyperlinks are working expect that the different types of hyperlinks used are not clearly defined, for example internal links, bookmarks or links to external websites.
DESIGN	The screen elements and presentation of content is consistent. It is easy to move around and understand the site except that there are no labels on the graphics to indicate where they are linking to.
SUPPORT	An email address has been provided for users to send emails for support and feedback. There website has an instructions sheet about how to use various functions provided on the site. Also, links to websites where they can download software to be enable them to use the site properly have been provided.
SEARCH FACILITY (RELIABILITY OF SEARCHES)	There is no search facility in this website.

ENCHANTED LEARNING

ORGANIZATION DETAILS	
WEBSITE ADDRESS	http://www.enchantedlearning.com/Home.html
CONTACT DETAILS	Postal Address: PO Box 321, Mercer Island, WA 98040-0321. Tel: (206) 232-4880 Email: privacy@EnchantedLearning.com
DESCRIPTION	
<p><i>Enchanted Learning</i> is targeted at K-3 learners and produces children's educational websites and games which are designed to capture their imagination while maximizing creativity, learning, and enjoyment. Their mission is to produce the best educational material, emphasizing creativity and the pure enjoyment of learning.</p>	
CONTENT	
<ul style="list-style-type: none"> • The site has a picture dictionary that can be used as a useful online tool for young children in the classroom. • Printable resources, • A labeling exercises for children, • A search facility to find the topic/resource the browser may be looking for, • Puzzles, Quizzes and questions 	
CREDIBILITY AND AUTHENTICITY	The information on and contact details for the organisation and/or individuals responsible for the website has not been included on the website.
CURRENCY	The information is generally up to date.

ORGANIZATION AND PRESENTATION	
SPEED	The website takes a long time to download because graphics used are big and increases the download time of the website.
READABILITY	The typography is not clean as there are different typefaces. The pages are very long and the selection of fonts, styles makes it very difficult to read. The colours selected do not print very well.
MENU	The homepage provides links/access to other parts of the website. All the sub pages have a different menu item than to the one found on the homepage, the menu provides links to the sub sections of the site and also includes a link to the home page.
SITEMAP	There is no site map in the website.
HYPERLINKS	Hyperlinks used are not clearly defined that is whether they are internal links, external links or links to external websites. Generally the links are working and accurate.
DESIGN	The website is not visually attractive and all pages are cluttered. The content is not logically structured. The presentation/design is not consistent. It is very difficult for the user to move around and understand the site.
SUPPORT	An email address has been provided for users to send emails for support and feedback.
INTERACTIVITY	The website is not interactive and engaging.
SEARCH FACILITY (RELIABILITY OF SEARCHES)	The search facility has a spelling corrections component and the search result include date and the time the content was loaded on the website and the URL.

LEARN.CO.UK

ORGANIZATION DETAILS	
WEBSITE ADDRESS	http://www.learn.co.uk
CONTACT DETAILS	<p>Physical Address: 5th Floor 79 Farringdon Road London EC1M 3JU</p> <p>Tel: (+44) (0) 20 7713 4050 Fax: (+44) (0) 20 7713 4108 E-mail: contact@learn.co.uk</p>
DESCRIPTION	
<p><i>Learn.co.uk</i> is an educational website for the Guardian Newspaper in the United Kingdom. This site is targeted at both teachers and learners. Users can find lessons to support the national curriculum in the United Kingdom, resources for learners which build on the 200-year-old archive of the Guardian and the Observer and a unique range of online events.</p>	
CONTENT	
<p>The website has information on the following:</p> <ul style="list-style-type: none"> • Guardian resources – this is where users will find teaching resources based on the vast Guardian archive, including the weekly topical lessons. These resources can be used for lesson planning, homework, and all kinds of research. • Online lessons and tests – this section covers every element of the national curriculum in each subject at each key stage. These resources can be used for lessons in classroom, or for private study. • Educational Resources – primary and secondary topical lessons • Revision –revision guide, planner and past examination papers • Miscellaneous – users can ask a mathematics teacher, sample essays, news and views, web guide, national curriculum tests • Teachers Only – professional advise on career development and good practice. 	

CREDIBILITY AND AUTHENTICITY	The website has credibility because it is linked to The Guardian Newspaper and has been voted the best education site in the Yell.com Awards 2001.
CURRENCY	The information on the website is generally up to date. Each week new topical lesson are added on the website and this insures that the information/website is updated. There were no technical problems on the website such as broken links and all hyperlinks are fully functional.
ORGANIZATION AND PRESENTATION	
SPEED	The website downloads quickly and the graphic elements have been selected carefully to minimize download time. Also, the graphics are small and used sparingly.
READABILITY	The typography is clean and easy to read and there is high contrast between the background and the text to improve legibility. The website has made use of only two typefaces. The pages have been designed to facilitate the ease and quality of printing. The site has been optimized at 800x600 screen resolution.
MENU	The site uses two systems. The top menu system provides access to the home page and the personalized page button (<i>My Space</i> , this is for registered members). The bottom menu system give access to background information of the website and its partners. The homepage has links to main parts of the site, and adequately explains the navigation structure. All the pages have a link back to the main pages and the home page and the users are made aware of where they are on the website at all times.
SITEMAP	The sitemap used in this website adequate as it provides links to all components of the site which cannot be accessed on the menu buttons.
HYPERLINKS	Hyperlinks used are not clearly defined that is whether they are internal links, external links or links to external websites.
DESIGN	The presentation of content is consistent and screen elements with similar functions share similar appearances and location and this makes the site design to be consistent. The pages are clean and not cluttered with information making it easy to navigate.
SUPPORT	An email address has been provided for users to send emails for support and feedback. The website does not have an instructions sheet about how to use various functions provided and a help function.
INTERACTIVITY	There is a clear choice of different technology components used and the selection of hyperlinks is purposeful.
SEARCH FACILITY (RELIABILITY OF SEARCHES)	The search facility used is free text based and the search results have been rated by percentages and include the date and time the content was loaded on the website and the URL.

LEARN.CO.ZA

ORGANIZATION DETAILS	
WEBSITE ADDRESS	http://www.learn.co.za/
CONTACT DETAILS	info@learn.co.za
DESCRIPTION	
<p>Learn.co.za is an online learning website for learners and schools in developing countries. The website aims at delivering quality education and helping learners to improve their results by providing user-friendly and highly interactive multimedia and holistic education solution to education. Learn.co.za is targeted at teachers and learners from Grades 9 through to Grade 12.</p>	
CONTENT	
<p>The website contains a range of in-depth curriculum-specific lessons for Grade 9 – Grade 12:</p> <ul style="list-style-type: none"> • Classroom – here users can find lessons plans and teaching and learning materials • Virtual Library – users can participate in interactive experiments in the virtual library • Electronic Library – here users can read and print free books and resources. They can register their details online and get free-access education material This will also enable users to join the virtual learning community • Notice board – the notice board provides information about what's new on the site, users can also catch up on <i>learn.co.za</i> news and special projects • Shop – here users can order any of the Learning Channel Campus's full educational video catalogue • TV Guide – this facility allows users to keep on top of The Liberty Life Learning Channel Broadcasts on SABC 3 and they can also check out the month-by-month TV Guide • About us – this facility allows users to find out more about the organisation and its activities • Contact us –this section has details on contact the organisation and providing feedback • Subscribe – here users can register their details online and get free-access education material. This will also enable them to join the virtual learning community 	

CREDIBILITY AND AUTHENTICITY	The credibility and authenticity is enhanced by the fact that the website belongs to Learning Channel Campus and is sponsored by reputable companies like Johnnic Learning company Liberty Life.
CURRENCY	The information of the website is current and updated regularly for example the TV guide information and the What's new section.
ORGANIZATION AND PRESENTATION	
SPEED	Download time for the website is good. This can be attributed in part to the fact that graphics used are small.
READABILITY	The typography is clean and easy to read, and the font size is appropriate so that the text can be read in different screen resolutions (640x480, 800x600, 1024x768). The colors used work well for printing purposes expect for the font used on the sub menu buttons.
MENU	The use of the menu button is quite clear and consistent in all the pages and the users are also made aware of where they are on the website all the time expect there that is no home button and back button on all the sub-pages and a user is required to use the browsers back button to return to the previous pages or to the home page.
SITEMAP	The sitemap available on the website is inadequate and provides no information that cannot be accessed from the menus. The sitemap should further comprise of clickable links that give the user immediate access to any part of the site.
HYPERLINKS	Hyperlinks used in this website are working properly but there is no clear distinction made between different types of hyperlinks for example, internal link (bookmarks/placeholders), external links and links to PDF content.
DESIGN	The design and layout of the site is fairly attractive good and provides good direction to the website. There is a clear distinction from content that is meant to be read online as these mostly fits onto a single screen (these pages do not require the user to scroll down the page and users are mostly required to complete exercises and assessments online) and pages that simulate hard copy documents are longer and users will be more likely to print them out than read them online. The website is underpinned by a logical and consistent design, this is due to fact that the design and selection of fonts, styles, bullets, graphics and the content is logically structured
SUPPORT	An instruction sheet has been provided in helping users navigate the learning materials and an email address for general queries and support.
INTERACTIVITY	A high level of interactivity between the user and technology has been achieved by requiring users to submit answers online on a particular topic/experiments and receive feedback.
SEARCH	The website has free-text search facility and results include an abstract, size of the page and date last updated and the search results are accurate and reliable.

THE LESSONS PLAN PAGE

ORGANIZATION DETAILS	
WEBSITE ADDRESS	http://www.lessonplanspage.com/
CONTACT DETAILS	Phone: 816-674-2515 Fax: 208-330-3832 Email: webmaster@lessonplanspage.com
DESCRIPTION	
<p><i>The Lesson Plans Page</i> is a collection of over 1,000 lesson plans, primarily at the elementary level, that were developed by Kyle Yamnitz, students and faculty at The University of Missouri. More recent lesson plans were submitted by the users of this website. <i>The Lesson Plans Page</i> was developed to assist educators of all types. Elementary school teachers get lesson plans that are ready to use in their classrooms. College students get great example lesson plans or ideas to base their own lesson plans on. Distance education learners can get lesson plans to use at home and parents can get ideas for educational activities to use with their children.</p>	
CONTENT	
<p>The website has information categorized under the following topics:</p> <ul style="list-style-type: none"> • Seasonal lesson plans • Lesson plans categorized by subject area and date • Inspired teachers • Education links • Special features • Weekly experiments and mathematics worksheets 	

CREDIBILITY AND AUTHENTICITY	The site includes detailed information about the authors of the content, this adds to the authenticity of the website. The site is also credible as the author is from the University of The fact that the Missouri.
CURRENCY	The website is generally up to date as there are no broken links and the date the site was updated is current.
ORGANIZATION AND PRESENTATION	
SPEED	The site download time is quick as the graphics used are generally smaller and colours used do not take long to download.
READABILITY	The typography is clean and easy to read. There is a high contrast between the background and the text which improves legibility and these pages print quality. The site includes a printable version for pages on the website.
MENU	The site makes use of two menu systems. The top menu system provides links to the supporting The vertical menu provides access to the all the parts of the website including links to the menu item found on the top menu system. The navigation structure and the information on the home page is user-centred and easy to use. There is a link back to the main pages from all the pages and these links do not rely on the browsers back, forward buttons.
SITEMAP	The website does not have a sitemap, the vertical menu button has been used for this purpose instead.
HYPERLINKS	No distinction in made between different types of hyperlinks used but generally the links work well and are accurate.
DESIGN	The site design is clean and inviting and this if further enhanced by the use of fonts and styles and colours. Screen elements are consistent throughout the site.
SUPPORT	Email links are provided for users to provide feedback and report any errors or problems they have encountered. Users can also provided with a list of FAQ answers and fixes.
INTERACTIVITY	There was not a lot of interactivity used on the site.
SEARCH FACILITY (RELIABILITY OF SEARCHES)	Search facility searches for lesson plans by: subject, most recent additions, seasonal lessons by date and search results are accurate. It also has an option to search for other educational sites for variety.

MATHEMATICS WEB ASSOCIATION OF SOUTH AFRICA

ORGANIZATION DETAILS	
WEBSITE ADDRESS	http://www.easymaths.org
CONTACT DETAILS	<p>Postal Address: P.O.Box 2073 Randpark Ridge 2156</p> <p>Tel: 011 791 7154</p> <p>Fax: 011 791 7155</p> <p>Email Address: Administration - admin@easymaths.co.za Student's emotional support - support@easymaths.co.za Tutor placement enquiries - tutor@eastmaths.org</p>
DESCRIPTION	
<p>This is a free South African Community Project with mathematics resources for teachers, parents and learners. The Mathematics Web Association (Easymaths) is an Non Profit Organisation that strives to make Mathematics resources available to all, free and “easy” and fun, on the Internet. It actively encourages the involvement of parents, teachers, students and all other interested parties in the enhancement of Mathematics learning and understanding. It provides a forum for teachers to interact with one another, students to interact with teachers and an opportunity for the community as a whole, government and the private sector, to take ownership of Mathematics skills development in South Africa.</p>	
CONTENT	
<ul style="list-style-type: none"> • Articles – here users can find documents, reports and article related to mathematics and education in general. • Students corner – this section includes lessons, study and examination skills for Grade 8 – 12 learners, learner’s forum and learners can also email the tutors for help. • Parents corner – parents can find useful advice on teaching their children maths; useful links to other support organization relating to parenting and networking. • Teacher’s corner – in this section teachers can download topic revision, diagnostic tests worksheets, study time-table, support material, summary sheets, old exam and test, link to relevant mathematics materials, extension material. The website has a 	

subscription service for extra lesson plan and resources for teachers.

- **Study skills** - a list of useful study skills are listed in this section, it includes, time management, action plan, homework, revision and how to prepare to tests and examinations.
- **Links** – here users can useful links to external websites.
- **Webwise** – first time Internet users can find useful information on using the Internet and finding their way around the world wide web
- **Notice board** – all the new editions to the website can be found on this page.

CREDIBILITY AND AUTHENTICITY	The authenticity of this website has been enhanced by including pictures and contact details of the organizations staff members. This adds a personal tone to the website. Also, the website includes relevant information relating to the new curriculum and unit standards.
CURRENCY	Not all information is up to date. This is in part because other pages haven't been updated for more that a year as compared to the homepage which, includes the date as to which information was uploaded. The website has a number of broken links as well.
ORGANIZATION AND PRESENTATION	
SPEED	Pages take long to download, this is due to the fact that the website has made use of a lot of colours and graphics.
READABILITY	This website was optimized for Internet Explorer 4 or higher and 800 x 600 resolution. The typography is not clean and easy to read due to the colours used and pages do not print very well. There is little contract between the background and the text in other pages.
MENU	The site has one menu system, which provides access to some parts of the website. The site has also made use of a fixed links that do not rely on the browser.
SITEMAP	This page could not be downloaded.
HYPERLINKS	Hyperlinks are not been clearly marked. There are a number of technical errors; these include broken/dead links, hyperlinks to incorrect sections.
DESIGN	The website has made use of frames and does not support browsers that do not use frames. Other pages are too cluttered and not easy to read. The site design and selection of fonts, graphics and styles do not help the user move around and understand the site.
SUPPORT	The technical support offered on the website includes links to websites where they can download the relevant software like Adobe PDF and Flash player. Email address has been provided for users to report dead links and errors on the website Users can email tutors and the organisation's staff members for any support or queries they might have.
INTERACTIVITY	The different types of technology components used on the website work well together except for a couple to broken links and a huge number of hyperlinks in a single page.
SEARCH FACILITY (RELIABILITY OF SEARCHES)	The search facility is powered by Yep.com; and search result, which are free text, includes abstract, URL of the page, the size and the date last modified.

M-WEB LEARNING

ORGANIZATION DETAILS	
WEBSITE ADDRESS	http://www.mweb.co.za/hub/learning/default.asp
CONTACT DETAILS	Telephone: (021) 596 8820 Fax: (021) 596 8915 Email: info@mweb.com
DESCRIPTION AND CONTENT	
<p>The <i>Mweb learning</i> is part of Mweb's network of website. It is targeted at educators and learners from Grade R – 12.</p> <ul style="list-style-type: none"> • Matric Centre –browsers can to consult a specialist tutor 24 hrs a day, do online tests and have them marked, work through previous exam papers, get tips on how to prepare examinations • Grade R – 11 – many of the activities provided in the respective learning areas, were developed in conjunction with Nasou Via Afrika, one of the largest publishers of educational text books in Southern Africa • Library – allows users to search for specific resources/books online • Encyclopaedia Britannica –subscribing members of Mweb can view Encyclopaedia Britannica online • Tutors – This facility helps browsers to get in touch with individuals specializing in various subject areas • Help with Project • E Centre – facility to help browsers use the technology in the classroom 	

CREDIBILITY AND AUTHENTICITY	The content on the website is from reputable organization for example the Encyclopaedia Britannica and also the website is part of the Mweb's network of websites.
CURRENCY	The information contained on the website is up to date and there are new daily posting to the website.
ORGANIZATION AND PRESENTATION	
SPEED	The website download time is moderate
READABILITY	The typography and the colours used on the website are clean and easy to read. The font size is appropriate for different screen resolutions and the site is optimized at 800x600 screen resolution.
MENU	The home page design has links to main parts of the site The navigation structure is intuitive and easy to use. There are fixed links that do not rely on the browser menu buttons.
SITEMAP	There is no sitemap
HYPERLINKS	The hyperlinks found on the website are accurate and work very well but the different types of hyperlinks are not clearly defined.
DESIGN	The design is consistent through out the website. The selection of fonts, graphics and styles help the user to move around and understand the site expect for the top menu items which includes links to the other Mweb websites and the advertising menu, which can very distracting.
SUPPORT	There are email addresses provided on the website for users to use to contact tutors and get help of various queries they might have.
INTERACTIVITY	The interactivity used on the site work well for example where learners have to submit answers online and receive feedback.
SEARCH FACILITY (RELIABILITY OF SEARCHES)	The <i>Mweb learning</i> does not have a search facility but it uses the search provided to search all Mweb's network website which provides unreliable/unrelated results.

NEW ENGLAND COLLEGE EDLINKS TEACHER RESOURCE DIRECTORY

ORGANIZATION DETAILS	
WEBSITE ADDRESS	http://www.necedlinks.org/
CONTACT DETAILS	blackji@boxbitz.net
DESCRIPTION	
<p>EdLinks is a resource for pre-service teachers and other educators. It includes annotated links to educational web sites containing lesson plans, study resources, teaching tools, assessment strategies, publications, publishers and vendors of educational materials, as well as state and national standards and frameworks. It is targeted at teachers, learners, parent and administrators.</p>	
CONTENT	
<p>The function of this website is to provide links to educational website and the links have been divided into the following categories:</p> <ul style="list-style-type: none"> • Frameworks and Standards: here users can find links to organizations specializing in standards or to the frameworks of various states. • Curriculum Resources: this area contains links to the various subject areas. Each subject area resource page contains links to national standards and/or Curriculum Frameworks for that particular area. Each resource listed has been rated and reviewed to reflect usefulness to teachers in meeting content area objectives, and/or connections to the frameworks or standards. • The Teaching Resources: this section contains more generalized resources for educators. These sites offer tools and tips for classroom management, teaching strategies, professional development information, as well as curriculum resources. Resources to locate Grants and other methods of funding are also provided. • Publications and Journals: this is an area where links to a variety of educational publications are located. Many magazines of interest to educators publish online versions and maintain archives. • The Vendors: this section contains lists of publishers of educational books, materials, and software. • Educational Software: here users will find a list of software applications useful in meeting standards. Each software application listed is linked to its publisher. Also available are links to software distributors and software reviews. 	

- **The Search and Research:** this section contains links to a number of search engines, directories and indexes, and includes information about helpful search strategies.

CREDIBILITY AND AUTHENTICITY	The site has credibility as it is linked to the New England College and contact details have been included in the website.
CURRENCY	The website has broken links and the last modified on the 01 August 2001 and this makes the site not up to date.
ORGANIZATION AND PRESENTATION	
SPEED	The website design is clean and has not made use of graphics and the white background colour increases the download time of the website.
READABILITY	Ned EdLinks website is easy to read and the font size is appropriate for different screen resolutions, and the white background increases the contrast between the text and background.
MENU	The website uses frames-based approach which provide access to the Ned EdLinks menu. A horizontal menu system at the bottom of each page has been provided for browsers that do not support frames. All the menu items provide adequate access to all the sections of the website.
SITEMAP	Ned EdLinks website has made use of table of content which list all the information found on their website. The use table of content has worked well for this website as it provides an outline of the website content.
HYPERLINKS	All hyperlinks used are clearly defined i.e. internal links, external links and email links. The user is always made aware at all times of the type of hyperlink they are following and this helps them to know where they are and how they should return. In some cases both the internal and external links were broken.
DESIGN	The home page includes two main menu systems, which provides adequate access to other part of the site. The web design aids navigability and the selection of fonts, and styles helps the use to move around and understand the site.
SUPPORT	The website offers good support to both first time and experienced Internet users. It includes instruction sheet guiding users in different ways to finding their way around the NEC EdLinks site and an Internet tutorial for users who are not familiar with using the Internet, and information that will help make it easy for users to find the right search vehicle and technique to locate useful information.
INTERACTIVITY	The website is not interactive.
SEARCH FACILITY (RELIABILITY OF SEARCHES)	Ned EdLink has made use of a number of different search engines and Internet directories and has further provided help and additional tutorial and article to simplify their searches. As the purpose of the website is to provide links to various educational site all the search results are directing users to website instead of resources.

TEACHERSPET.CO.ZA

ORGANIZATION DETAILS	
WEBSITE ADDRESS	http://www.teacherspet.co.za/educatorsresources.htm
CONTACT DETAILS	info@teacherspet.co.za
DESCRIPTION	
<p>The <i>Teacherpet.co.za</i> is targeted at learners, parents and educators. The site enables learners to explore the online resources in order to make their learning more effective. It provides information to learners of all ages with information relevant to their studies. It also provides educators with valuable resources to enable them to cope with the needs of their learners. The <i>Teacherpet.co.za</i> website contains a database of educators and other professionals linked to the education fraternity and relevant information on educational issues</p>	
CONTENT	
<ul style="list-style-type: none"> ▪ Pre-Primary School – provides printable resource for classroom use ▪ Primary School – exercises (online interactive exercises), exam preparation, study tips (useful printable document), online games, core subjects (printable information for teachers/students to use in the classroom) ▪ High School – exam preparation, study tips (useful printable document), resource material. ▪ Educators Database – information and contact details of professionals in the industry. ▪ Educators Resources – lesson plans, methodology, new trends ▪ Teachers Community – messages board (this is used to share information, ideas and views) ▪ Learners Assist – this facility allows students to email queries ▪ Parent Tools – this facility provides topical information to parents about common childhood diseases, and links to relevant sites 	

CREDIBILITY AND AUTHENTICITY	There is not any detail and information contained on the website about the organization and its members
CURRENCY	The website is generally up to date most of the articles contain current information.
ORGANIZATION AND PRESENTATION	
SPEED	The download time for the home page is fairly moderate because the graphics used are not that many. The graphics on other pages are fairly big and pages take long to download.
READABILITY	There are a number of typefaces and colours used in the website, this makes it difficult to read other sections of the website and the print quality of these pages is very poor.
MENU	There is one menu system used in this website that provides access to main parts of the website. Navigation is easy to use except that there is no back button on other pages and the user relies on the browsers buttons.
SITEMAP	There is no sitemap in this website.
HYPERLINKS	The hyperlinks do work well but different types of hyperlinks used are not clearly defined that is, whether links are internal or external.
DESIGN	The site design aids navigability and helps the user to move around. The presentation of content and screen elements is consistent.
SUPPORT	Teachers, parents and learners can send emails to the organization for both technical problems (broken links) and professional development related queries (teachers who have problems adapting to OBE)
INTERACTIVITY	There is not a high level of interactivity used on the website
SEARCH FACILITY (RELIABILITY OF SEARCHES)	There is no search facility in this website.

DISCOVER OUR EARTH (RESOURCE)

ORGANIZATION DETAILS	
WEBSITE ADDRESS	http://atlas.geo.cornell.edu
CONTACT DETAILS	Voice:(607) 255-1159 Fax: (607) 254-4780
DESCRIPTION	
<p>DISCOVER OUR EARTH educational web pages. Here you will find a wide range of information related to the Earth sciences, accompanied by images, graphs, maps, and movies. In addition, you will find two Java-based, interactive data analysis and mapping tools that will allow customised access to a large variety of Earth science data sets that are used by research scientists. The first Java applet, called QUEST (Quick Use Earth Science Study Tool), has been designed and developed for high school and college students who are just beginning their study of Earth science. It has an easy-to-use interface that allows access to several key Earth science data sets. The second Java applet, GEOID, is more appropriate for advanced users. It provides a dynamic mapping interface and can be used to access all of the Earth science data sets made available by Cornell. We have developed a series of reference pages designed to accompany these Java tools.</p>	

CONTENT

Teachers

This section provides teachers with background information about selected Earth science topics, and suggests a number of student activities and exercises that can be employed in classroom settings. Curriculum guides accompany these with even more specific information about the use of our tools in the classroom. Teachers should view the exercises provided here as suggestions. Browsers are encouraged to adopt, adapt, and modify exercises to suit their own personal needs/situations. Most of all, browsers are encouraged to be creative, and to explore the data and visualisations in ways that have not been used on the site.

Students

This section provides background information for the QUEST data sets and includes a series of activities that should help browsers to discover some pretty interesting things about the Earth. Browsers should be able to experiment and test their own ideas and hypotheses related to any of the topics covered by the QUEST module. With the tools and information provided here browsers will be actively engaged in the process of discovery, and by critically evaluating the data and your results, can learn about the dynamic Earth system.

CREDIBILITY AND AUTHENTICITY

This site has been created by a group of Professional people such as Khaled Al-Damegh Graduate Student Carrie Brindisi Research Aide Steven Gallow Computer Systems Manager Dogan Seber Senior Research Associate and Steven Gallow Computer Systems Manager. I am pretty sure the content is true to be accurate and authentic, therefore I think there is a high level of Credibility and Authenticity in this site. These people can also be contacted.

CURRENCY

The information contained on the site is current although there is no evidence to prove it. By reading the content of this site one will argue that all the information in this site is up to date and can be used by learners to enhance their geographic knowledge. Such website do not necessitate frequent updating. For the mere fact that this site has "Current Products" also mean that this site is not static at all.

ORGANIZATION AND PRESENTATION

The page layout is clear and easy to follow. To make this site more presentable there are a number of illustrations about the types of volcanoes. Adding sophisticated technology such as sound and other multimedia aspects would definitely uplift the current presentation and make this site more appealing, unfortunately such technology is not used.

ACCESSIBILITY/NAVIGABILITY	Easy to navigate through pages, just as all the pages begins with a clear transition, sequencing and closure.
SPEED	The download time is fair (not fast/slow). There are a number of graphics included on the site, unfortunately these take some time to download
READABILITY	Looking at the use of caps, font colour and the flow of information one would certainly agree that a high level of professionalism/readability has been engineered and maintained throughout.
MENU	The menu button is not clear and consistent throughout the site. A home button has not been included on every page and the users have to use the back button to access previous or the home page. The menu resource is well organised in a logical manner to facilitate the location of resources.
SITEMAP	There is a sitemap available on this site
HYPERLINKS	The value of the site lies in its links to other resources, and the links are “up to date, and made to appropriate resources”, taking into account my evaluation of this site’s state of CURRENCY
DESIGN (CONSISTENCY)	A simple Globe with no text on it, this design is consistent throughout the site
SUPPORT	Only professional support is offered in this website. Feedback can be pasted on via email fax or phone
INTERACTIVITY (INTERGRATION)	There is little emphasis on interactivity.
SEARCH FACILITY (RELIABILITY OF SEARCHES)	The search facility is not currently available

MICROSOFT EDUCATION (RESOURCES)

ORGANIZATION DETAILS	
WEBSITE ADDRESS	http://www.microsoft.com/education
CONTACT DETAILS	No contact details
DESCRIPTION	
<p>In June 2002, Microsoft CEO Steve Ballmer outlined Microsoft's mission and values to reflect the evolution of Microsoft's business and its focus on customers. Microsoft's Mission To enable people and businesses throughout the world to realise their full potential. Microsoft solutions for education provide schools, colleges and universities with resources to make the most of technology; connecting people, removing limitations, and creating opportunities for 21st-century learners to realise their potential.</p>	
CONTENT	
<p>Empowering people through great software – any time, any place and on any device Delivering on our mission requires great people who are bright, creative and energetic, and who share the following values:</p> <ul style="list-style-type: none"> • Integrity and honesty • Passion for customers, partners, and technology • Open and respectful with others and dedicated to making them better • Willingness to take on big challenge sand see them through • Self critical, questioning and committed to personal excellence and self improvement • Accountable for commitments, results, and quality to customers, shareholders, partners and employees 	

CREDIBILITY AND AUTHENTICITY	The information contained on the site is congested. No contact details are contained on the site and therefore the validity of this site is questionable.
CURRENCY	The information contained on the site is current and up to date. The site was last updated: Saturday, June 29, 2002.
ORGANIZATION AND PRESENTATION	
ACCESSIBILITY/NAVIGABILITY	The web site has a functional search facility but does not provide the users with a fixed links (back, forward, previous page). Navigation throughout the site is not easy
SPEED	The download time of the time is extremely slow
READABILITY	The font can be read easily, but the rest of the web page is not easy to read
MENU	Menu button available on all the pages
SITEMAP	There is a site map available on this site
HYPERLINKS	The hyperlinks are not clearly defined on this site, which may create problems for browsers
DESIGN (CONSISTENCY)	It's a very consistent design. The design is the same as used on various Microsoft products.
SUPPORT	The site offers both profession and technical support. The Professional support dominates the professional support.
INTERACTIVITY (INTERGRATIVITY)	Interactivity is encouraged on the site. Many of what is done in the classroom can be done on line.
SEARCH FACILITY (RELIABILITY OF SEARCHES)	Available throughout navigation within the site.

SA CHILD (LINKS)

ORGANIZATION DETAILS	
WEBSITE ADDRESS	http://www.sachild.co.za
CONTACT DETAILS	George 033 3949919 PO Box 13280, Cascades, 3202
DESCRIPTION	
<p>The above site is an Internet Based Educational Experts offering advice and information on all aspects of child development and education. A core of dedicated professionals established this site with affiliations to all major educational resources. To be the number one information site for all child education resources in South Africa is the number one goal of this site. For your own site fill in the online form below provided in this website. The more accurate and simple you keep your information the more effective it will be. Should you wish for a different layout it must be submitted by MS Word, Word perfect or in html by email.</p>	

CONTENT	
As indicated in the description this website is an agent for schools to develop their own website irrespective of the learning level (i.e. Pre-primary, Nursery, Junior, Primary and High schools). Already website for schools in Durban and Pietermaritzburg are up and running. In addition the website contains a wide range of service pages, service extramural, service professional pages, service page search and service online pages. Relevant subjects and theories accompany all of the above services.	
CREDIBILITY AND AUTHENTICITY	With the lack of authorship it becomes difficult to comment on credibility and authenticity.
CURRENCY	The information contained on site is current and up to date
ORGANIZATION AND PRESENTATION	
ACCESSIBILITY/NAVIGABILITY	Navigation throughout the site is easy. The time spend trying to move through this site is worth the information one will find here.
SPEED	The pages do not take a long time to download.
READABILITY	Depending on the intended audience's level and ability to understand images this is a readable website.
MENU	The Menu is simple and easy to use
SITEMAP	There is a sitemap contained on the site, this is accessible and easy to use.
HYPERLINKS	Some links are dead / broken that may cause browsers to become frustrated.
DESIGN (CONSISTENCY)	Perfect, clear and concise The design is consistent throughout the site.
SUPPORT	There is no support contained on the site.
INTERACTIVITY (INTERGRATION)	Users can interact easily with the fair amount of technology used in this website
SEARCH FACILITY (RELIABILITY OF SEARCHES)	N/A

SA SCHOOLS (RESOURCES)

ORGANIZATION DETAILS	
WEBSITE ADDRESS	http://www.saschool.co.za
CONTACT DETAILS	South Africa: 012 361-0931 International: +27 12 361-0931
DESCRIPTION	
<p>The site aims to provide learners with easy access to his/her school's own web-site and encourage him/her to feel at home with the fascinating world of the internet. To provide parents with easy access to information on the schools attended by their children, and to other web-enabled schools in which they may be interested. To provide the schools with an easy and effective means of distributing information, and promoting their schools' activities and achievements. To provide easy access for educators to other education-related web sites.</p>	
CONTENT	
<ul style="list-style-type: none"> • Computer literacy • Communicating with the school's parents • Marketing of schools • Cover the cost of the service • At SA Schools we offer three packages to get your school established on the internet • Basic, Standard (updated quarterly), Executive (updated as and when required), Price List • School Calendar 2002 • Links to education related sites To assist educators in keeping up to date with developments and news. • Tertiary institutions: Interested in further studies beyond matric? Here is a list of Tertiary Institutions' web sites. • Directory of Schools' web sites: Consult our list to find the web site of a particular school - it is the most comprehensive list in the country! 	

CREDIBILITY AND AUTHENTICITY	The information contained on the site is authentic although the author's name, contact details are not included on the site.
CURRENCY	This site knows how to market and advertise its services. Knowing that there is a high demand of fresh info the new links were recently updated (updated 7 July 2002)
ORGANIZATION AND PRESENTATION	
ACCESSIBILITY/NAVIGABILITY	Navigation is simple and easy to use.
SPEED	The download time is extremely fast.
READABILITY	The font used is easy to read
MENU	There is a menu system available, which is clear and aids navigation throughout the site.
HYPERLINKS	The links are accurate and up to date
DESIGN (CONSISTENCY)	The design is consistent throughout the site
SUPPORT	This website offer various support mechanisms: the site provides a means to keep educators up to date with developments and news and students interested in further studies are provided with a list of tertiary institutions' web sites.
SEARCH FACILITY (RELIABILITY OF SEARCHES)	A list of search engines have been included on the site. The list includes the most commonly used international search engines, as well as those specific to South Africa.

SABC EDUCATION (RESOURCES AND LINKS) ORGANIZATION DETAILS

WEBSITE ADDRESS	http://www.sabceducation.co.za
CONTACT DETAILS	Tel(+2711)714-5003 Fax (+2711) 714 6165
DESCRIPTION	
<p>This site keeps educators and learners on top of the things that are going on out there in the world of education. It bring things to their fingertips that will help both to grapple with change, transformation and new ideas for educators in such a way that you will have no doubt about how to implement these things in your school community.</p> <p>“We are all life long learners, our pursuit of knowledge and our own growth and development will impact directly on our success as professional educators in the 21st century”.</p>	
CONTENT	
<p>Motivate learners because learning with School TV is fun. Enrich teaching because there are lesson plans, follow-up activities and assessment ideas. Show learners an exciting world they would not see in their everyday lives. Create opportunities for a learner-centred classroom. “It's up to me to make it useful and exciting for the learners”. School TV is a free resource for anyone with access to a TV set and is shown in several different African languages. School TV can help me in a classroom where the learners are at different levels. Educators and learners in Grades R-3 and 4-6, in formal classroom, community learning and day are centres. Learners and educators in all South African languages.</p>	
CREDIBILITY AND AUTHENTICITY	<p>Yvonne Kgame currently holds the position of Acting Head of the Educational Television Department at the SABC. Yvonne gained wide experience in teacher development, by heading MacMillan's teacher development and training divisions in SA, Swaziland, Lesotho and Botswana, before finally becoming the Group Training Manger of the organisation.</p> <p>Lebo Ramafoko is arguably one of South Africa's most experienced multi-media education specialists. She has worked in education radio and TV. Prior to her work at Soul City, she worked in radio at the Open Learning systems Education Trust (OLSET) as a script writer</p> <p>Danie Swart has knowledge of production and multi-media marketing within television and has previously been responsible for international co-productions between the SABC and companies abroad.</p>
CURRENCY	This is one of the sites that have to be updated oftenly so that it keeps up with the television broadcast. This site was updated on Wednesday July 17, 2002 and I think that this site necessitate continual updating.

ORGANIZATION AND PRESENTATION	
ACCESSIBILITY/N AVIGABILITY	The site is easy to navigate through even though there are few missing features such as the back, forward, and previous.
SPEED	The graphics that are used on the site are very small. The site is faily quick to download
READABILITY	The size and colour of the font used throughout the site has been clearly thought out and arranged
MENU	The menu contained on the site, is located on the left-hand site of the screen and is not substantial for navigation throughout the site.
SITEMAP	N/A
HYPERLINKS	Hyperlinks are not clearly defined on the web site.
DESIGN (CONSISTENCY)	Nothing has been done in terms of the design except balancing the images according to their shape colour and size. This balance is not maintained throughout site.
SUPPORT	N/A
INTERACTIVITY	A fair amount of interactive technology has been used to throughout the site.
SEARCH FACILITY (RELIABILITY OF SEARCHES)	There is a search facility contained on the site, which searches the WWW as a whole, and not the specific site.

TECHNOLOGY MAGIC (RESOURCE)

ORGANIZATION DETAILS	
WEBSITE ADDRESS	http://ada.lesley.edu/faculty/flescher/team 1 htm
CONTACT DETAILS	Tel: (617) 868-9600 Fax: (617) 349-8150
DESCRIPTION	
<p>The site prepares women and men for professional careers in education, human services, management, and the arts. Since 1909 when the school was founded to train early childhood educators, Lesley has been a leader and innovator in educating for the professions that put people first. A commitment to the liberal arts, scholarly inquiry, and lifelong learning forms the foundation of Lesley's educational philosophy.</p> <p>The site offers a variety of graduate and undergraduate programs on its Cambridge and Boston campuses and in regional, national, and international locations. Central to the mission of all its programs is a commitment to excellence, creative instruction, the integration of academic and field-based learning, and responsiveness to the needs of society and the student. Lesley began as a professional school for women and remains committed to providing equal educational opportunities to those historically underserved by higher education</p>	
CONTENT	
<p>The site stands committed to providing all students fair treatment and an educational environment free of discrimination not only to comply with local, state and federal laws, but also to provide an educationally desirable environment. Lesley does not discriminate on the basis of race, colour, religion, national origin, age, sex, sexual orientation, disability or veteran status in admission to, access to, treatment in or employment in its programs and activities. In addition, discriminatory harassment based on race, colour, sex, religion, gender, national origin, age, sexual orientation or disability is illegal conduct that will not be tolerated.</p> <p>The site has established procedures to address student complaints of unlawful discrimination and harassment. The procedures are available in the Office of Student Affairs and in the Office of the Assistant to the President for Affirmative Action and Diversity. Through either office students may learn about what constitutes unlawful discrimination and harassment, may seek advice, and may obtain assistance in initiating the complaint procedure</p>	

CREDIBILITY AND AUTHENTICITY	Contact details have been included on the site in order to clarify credibility and authenticity of the information contained on the site.
CURRENCY	The site is current and up to date - last updated April 24, 2002
ORGANIZATION AND PRESENTATION	
The page layout is clear and easy to follow, easy navigation, structure of pages, use of links are functional and appropriate, graphical elements consistency.	

ACCESSIBILITY/NAVIGABILITY	The site navigability is excellent and it assists users who do not like linearity. Here I am saying that the menu system has been challenged. This is mainly because this site is arranged alphabetically. Instead of scrolling down until Z, abcd-z is put on the top so that you click without scrolling down.
SPEED	Very competent
READABILITY	The background colour is white, to increase the contrast between the text and background. I can also see and read from a distance
MENU	There is a link to the main page from all pages as well as a link to the main level from each page.
SITEMAP	Are available and provide information that can not be accessed from the menu buttons.
HYPERLINKS	They must be clearly defined for the users to know what type of hyperlinks they are following to where and how to come back.
DESIGN (CONSISTENCY)	Minimize some unnecessary scrolling, to enhance navigation. Information must feed onto a single screen so that users does not need to scroll down and sideways,
SUPPORT	Both Professional and technical support is offered in this site. Consider their curriculum framework or the variety of courses that this university offers.
INTERACTIVITY(INTERGRATION)	Fair enough
ATTRACTIVENESS	By and large I think the site is attractive, although the whole site is too wordy. If you read the content and the description above you might think that it would have been much nicer if they had mixed both text graphics and some other technologies to enhance this site. This site caters for almost every dick Tom and Herry and obviously some people understand images more better that written text
SEARCH FACILITY (RELIABILITY OF SEARCHES)	The web sites has a functional search facility but does not provide users with fixed links (back, forward, previous page and main menu buttons)

U.S DEPARTMENT OF EDUCATION

ORGANIZATION DETAILS	
WEBSITE ADDRESS	http://www.ed.gov
CONTACT DETAILS	TTY: 1-800-437-0833 Fax: (202) 401-0689
DESCRIPTION	
<p>The U.S. Department of Education was established on May 4, 1980 by Congress in the Department of Education Organisation Act (Public Law 96-88 of October 1979). The Department's mission is to:</p> <ul style="list-style-type: none"> • Strengthen the Federal commitment to assuring access to equal educational opportunity for every individual; • Supplement and complement the efforts of states, the local school systems and other instrumentalities of the states, the private sector, public and private non-profit educational research institutions, community-based organisations, parents, and students to improve the quality of education; • Encourage the increased involvement of the public, parents, and students in Federal education programs; • Promote improvements in the quality and usefulness of education through Federally supported research, evaluation, and sharing of information; • Improve the co-ordination of Federal education programs; • Improve the management of Federal education activities; and • Increase the accountability of Federal education programs to the President, the Congress, and the public. 	
CONTENT	
<p>The responsibilities of the U.S. Department of Education generally fall into six important areas:</p> <ul style="list-style-type: none"> • Providing national leadership and partnerships to address critical issues in American education • Serving as a national clearinghouse of good ideas • Helping families pay for college • Helping local communities and schools meet the most pressing needs of their students • Preparing students for employment in a changing economy • Ensuring non-discrimination by recipients of federal education funds 	

CREDIBILITY AND AUTHENTICITY	The site is authentic and credible
CURRENCY	This page last modified -- April 14, 2000
ORGANIZATION AND PRESENTATION	
ACCESSIBILITY/NAVIGABILITY	Navigation through the site is difficult
SPEED	Loading time is significantly slower during the daytime worse in the early hours of the morning.
READABILITY	Readability is quite difficult as the background colour is blue
MENU	The menu is simple and easy to use
SITEMAP	There is a site map available on the site, which is effective. The size of the font makes it difficult to view the sitemap button.
HYPERLINKS	The original link text does not specify the type of link.
DESIGN (CONSISTENCY)	The home page is visually distinct from other pages. Some of the pages are cluttered and confusing.
SUPPORT	There are contact details contained on the site.
INTERACTIVITY (INTERGRATION)	There is no emphasis on interactivitiy
SEARCH FACILITY (RELIABILITY OF SEARCHES)	There is a search facility contained on the site, this is essential as there is a great deal on information to sift through

WESTERN CAPE SYSTEM NETWORK

ORGANIZATION DETAILS	
WEBSITE ADDRESS	http://www.wcape.school.za/subject
CONTACT DETAILS	Telephone:(021) 683-8719 Fax : (021) 683 6766
DESCRIPTION	
<p>The WCSN is an educational (running on a non profit basis) networking organisation, which supplies Internet services to primary and secondary schools in the Western Cape, and promotes the use of the Internet in education. The WCSN makes every attempt to support all computer environments, from stand-alone PCs to several different types of networks and access technologies from dial-up modems to dedicated data lines. It was founded in November 1993 with 10 schools, and is totally self-funded. "Today, more than 900 schools in the Western Cape have been connected".</p>	

CONTENT	
<p>Activities and Services</p> <p>Software development: When the WCSN started operating, there were no adequate software solutions for providing email and news access on LANs using UUCP as a transport agent. The WCSN consequently derived software for this purpose from what was available, producing a complete system integrated Pegasus Mail, and etc. Installation and technical support: The WCSN installs software at schools when they join, and provides a measure of technical support. Educational activities: Members of the WCSN have started local projects using the Internet, and member schools have developed much experience and knowledge about using the Internet for educational ends and how to integrate it into the curriculum.</p>	
CREDIBILITY AND AUTHENTICITY	This WCSN site is credible and authentic as it provides users with contact details of people in charge of the development
CURRENCY	Some of the links are recent and some date back to 1990's.
ORGANIZATION AND PRESENTATION	
ACCESSIBILITY/NAVIGABILITY	I find the site navigable although there is no access to the homepage throughout the site
SPEED	The download speed is fairly quick
READABILITY	The font used is clear and easy to read
MENU	The menu is simple and easy to use
SITEMAP	N/A
HYPERLINKS	Hyperlinks are not clearly defined in this site
DESIGN (CONSISTENCY)	The look and feel is consistent throughout the site
SUPPORT	Technical support is offered on the site.
INTERACTIVITY (INTEGRATION)	There is little interactivity.
SEARCH FACILITY (RELIABILITY OF SEARCHES)	N/A

YAHOO LIGANS TEACHER GUIDE

ORGANIZATION DETAILS	
WEBSITE NAME	
WEBSITE ADDRESS	http://www.yahooligans.com/tg/
CONTACT DETAILS	No Contact Details
DESCRIPTION	
No background information regarding the organization.	
CONTENT	
Teaching Internet Literacy. Teaching resources, evaluating website, history and current events for grade 6 – 8 and much educational material specifically for teachers and learners especially in the intermediate and Foundation phase.	

CREDIBILITY AND AUTHENTICITY	The information contained on the site is credible and authentic
CURRENCY	The date when this site was last updated is not mentioned. The currency of the information is up to date.
ORGANIZATION AND PRESENTATION	
ACCESSIBILITY/NAVIGABILITY	Navigation is difficult, as the site has been designed for various target audiences.
SPEED	The site downloads fairly quickly
READABILITY	Carefully edited syntax makes it more interesting to read. There are a number of adverts contained on the site, which don't support resources.
MENU	No menu system and the users have to continually use the back button in order to access the previous page. No home button.
SITEMAP	Difficult to see the site map button because it is hidden The site map is available and effective.
HYPERLINKS	The value of the site lies in its links to other resources, the links are up to date, and made to appropriate resources.
DESIGN (CONSISTENCY)	The site is very colourful. There are various coloured pop-up windows, to sound files, to animations, to blinking text. Possibly too many colours have been used
SUPPORT	Professional/ academic support is offered to browsers
INTERACTIVITY (INTERGRATION)	Integration of technology and the users is not evident in this site.
SEARCH FACILITY (RELIABILITY OF SEARCHES)	The search facility searches throughout the content on the site, it is accurate and reliable.

CENTER FOR CHILDREN AND TECHNOLOGY

ORGANIZATION DETAILS	
WEBSITE ADDRESS	http://www2.edc.org/CCT/cctweb/
CONTACT DETAILS	PO Box 1922, Glasgow, G2 3WT
DESCRIPTION	
<p>CCT studies focused on cognitive and social aspects of learning with technology. Technology was found to be a powerful tool that cannot replace human beings but that can enhance the process of children's learning and facilitate teachers' practice. Further, how technology is used greatly depends on social context: that is, on mediation and interpretation by teachers as well as on the formal and informal structures of the school setting. These early findings have been reinforced and elaborated upon over the years. Subsequent studies have enriched understanding that improving the circumstances of teaching and learning-especially when aided by technology-is a complex endeavor best approached through multiple strategies combined with an awareness that local conditions are at least as important in determining outcomes as theoretical frameworks. Underlying their research is the observation that using technology well requires changes throughout the school organization and takes guidance, time, and commitment. CCT's goal is to make a difference in the real world of children's schools, classrooms, and communities. Their work is animated by a vision of schools and classrooms where thinking is stressed; students and teachers help each other to learn; students and teachers are genuinely engaged; the learning environment reflects the assumption that all students can learn; the curricula build on the students' ethnic and cultural backgrounds; and students learn complex thinking skills and discipline-based knowledge that they use effectively and appropriately.</p>	
CONTENT	
<ul style="list-style-type: none"> • About CCT – provides information about the “Centre for children and technology”, philosophy, funders and members of staff • Projects - Since 1980, when CCT first began conducting research, the organization has been engaged in a wide range of projects. Projects with information available online have been categorized according to keywords, staff and funder. Browsers are able to search through these various projects by using pulldown menu. • Publications - publications available online have been categorized according to keywords and staff. 	

CREDIBILITY AND AUTHENTICITY	The site is credible as it contains contact information for the individuals involved in various projects.
CURRENCY	The date captured on the site is 2000. Therefore the site is fairly current, more current information, progress made on the projects should be captured.
ORGANIZATION AND PRESENTATION	
SPEED	There are very few graphics contained on the site and consequently is loads quickly
READABILITY	Black font and white background, very easy to read.
MENU	Navigation through the menu is easy as the menu is fairly simple
SITEMAP	N/A
HYPERLINKS	Accurate and reliable
DESIGN	The colours and font used throughout the site remain constant - Functional
SUPPORT	No help/support facility contained on the site
INTERACTIVITY	The search facility via pull-down lists allows a certain amount of interaction
SEARCH FACILITY (RELIABILITY OF SEARCHES)	The search results are accurate

CHEMISTRY.ORG

ORGANIZATION DETAILS	
WEBSITE ADDRESS	http://www.chemistry.org/portal/Chemistry
CONTACT DETAILS	American Chemical Society 1155 Sixteenth Street, NW Washington DC, 20036 Phone: 800-227-5558 (US only) 202-872-4600 (outside the US) Fax: 202-872-4615 E-mail: help@acs.org
DESCRIPTION	
<p>The American Chemical Society is a self-governed individual membership organization that consists of more than 163,000 members at all degree levels and in all fields of chemistry. The organization provides a broad range of opportunities for peer interaction and career development, regardless of professional or scientific interests.</p> <p>Research information for educators, the majority of the information contained on the site is for the professional development of educators and administrators.</p>	
CONTENT	
<ul style="list-style-type: none"> • Professionals – career resources, research tools, continuing education and relevant publications for chemical scientists • ACS (American Chemistry Society) Members – meetings, member benefits, local sections, technical divisions, services and content • Educators and Students – educational resources, chemistry program, and scholarship programs for educators and students • Policy Makers – science policy issues • Enthusiasts – chemistry in the news, chemistry around you and ways to learn more about chemistry 	

CREDIBILITY AND AUTHENTICITY	There is a great deal of detail and information contained about the organization and its members. Therefore the site is credible.
CURRENCY	The site is extremely current, the time, day and year of a new publication is included
ORGANIZATION AND PRESENTATION	
SPEED	The site can be slow to load at times.
READABILITY	Some of the fonts used is quite small as there is a great deal of information contained on the site.
MENU	The menu is simple and easy to use, due to the size it is difficult to locate, this could cause difficulty when navigating through the site
SITEMAP	N/A
HYPERLINKS	The links are accurate but can be slow to load
DESIGN (CONSISTENCY)	Not consistent - the font used on the main page is small, making the page look cluttered, the font used on other pages is bigger.
SUPPORT	An instruction sheet has been provided in helping users navigate the learning materials and an email address for general queries and support. Users can register details online and get free-access education material This will also enable them to join the virtual learning community
INTERACTIVITY	A high level of interactivity between the user and technology, users are required to submit answers online on a particular topic and receive feedback, and also conducting various experiments online.
SEARCH FACILITY (RELIABILITY OF SEARCHES)	The search facility provided on the website is content based – the search results pulls out a list of all the pages in the website with an abstract, size of the page and date last updated.

COMPUTER LESSON PLANS

ORGANIZATION DETAILS	
WEBSITE ADDRESS	http://www.lessonplans.com.au/lessons.htm
CONTACT DETAILS	Hauck Enterprises 10 Creekside Crt, Worongary QLD Australia 4213 Email: webmaster@lessonplans.com.au
DESCRIPTION	
This site provides access to over 300 lesson plans and lesson ideas for use with word processors, spreadsheets, databases, paint programs, the Internet and Microsoft software such as Word, Access.	
CONTENT	
The site contains links to lesson plans in various subject areas - Mathematics, Science, Computer Literacy (Word, Access, Excel, Internet and Web pages)	

CREDIBILITY AND AUTHENTICITY	There are no credentials of the individuals that have put the lesson plans together. But there is quote on what teacher say "I think the lessons are great. It is especially good for me as a trainer in my district. I have teachers who are still not comfortable enough to create there on lessons and this will give them the activities that are already written for their use. I believe the lessons will be easily worked into the lesson plans of my teachers." Rita Dupree, Technology Specialist North Forest ISD "Achieving through Excellence"
CURRENCY	The site was last updated in the year 2000, this could be updated more regularly, but the information contained on the site is still relevant.
ORGANIZATION AND PRESENTATION	
SPEED	Lesson plans pages load very quickly
READABILITY	Easy to read, Arial font, black on white
MENU	Navigation is fairly simple although the main menu should be slightly bigger
SITEMAP	N/A
HYPERLINKS	The links are accurate and reliable
DESIGN (CONSISTENCY)	Look and feel is consistent throughout the site.
SUPPORT	There is a help facility, this includes what software is needed to run the site and help ordering books etc.
INTERACTIVITY	Not interactive - there is no search facility contained on the site
SEARCH FACILITY (RELIABILITY OF SEARCHES)	N/A

COOL MATH

ORGANIZATION DETAILS	
WEBSITE ADDRESS	http://www.coolmath.com/
CONTACT DETAILS	Email: Karen@coolmath.com
DESCRIPTION	
The site contains a vast amount of resources for teachers, parents and students. There is also a normal calculator and graphics calculator on the site the help students with their calculations. A number of games can also be accessed from the site	
CONTENT	
<ul style="list-style-type: none"> • Kids - An amusement park of math and more, especially designed for FUN, FUN, FUN. • Ages 13 – 100 – Fun online games and maths experiences • Teachers – Resources, ideas and amusements for teachers • Parents - Tips and resources for parents • Store – facility to purchase books, resources etc. 	

CREDIBILITY AND AUTHENTICITY	All of the credentials and contact details of the individuals involved in the construction of the site are included on the site
CURRENCY	The information contained on the site is current and up to date
ORGANIZATION AND PRESENTATION	
SPEED	The site downloads fairly quickly, some of the interactive facilities such as games/activities are slow to download
READABILITY	Easy to read - bright colours on black background
MENU	Menu is simple and easy to use. It is also bright and easy to view
SITEMAP	N/A
HYPERLINKS	The links are reliable and accurate
DESIGN (CONSISTENCY)	The look and feel is consistent throughout the site
SUPPORT	N/A
INTERACTIVITY	A number of games are interactive making it interesting and enjoyable means to learn about mathematics
SEARCH FACILITY (RELIABILITY OF SEARCHES)	N/A

FSDEV (FREE SOFTWARE FOR DEVELOPING COUNTRIES)

ORGANIZATION DETAILS	
WEBSITE ADDRESS	http://fsdev.org
CONTACT DETAILS	There are no contact details contained on the site, in order to provide feedback of direct questions to the web developers, you need to register.
DESCRIPTION	
<p>FSDEV is aimed at providing a forum for the exchange of ideas, information, and knowledge about the use of Free Software to solve problems, and improve the lives of people in developing countries. In the process, FSDEV will also help promote the use of Free Software, increase access to, and use of computers in developing countries. Finally, FSDEV will facilitate collaboration between software developers in developing countries, thereby helping them contribute effectively and significantly to the growth and development of the Free Software movement around the world.</p> <p>Teachers and Administrators</p>	
CONTENT	
<p>Home – Welcome note and information about the site</p> <ul style="list-style-type: none"> • FAQ – Facility for browsers to ask questions about the organization • Members List – list of members and their contact details • News – • Recommend Us – facility to allow browsers to recommend to site to friends • Reviews – 10 most popular reviews, there are non contained in the database at the moment • Search - • Success Stories • Topics • Web Links • Forums - FSDev now has online discussion forums and mailing lists. The forums can be reached via the link from the main menu, while the mailing list links are under the "Mailing Lists" menu of the FSDev site. 	

CREDIBILITY AND AUTHENTICITY	Credentials of various individuals involved in Fsdev is contained on the site
CURRENCY	The information contained on the site is updated regularly
ORGANIZATION AND PRESENTATION	
SPEED	The information on the site downloads quickly
READABILITY	The font is too small, making readability slightly difficult
MENU	The menu is simple and easy to navigate
SITEMAP	N/A
HYPERLINKS	The links contained on the site are accurate
DESIGN (CONSISTENCY)	The look and feel is consistent throughout the site
SUPPORT	A question facility is contained on the site to ask questions
INTERACTIVITY	There is not a high level of interactivity
SEARCH FACILITY (RELIABILITY OF SEARCHES)	Difficult to tell, doesn't seem to pick up any information, haven't received any information after inputting searches.

GLOBAL CLIMATE CHANGES STUDENT GUIDE

ORGANIZATION DETAILS	
WEBSITE ADDRESS	http://www.docm.mmu.ac.uk/aric/gccsg/
CONTACT DETAILS	Email: j.buchdahl@mmu.ac.uk
DESCRIPTION	
<p>The Global Climate Change Student Information Guide includes chapters on: the climate system; causes of climate change; empirical observation and climatic reconstruction; climate modelling; and palaeo- and contemporary climate change. It is suitable for all levels of undergraduate study, although 1st year students may find some of the mathematics (the climate system) a little challenging.</p>	
CONTENT	
<p>Introduction</p> <p>Climate System</p> <p>Causes of Climate Change</p> <p>Empirical Study of Climate</p> <p>Climate Modelling</p> <p>Palaeoclimatic Change</p> <p>Contemporary Climate Change</p> <p>Epilogue</p> <p>Appendix</p> <p>References</p>	

CREDIBILITY AND AUTHENTICITY	All credentials are contained in the reference section
CURRENCY	There are no dates to ascertain the currency of the information contained on the site
ORGANIZATION AND PRESENTATION	
SPEED	The site downloads quickly
READABILITY	Easy to read, red and blue font on black
MENU	There are two menus, both are easy to use
SITEMAP	N/A
HYPERLINKS	The links are relevant and accurate
DESIGN (CONSISTENCY)	Look and feel is consistent
SUPPORT	Queries can be directed to Joe Buchdahl . via Email. The help available is directed to learning rather than technical
INTERACTIVITY	Apart from the facility to ask questions there is little interactivity
SEARCH FACILITY (RELIABILITY OF SEARCHES)	N/A

IEARN (INTERNATIONAL EDUCATION AND RESOURCE NETWORK)

ORGANIZATION DETAILS	
WEBSITE ADDRESS	http://www.iearn.org/
CONTACT DETAILS	IEARN-USA 475 Riverside Drive, Suite 540 New York, NY 10115 Tel: 212/870-2693 E-mail: iearn@us.iearn.org
DESCRIPTION	
<p>iEARN (International Education and Resource Network) is a non-profit (501-c-3) organization made up of over 4,000 schools in nearly 100 countries. iEARN empowers teachers and young people to work together online at very low cost using the Internet and other new technologies.</p> <p>Since 1988, iEARN has pioneered on-line school linkages to enable students to engage in meaningful educational projects with peers in their countries and around the world. iEARN is:</p> <ul style="list-style-type: none"> • an inclusive and culturally diverse community • a safe and structured environment in which young can communicate • an opportunity to apply knowledge in service-learning projects • a community of educators and learners making a difference as part of the educational process <p>Generic Teaching Tools offers both face-to-face and online professional development workshops and courses for educators seeking to integrate online global project work into their classrooms. These hands-on workshops are led by iEARN Trainers with 8-10 years of experience, who work with participants to design workshops that meet their particular needs and interests</p>	
CONTENT	
<ul style="list-style-type: none"> • Projects - All projects within iEARN are designed and facilitated by participants to fit their particular curriculum and classroom needs and schedules. • Globe – Browsers can see what is happening throughout the world, by clicking on specific countries. • News • Professional Development – iEARN offers both face-to-face and online professional development workshops and courses for educators seeking to integrate online global project work into their classrooms. These hands-on workshops are led by iEARN Trainers with 8-10 years of experience, who work with participants to design 	

	<p>wokshops that meet their particular needs and interests.</p> <ul style="list-style-type: none"> • About Us • Join ILearn
CREDIBILITY AND AUTHENTICITY	The names of individuals are contained but no credentials have been added
CURRENCY	The information is updated regularly
ORGANIZATION AND PRESENTATION	
SPEED	Some pages can be quite slow to download
READABILITY	Easy to read, black wiring on white background
MENU	The menu is simple and easy to use
SITEMAP	Site map, is fairly simple. Graphical representation would be easier to follow
HYPERLINKS	The links are reliable and accurate
DESIGN (CONSISTENCY)	The look and feel is consistent throughout the site
SUPPORT	Contact details are contained on the site
INTERACTIVITY	Some interactive facilities, the globe allows browsers to navigate to different countries via the globe
SEARCH FACILITY (RELIABILITY OF SEARCHES)	The search facility is reliable and accurate

MATH EXPLORERS

ORGANIZATION DETAILS	
WEBSITE ADDRESS	http://members.shaw.ca/ron.blond/TLE/index.html
CONTACT DETAILS	There are no contact details contained on the site
DESCRIPTION	
<p>This site is for senior Mathematics teachers and students (grades 9 - 12). Ron Blond, seconded Math teacher working at Alberta Learning, has created a Web site with a series of interactive Explorers that allow students to examine complex concepts in more depth and breadth. These Explorers could be used for demonstration, or by students in a lab situation.</p>	
CONTENT	
<p>Concepts covered on this site are:</p> <ul style="list-style-type: none"> - binomial distribution exponential function - inverse of a function - parabola (quadratic relations) - ellipse & hyperbola (quadratic relations) - circle (quadratic relations) - draw a circle - areas under the normal distribution - the monty hall problem - the unit circle - elementary trigonometric equations - sine / cosecant (vertical transformations) - sine / cosecant (horizontal transformations) - translations [$y = f(x - h) + k$] - stretching / reflecting [$y = af(bx)$] 	

CREDIBILITY AUTHENTICITY	AND	The site has been included in the Digital Dozen, a list of exemplary websites for educators selected by the Eisenhower National Clearing House (ENC)
CURRENCY		There are no dates contained on the site, but these mathematical functions will not become outdated quickly
ORGANIZATION AND PRESENTATION		
SPEED		The large interactive mathematical problems take some time to download
READABILITY		Readability fairly easy, blue font on white background
MENU		N/A
SITEMAP		N/A
HYPERLINKS		The links are accurate and reliable
DESIGN (CONSISTENCY)		The design is consistent throughout the site
SUPPORT		There is no formal support facility on the site. Brief guidelines are included before each interactive activity
INTERACTIVITY		Extremely interactive
SEARCH FACILITY (RELIABILITY OF SEARCHES)		N/A

TEACHERS LIBRARY

ORGANIZATION DETAILS	
WEBSITE ADDRESS	http://www.teacherslibrary.org.uk/
CONTACT DETAILS	Email: mike.shamash@btinternet.com
DESCRIPTION	
<p>This site is designed to enable teachers to share their resources. Anyone who has useful material, whether it is lesson plans, planning documents, worksheets, revision or test sheets, is able to share them with the rest of the community by sending in your resources for them to post on the site. Alternatively if you know of a colleague who has authored some great resources - get them to share them with the rest of us. Over 300 teachers have sent in materials to share. As you will see there are many areas in the Library where more materials are desperately needed.</p> <p>Please Note that the materials on this site are for personal or school use only and are not for re-sale without written permission.</p> <p>Science, English, Mathematics, IT, Special Needs, Geography, History, Music, PE and Social Development</p>	
CONTENT	
<ul style="list-style-type: none"> • Send in resources • Search the site • Recently loaded resources 	

CREDIBILITY AND AUTHENTICITY	The resources contained on the site are sent in by various educators
CURRENCY	There is no date sighted
ORGANIZATION AND PRESENTATION	
SPEED	The site loads relatively quickly
READABILITY	The site can become quite cluttered making readability difficult
MENU	Very basic menu
SITEMAP	N/A
HYPERLINKS	The links are accurate and up to date
DESIGN (CONSISTENCY)	The design is consistent throughout the site
SUPPORT	N/A
INTERACTIVITY	Not very interactive – get resources for classroom use
SEARCH FACILITY (RELIABILITY OF SEARCHES)	Search facility is reliable and accurate

TEACHERSFIRST.COM

ORGANIZATION DETAILS	
WEBSITE ADDRESS	http://www.teachersfirst.com/cnt-erth-mh.shtml
CONTACT DETAILS	There are no contact details contained on the site, but there is a feedback form contained on the site.
DESCRIPTION	
TeachersFirst is a rich collection of lessons and web resources for K-12 classroom teachers, their students, and even students' families. Materials are arranged by subject area and grade level, making it easy to locate lesson plans and associated web resources quickly.	
CONTENT	
<p>All subject areas: - art, astronomy and space, biology, guidance etc.</p> <ul style="list-style-type: none"> • Classroom resources • Professional resources • Site resources • Information 	

CREDIBILITY AND AUTHENTICITY	There are no credentials contained on the site
CURRENCY	The information is current and up to date
ORGANIZATION AND PRESENTATION	
SPEED	The site downloads relatively quickly
READABILITY	Information is easy to read
MENU	Menu is simple and easy to navigate
SITEMAP	N/A
HYPERLINKS	The links are accurate and up to date
DESIGN (CONSISTENCY)	The look and feel is consistent throughout the site
SUPPORT	Toolbox containing links to download all of the software needed to run the site
INTERACTIVITY	There are interactive brain twisters contained on the site
SEARCH FACILITY (RELIABILITY OF SEARCHES)	Search facility is reliable and accurate

THE CLEVELAND PRESS SHAKESPEARE

ORGANIZATION DETAILS	
WEBSITE ADDRESS	http://www.ulib.csuohio.edu/shakespeare/
CONTACT DETAILS	Office: Main Library, Rhodes Tower 305E Phone: (216) 687-6997 Email: l.jorbin@csuohio.edu
DESCRIPTION	
<p>This site has been designed by Cleveland State University. The site has a database, which allows browsers to search for information contained in the database. Browsers can go directly to an individual play, choose a genre (play grouping), or search by actor's name, character's name, or other names represented in the credits-- producer, director, costume designer, etc. Photographs are arranged chronologically within each photo gallery. Derivative productions appear with the corresponding Shakespeare play (e.g. <i>Kiss Me Kate</i> appears with <i>Taming of the Shrew</i> and <i>To Be Or Not To Be</i> displays within the <i>Hamlet</i> gallery. Several non-Shakespearean productions are also included, e.g. George Bernard Shaw's <i>Caesar and Cleopatra</i>; other <i>Cleopatra</i> productions; Giuseppe Verdi's operas <i>Othello</i> and <i>Macbeth</i>, and ballet versions of <i>Romeo and Juliet</i>. These display with the corresponding Shakespeare play. Non-Shakespearean period films illustrating the Tudor court appear in the <i>King Henry VIII</i> gallery. Each photograph is identified by production title; venue (i.e. stage, film, television, opera, or ballet); genre (i.e. comedy, tragedy, English history, Roman play, or romance); production date; production company, if known; place of production, if known; cast, photographer or studio; and credit information. Original captions from the newspaper are presented in quotation marks. Additional captions and dialogue are provided as appropriate.</p>	
CONTENT	
<ul style="list-style-type: none"> • About this site – Why this site was developed, What this site contains, The photographs, The database, The cover photograph, Acknowledgement and Copyright for Special Collections, Order Reproductions, Feedback, How to donate photographs, Bibliography and Links • Contact information • CSU library – books, articles, research and reserves • Other reproductions • Press Collections 	

CREDIBILITY AND AUTHENTICITY	Cleveland State University Library
CURRENCY	The information is current and up to date
ORGANIZATION AND PRESENTATION	
SPEED	To site downloads relatively quickly
READABILITY	The text is clear and easy to read
MENU	The menu is simple and easy to navigate, font could be slightly bigger though
SITEMAP	Useful and easy to navigate
HYPERLINKS	The links are accurate
DESIGN (CONSISTENT)	The design is consistent throughout the site
SUPPORT	There are various support facilities for basic help
INTERACTIVITY	The site is quite interactive
SEARCH FACILITY (RELIABILITY OF SEARCHES)	The search facility is accurate

SCHOOL TOOL

ORGANIZATION DETAILS	
WEBSITE ADDRESS	http://www.schooltool.org/
CONTACT DETAILS	Tel: +27 21 970 1200 Fax: +27 21 970 1201 Email: info@schooltool.org Postal address: P O Box 4163, Durbanville, 7551, South Africa
DESCRIPTION	
<p>Schooltool is an exciting new comprehensive school management and administration system. It offers everything from enrolling learners and planning timetables to managing school budgets.</p> <p>Best of all - Schooltool is open source! What this means for you is that Schooltool is available <i>free of charge</i> - you can download a copy any time, install it on as many computers as you like and make a copy for everyone you know!</p>	
CONTENT	
<ul style="list-style-type: none"> • About • Software - The software is free and upgrades can be downloaded via the Internet. It is open source, which means that users can view the source code to make improvements to the product. Users are encouraged to make changes to the system and to submit these for inclusion in the next release of Schooltool. • Distribution - Schooltool has been built in consultation with educational experts and will be tested initially in South African schools and educational institutions. We hope to extend the project to other countries and welcome input and suggestions from educationalists and technologists from around the world. • Support - Schooltool offers a range of support to users, whether you are a beginner, need a refresher course or are an expert coder. To find out the answers to all your questions about Schooltool, go to our FAQ (Frequently Asked Questions) section. <p>Version 1 of Schooltool will be released with comprehensive context-sensitive online Help. This will be complimented by:</p> <p>A downloadable user manual</p>	

<p>Series of tutorials to guide you through Schooltool</p> <ul style="list-style-type: none"> • Resources – Educational Management, Educational Software and Open Source • Downloads • Contact Us 	
CREDIBILITY AND AUTHENTICITY	The Shuttleworth Foundation supports the site and there are credentials contained on the site.
CURRENCY	The site is current and up to date
ORGANIZATION AND PRESENTATION	
SPEED	The site downloads fairly quickly
READABILITY	Easy to read - black font and white background
MENU	A more complicated menu, made up of headings and sub headings
SITEMAP	N/A
HYPERLINKS	The links are accurate and up to date
DESIGN (CONSISTENCY)	The design is consistent throughout the site
SUPPORT	There are various support tools, some of which can be downloaded from the site
INTERACTIVITY	Interactive - software downloads
SEARCH FACILITY (RELIABILITY OF SEARCHES)	N/A

REGIONAL ALLIANCE FOR MATHEMATICS AND SCIENCE EDUCATION

ORGANIZATION DETAILS	
WEBSITE ADDRESS	http://ra.terc.edu/
CONTACT DETAILS	<p>The Regional Alliance TERC 2067 Massachusetts Avenue Cambridge, MA 02140</p> <p>PHONE: 617-547-0430</p> <p>FAX: 617-349-3535</p> <p>E-MAIL: alliance@terc.edu</p>
DESCRIPTION (Function/Purpose of Site)	
<p>The mission of the Regional Alliance is to support K-12 mathematics and science improvement efforts by providing professional development opportunities and technical assistance, disseminating information, and promoting collaboration. Program initiatives are designed to meet the needs of the educators we serve, particularly those striving to implement standards-based curriculum, instruction, and assessment.</p>	
CONTENT (Information contained on site)	
<ul style="list-style-type: none"> • Initiatives – Alliance Schools, Curriculum/Instruction/Assessment, Equity, Information Education, Leadership, Professional Development and State Connections • Publications – Alliance Access, Using Data/Getting Results, TERC Publications • Resources – Assessment, Equity, Government and National Resources, Grants and Funding, Information Education, Leadership, Professional Development, Mathematics, Science, Standards and Curriculum Frameworks, Technology for Maths and Science • Online Communities – Through its online communities, the Regional Alliance provides educators with valuable information to improve teaching and learning in mathematics and science. Selected postings are sent to browsers e-mail account and are limited in number. There is no cost to participate. <p>Partners – Center for the Enhancement of Science and Mathematics Education (CESAME) At Northeastern University, IMPACT Project, Eisenhower National Clearinghouse (ENC), Equity Assistance Center (EAC) At NYU serving New Jersey, New York, Puerto Rico, and the Virgin Islands, Learning Innovations, National Network of Eisenhower Regional Consortia and Clearinghouse (The Eisenhower Network), NEIR*TEC, The Northeast Regional Technology Consortium</p>	

CREDIBILITY AND AUTHENTICITY (CONTACT DETAILS/ORGANIZASION/SPELLING)	The information contained on the site is credible and authentic. Contact details contained on the site and the various organizations providing support demonstrate this.
CURRENCY (DATE LAST UPDATED)	The site was last update in 2001
ORGANIZATION AND PRESENTATION	
SPEED	The site is quite slow to download considering there are few graphics contained on the site
READABILITY	The information contained on the site is clear and easy to read
MENU	The menu is simple and easy to use
SITEMAP	N/A
HYPERLINKS	The links are accurate and working
DESIGN (CONSISTENCY)	The design is consistent throughout the site
SUPPORT (TECHNICAL/PROFESSIONAL)	Support is provided by adding contact details to the site
INTERACTIVITY (Integration of interactivity and facilities)	N/A
SEARCH FACILITY (Reliability of Searches)	There is a search facility on the site and the searches are reliable

OWL AND MOUSE SOFTWARE

ORGANIZATION DETAILS	
WEBSITE ADDRESS	http://www.yourchildlearns.com/owlmouse.htm
CONTACT DETAILS	E-Mail us at: owlmouse@yourchildlearns.com
DESCRIPTION	
<p>This website contains various educational software available online. A number of these programs can be used as free educational teaching tools.</p> <p>Geography (Maps/Puzzles), Literacy (Learn letters and sounds)</p> <p>Teachers, learners and parents</p>	
CONTENT	
Various interactive programs/free software	

CREDIBILITY AND AUTHENTICITY	All of the programs on the site are backed by Owl and Mouse Software
CURRENCY	The information is current and up to date
ORGANIZATION AND PRESENTATION	
SPEED	The site is quick to download
READABILITY	Easy to read to font is big, blue on white background
MENU	N/A
SITEMAP	N/A
HYPERLINKS	The links are accurate and up to date
DESIGN (CONSISTENCY)	The design is consistent throughout the site
SUPPORT	No support facility, Email address to get in touch with the organization
INTERACTIVITY	The site contains numerous interactive software packages
SEARCH FACILITY (RELIABILITY OF SEARCHES)	N/A

NORTH WEST REGIONAL EDUCATIONAL LABORATORY

ORGANIZATION DETAILS	
WEBSITE ADDRESS	http://www.nwrel.org/
CONTACT DETAILS	Email: webmaster@nwrel.org Telephone: 503.275.9500
DESCRIPTION (Function/Purpose of Site)	
Numerous resources for educators, policymakers, parents, and the public are made available by NWREL. These resources include events, such as conferences, workshops, and other activities; products and publications, the Laboratory magazine and newsletters.	
CONTENT (Information contained on site)	
NWREL Products Catalog Online, Research e-tools, Periodicals, Newsletters, Lending Library, Program Resources, Specialized Resources, Events, Conferences and Workshops	

CREDIBILITY AND AUTHENTICITY (CONTACT DETAILS/ORGANIZASION/SPELLING)	The information contained on the site has been put together by a credible organization.
CURRENCY (DATE LAST UPDATED)	The last date stated on the site is 2001, this should be update more regularly
ORGANIZATION AND PRESENTATION	
SPEED	The site downloads relatively quickly
READABILITY	Green on white, this is clear and easy to read, but the font should be slightly bigger
MENU	The menu is simple and easy to use
SITEMAP	There is a sitemap on the site, could be slighter bigger
HYPERLINKS	The links are accurate and reliable
DESIGN (CONSISTENCY)	Design is very plain and simple but is consistent throughout the site
SUPPORT (TECHNICAL/PROFESSIONAL)	There is a “Tips” feature that offers support when searching through information contained on the site
INTERACTIVITY (Integration of interactivity and facilities)	N/A
SEARCH FACILITY (Reliability of Searches)	The search facility is reliable and accurate

NATIONAL SCIENCE TEACHERS ASSOCIATION (NSTA)

ORGANIZATION DETAILS	
WEBSITE ADDRESS	http://www.nsta.org/
CONTACT DETAILS	<p>NSTA</p> <p>1840 Wilson Boulevard</p> <p>Arlington</p> <p>VA 22201-3000</p> <p>USA</p> <p>Phone: 703.243.7100</p>
DESCRIPTION	
<p>The Association serves as an advocate for science educators by keeping its members and the general public informed about national issues and trends in science education. NSTA disseminates results from nationwide surveys and reports and offers testimony to Congress on science education-related legislation and other issues. The Association develops position statements on issues such as teacher preparation, laboratory science, use of animals in the classroom, laboratory safety, and elementary and middle level science. Each year, the Association's legislative network reaches nearly a half million educators.</p> <p>Teachers and Administrators</p>	
CONTENT	
<ul style="list-style-type: none"> • Search facility • About NSTA • Membership • Teachers Resources – books and journals, teachers grab bags, recommendations and suppliers guide • Professional Information • NSTA Conventions • NSTA Community – discussion board and chapters and associated groups 	

CREDIBILITY AND AUTHENTICITY	There are no credentials contained on the site, but there is a press room when various articles regarding NSTA can be viewed
CURRENCY	The site is current and up to date
ORGANIZATION AND PRESENTATION	
SPEED	The site downloads fairly quickly
READABILITY	Easy to read, font is black on white
MENU	Menu is simple and easy to navigate
SITEMAP	There is a site map available, slightly difficult to find small font at the bottom of the page
HYPERLINKS	The links are accurate
DESIGN (CONSISTENCY)	The design is consistent throughout the site
SUPPORT	There is a feedback form and contact information posted on the site
INTERACTIVITY	A discussion board is available for interaction
SEARCH FACILITY (RELIABILITY OF SEARCHES)	Search results are reliable and accurate

NORTH CENTRAL REGIONAL EDUCATIONAL LABORATORY

ORGANIZATION DETAILS	
WEBSITE ADDRESS	http://www.ncrel.org/
CONTACT DETAILS	Email: info@ncrel.org
DESCRIPTION (Function/Purpose of Site)	
<p>The North Central Regional Educational Laboratory (NCREL) is a not-for-profit organization dedicated to helping schools—and the students they serve—reach their full potential. We specialize in the educational applications of technology. One of ten Regional Educational Laboratories, we provide research-based resources and assistance to educators, policymakers, and communities in Illinois, Indiana, Iowa, Michigan, Minnesota, Ohio, and Wisconsin. NCREL's ultimate goal is to help our clients build tools and apply proven practices to create schools where all students can develop their skills and abilities. We draw on the latest research and best practices to strengthen and support schools and communities in order to make this goal a reality.</p> <ul style="list-style-type: none"> • Create new knowledge and tools—including strategies and programs for improving school practice—through collaborative field development and applied research efforts with schools and agencies. • Provide research-based information and direct assistance to help school leadership teams and policymakers solve real problems. • Forge strategic alliances by linking schools, agencies, and organizations with each other to help educators and policymakers become networked in ways that support ongoing learning, and pool resources and talents 	
CONTENT (Information contained on site)	
<ul style="list-style-type: none"> • After school programs • Data Use • Literacy • Mathematics and Science • Policy • Professional Development • School Improvement • Teacher Quality • Technology in Education 	

CREDIBILITY AND AUTHENTICITY (CONTACT DETAILS/ORGANIZASION/SPELLING)	The site is an Organizational Portal and the Organization seems to be reputable
CURRENCY (DATE LAST UPDATED)	The information contained on the site is accurate and up to date. It was last up dated today.
ORGANIZATION AND PRESENTATION	
SPEED	The download time is quite slow
READABILITY	Blue text on white background, this is clear and easy to read
MENU	The menu is simple and easy to use
SITEMAP	There is a sitemap contained on the site, this is clearly visible.
HYPERLINKS	The links are accurate, up to date and in working order
DESIGN (CONSISTENCY)	Blue, yellow and white, the design is consistent throughout the site
SUPPORT (TECHNICAL/PROFESSIONAL)	N/A
INTERACTIVITY (Integration of interactivity and facilities)	NCREL products are available free online.
SEARCH FACILITY (Reliability of Searches)	The search facility is accurate and produces results according to relevancy

MATHS GOODIES

ORGANIZATION DETAILS	
WEBSITE ADDRESS	http://www.mathgoodies.com/
CONTACT DETAILS	There are no contact details contained on the site, but there is a feedback form that may be completed
DESCRIPTION	
<p>Mrs. Glosser's Math Goodies, Inc., founded in 1998, is committed to creating innovative educational software. The interactive math lessons are self-directed, and aspire to the NCTM Standards for Teaching Mathematics. The site provides other online resources to enhance math instruction. Today's children will enter a high-tech work force. They will be expected to use their knowledge and technology to solve problems at the work place. Regardless of the path they choose, they will need good problem solving skills to be successful in their careers. The interactive math lessons were created to help children develop these skills. This site strives to make math fun and meaningful for students by connecting it to the real world. Teachers, administrators and learners</p>	
CONTENT	
<ul style="list-style-type: none"> • Lessons - The interactive math lessons actively engage students in the learning process and provide them with immediate feedback. Each of the 62 lessons is a comprehensive learning module. The lessons have been designed mainly for grades 5 through 8. However, younger students may benefit from our lessons depending on their math background and reading level. Older students and adults in need of remediation will also benefit. • CD Goodies - The Math Goodies CD-ROM contains 90 pages of interactive lessons, exercises, worksheets, and solutions NOT available on the web site. These resources can be used on your private network or desktop computer (Windows or Macintosh) • Forums - The purpose of this forum is to help new visitors become acquainted with how our forums work. You can post test messages here before posting to other forums. • Homework - The purpose of this forum is to assist students who are struggling with specific math homework problems. Volunteer teachers will guide you toward finding an answer. • Newsletter - The latest information about site updates, math news and events. Our newsletter is e-mailed to more than 18,000 opt-in subscribers around the world on the 1st and 15th of each month. • Worksheets - These free worksheets correspond to our 62 interactive math lessons. Topics include Geometry, Number Theory, Percent, Integers, Probability, Pre-Algebra, and Intro to Statistics. Answer keys are also provided. • Software – recommended mathematical software • Tutoring - Link-Systems International has expert tutors that offer students personalized, real-time tutoring via the Internet. Using Net Tutor, students can learn mathematical concepts and ask questions with ease. Get live 1-on-1 help! 	

CREDIBILITY AND AUTHENTICITY	There are names and credentials posted on the site
CURRENCY	The information is current and up to date, the last change made was yesterday
ORGANIZATION AND PRESENTATION	
SPEED	The site is quick to download
READABILITY	Doesn't aid readability - some of the fonts used are small
MENU	The menu is simple and easy to use
SITEMAP	N/A
HYPERLINKS	The links are accurate and up to date
DESIGN (CONSISTENCY)	The design is consistent throughout the site
SUPPORT	No technical help on the use of the site, but there are facilities to help with homework
INTERACTIVITY	The site is very interactive – homework helper
SEARCH FACILITY (RELIABILITY OF SEARCHES)	Reliable and accurate

APPENDIX B

Managing Curriculum Resources in an Education Portal

INTRODUCTION

Curriculum design and development is – in many ways – the most important investment in the quality of educational programmes, as it provides the basis for everything that takes place in a teaching and learning environment. Unfortunately, though, most curriculum design and development tends to be undertaken in an *ad hoc* and often individualistic way. Thus, it is plagued by three problems. First, lack of systematic investments in curriculum design and development prevent implementation of strategies for containing the ongoing costs of this work (or – worse – result in such investments being halted). Second, because curriculum design and development is not approached systematically, it becomes harder to understand and is often implemented very inefficiently. Third, because the process resides predominantly with individuals, large investments are often quickly lost when an individual leaves an institution or become unhealthily tied up with that individual, creating significant potential management problems.

For these and other reasons, there is significant justification in using the power of ICT to systematize aspects of this process. This can then easily be integrated into the underlying structural design of any education portal. In broad terms, there are three categories of information that can be systematically gathered, stored, and managed electronically using databases:

1. *Information about Learning Pathways*

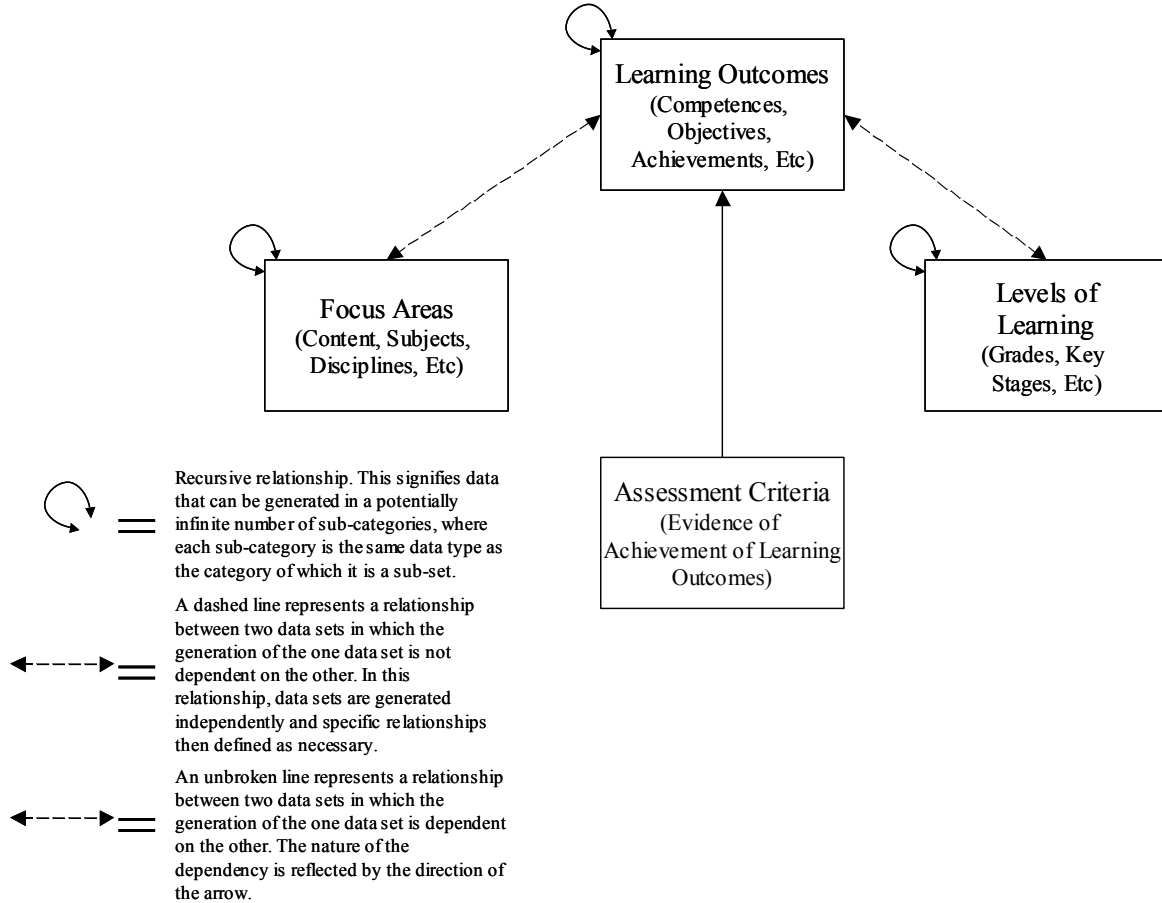
This can be broken into three related elements:

- Teaching and learning strategies (assessment strategies, contact strategies, and independent study strategies)
which can be combined to create
- Courses (or Modules or Subjects)
which can be combined to create
- Programmes (or Qualifications)

2. *Information about the Curriculum Framework*

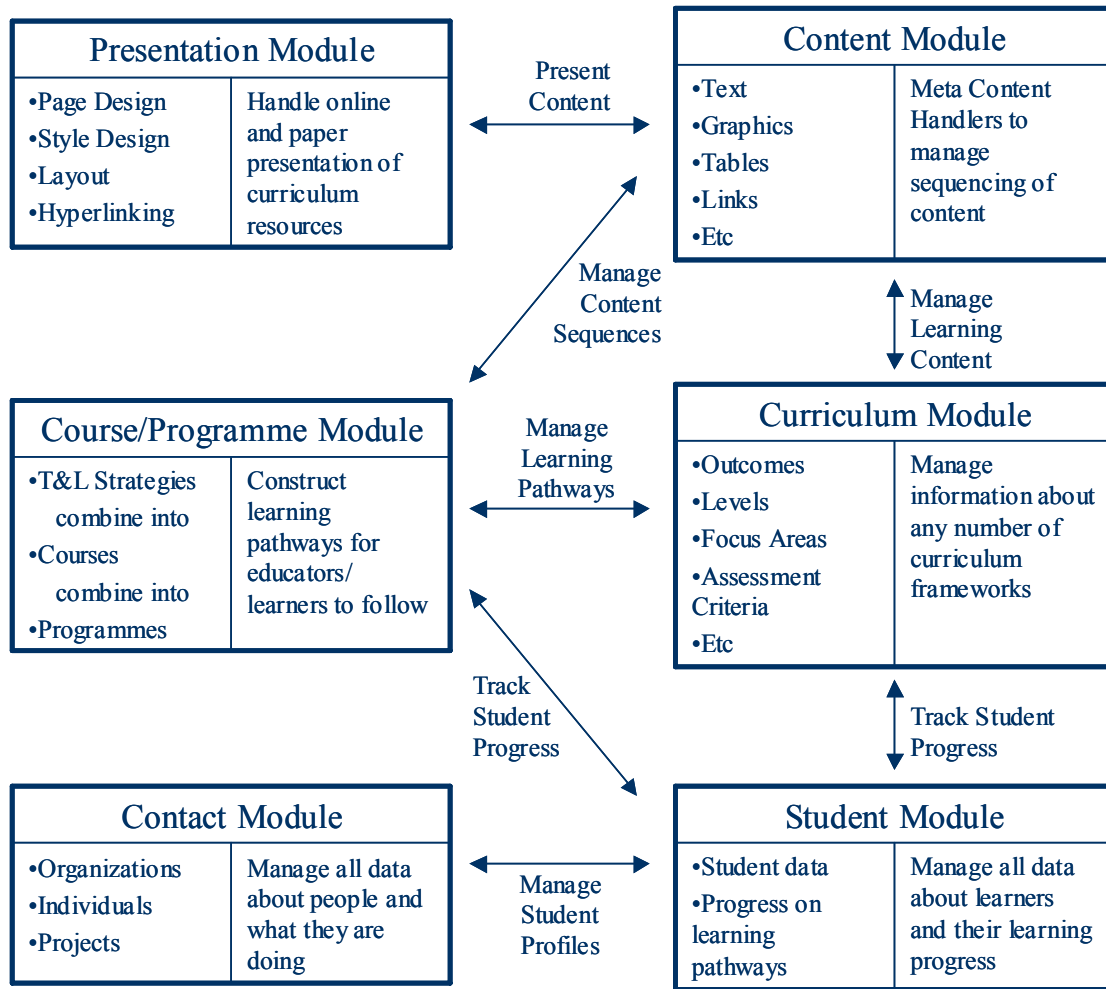
All curriculum frameworks – whether implicitly or explicitly – contain information about achievements expected when particular learning pathways have been completed (generally labelled as outcomes in South Africa). These outcomes are always linked to different focus areas (which help to identify what content can support achievement of specific outcomes) and levels (which describe the level of complexity of the achievements). Outcomes also then need to be described in terms of evidence or assessment criteria (that is, what we need to

gather in order to determine whether or not a specific outcome has been achieved). While outcomes, focus areas, and levels can – and in the first instance should – be generated independently of one another, evidence statements can only be defined in relation to a specific outcome. The diagram provides a schema of the above data descriptions.



3. *Content*

The third critical element of curriculum is the content itself. This can comprise any content – reading materials, web sites, examination or assignment tasks, and so on. The key to generating effective content is to establish a dynamic, iterative relationship between content development and the development of curriculum frameworks and learning pathways. This can be achieved using relational databases. It can be represented diagrammatically as follows:



The remainder of this document outlines more detailed information on practical implementation of this concept.

WHAT IS A LEARNING PATHWAY?

A learning pathway is a combination of teaching and learning activities that a learner undertakes in a specified sequence. From a broad educational perspective, the combination could be of any number, and cover any number of notional learning hours. It could be very large – such as all the activities and experiences from birth to adolescence that have contributed to a learner’s ability to articulate ideas, or very small – such as the activities embarked upon during an afternoon workshop on group dynamics.

From a narrower educational perspective, a learning pathway is a structured set of pre-defined activities that a learner completes to achieve certain outcomes. While it is not the case that all learning pathways must, by definition, lead to identified learning outcomes, the organization of learning pathways around attainment of specific outcomes is critical to ensuring their relevance and usefulness (although obviously not sufficient to ensure this).

All learning pathways have the following in common:

- The focus or content area is clear;
- The relationship of each discrete activity to the others is apparent;
- The degree or level of difficulty or level is specified;
- The pathway incorporates both educational content that helps learners to make progress along the learning pathway and content that assesses this progress; and
- Each activity has clear instructions/guidelines.

LEARNING PATHWAYS AND CURRICULUM MANAGEMENT

It is generally accepted that there are a myriad of ways of teaching any specific idea or concept. Thus, learners are able to achieve the same outcomes through different means – or by following different learning pathways. Recognizing the uniqueness of both educators and learners, it is therefore important, from an instructional design perspective, to design learning activities that can be sequenced in different combinations to form many learning pathways.

To do this, educational resource or materials developers need to break down the curriculum under consideration into discrete chunks or elements that are sufficiently self-contained to be intelligible, while clearly demonstrating how each element relates to the others. The following points require consideration in this regard:

- In some cases, the relationship between elements is sequential – having completed A it is now possible to proceed to B (A then B). In this case, B is not possible without first completing A.
- In some cases, one element can be substituted for another without affecting learner progress. In this case, learners can complete C or D in order to achieve Y.
- In some cases – particularly in developing content for assessing progress – learner engagement with the element determines its status in relation to the other elements. If a learner successfully completes an activity – E – they can move onto F. If they are unsuccessful however with activity E, they should move to activity G, or maybe back to activity D.
- Relationships between elements can be one-to-many or many-to-many, as it is not always as simple to specify that A precedes B or that C replaces D or that success in E leads to F while failure leads to G. Depending on how small any element in a curriculum is, it will become necessary to define rules of combination between elements. For example, completing A, B, and C in whatever order or simultaneously may prepare the learner for H.

WHAT DO WE MEAN BY A LEARNER ACTIVITY?

Learner activities require action from the learner. This can be in many forms for example:

- Read;
- Look at;
- Write;
- Fill in words
- Criticize;
- Draw;
- Create or make;
- Choose from a selection of options;
- Correct or edit;
- Discuss,

- Present;
- Explain;
- Solve;
- Listen;
- Tell;
- Watch;
- Feel;
- Investigate/ find;
- Etc.

In broad terms, though, all learning activities can be categorized into one of three groups: contact activities (where contact either takes between educators and learning or amongst learners); independent study activities; and assessment activities. In some cases, such as oral examinations, activities may fall into two of the three categories above.

In all cases, separate learner activities can vary tremendously in scale. Units can be very small, such as reading a short passage or writing a paragraph, each of which is unlikely to involve more than 10 minutes of work. On the other end of the scale, learner activity can involve thousands of hours of work, and lead directly to the granting of qualification. Specialized doctorate research is a simple example of such a learning activity.

It is, of course, possible to enter into long debates about how one distinguishes educational learner activities from all other activities and experiences. Similarly, one could argue about the point at which a single learning element can be considered to be self sufficient. Such debate, while an interesting intellectual activity, is not helpful from either an educator or learner perspective. We recognize that all such choices or categories to differentiate learner activities or elements of curriculum are essentially arbitrary. Once made, however, they serve to organize sets of ideas and make them penetrable and manageable from a teaching and learning perspective. More importantly, they allow education providers to build knowledge management platforms off which they can grow and adapt their existing activities more efficiently, to cope with changing educational needs and contexts. Thus, design of learning pathways, selection of what constitutes a 'learning activity', and decisions about how small to make discrete content elements will be mediated more by the requirements of an education provider than by academic theory.

THE EXAMPLE OF GCSE CURRICULUM

The above discussion yields the following points of interest for any web site seeking to manage information containing curriculum resources. For purposes of illustration, we will use the United Kingdom GCSE curriculum as an example, because it lends itself so readily to data management:

1. For the purposes of a curriculum web site for the GCSE, a learning pathway is defined as any sequence of educational activities that leads learners to successful achievement of one or more specified learning outcomes.
2. Learning pathways would need to be constructed to lead to the specified learning outcomes articulated in the English National Curriculum. In this curriculum, these are also known as attainment targets.
3. Over time, different learning pathways to achieve the same learning outcomes would need to be made available to learners and educators using the web site.
4. Presentation of learning pathways should allow learners and educators to specify their own learning pathways, of varying durations, depending on their needs.

5. Learning pathways would comprise activities/content that help learners to make progress along a specified learning pathway and activities/content that help learners to assess their progress along a specified learning pathway. In some cases, activities/content may achieve both goals simultaneously.
6. A curriculum management system is necessary to organize the discrete content elements that will be combined to comprise a learning pathway. By rigorously tagging each content element, it will become increasingly possible to use existing activities/content to build new learning pathways, thus reducing the medium- to long-term expense of generating new learning pathways.

GCSE LEARNING PATHWAYS FOR KEY STAGE FOUR: A CURRICULUM EXAMPLE¹

WHAT IS KEY STAGE FOUR?

The GCSE certificate is one of the possible qualifications awarded on completion of Key Stage Four or at the end of year 11 – the final year of compulsory school attendance. The Key Stages roughly map to the age ranges, year groups, and level of attainment of a school student cohort. The Key Stages can be implemented flexibly by each school, but in, general terms, most students in years 10 and 11 (the tenth and eleventh years of attending formal schooling), who are between the ages of 14 and 16 should be participating in Key Stage Four. Thus, the following breakdown illustrates the broad curriculum framework leading to the GCSE

AGE	5–7	7–11	11–14	14–16	
YEAR GROUPS	1–2	3–6	7–9	10–11	
English	■	■	■	■	National Curriculum core subjects
Mathematics	■	■	■	●	
Science	■	■	■	●	
Design and technology	■	■	■	●	National Curriculum non-core foundation subjects
Information and communication technology	■	■	■	■	
History	■	■	■		
Geography	■	■	■		
Modern foreign languages			■	●	
Art and design	■	■	■		
Music	■	■	■		
Physical education	■	■	■	●	
Citizenship			▶	▶	

■ – Statutory from 2000

● – Statutory from 2001

¹ All information about GCSE curriculum has been taken from www.nc.uk.net.

► – Statutory from 2002

The GCSE is awarded through continuous and summative assessment activities that are specified in national curriculum guidelines. A final examination is one component of this – and is administered by different examination boards, sometimes differing from subject to subject. Schools choose the examination board with whom they register their students.

SOME KEY TERMS

Programme of Study

Programmes of study set out what pupils should be taught in each subject at each key stage, and provide the basis for planning schemes of work

To distinguish programmes they each consist of:

- A subject (Content area); and
- Degree of difficulty (Key Stage 1 to 4).

In some cases – as for mathematics and science – programmes of study at a specific key stage are further differentiated by a refined degree of difficulty or content area focus. For example mathematics key stage four is split into two programmes of study options - Foundation and Higher. These differentiate degree of difficulty. For science at key stage four, there are two programmes of study options – double and single – which differentiate the further areas of content focus within science.

Attainment Target

Attainment targets are the outcomes learners are expected to achieve at the end of each key stage. An attainment target sets out the ‘knowledge, skills and understanding which pupils of different abilities and maturities are expected to have by the end of each key stage’.

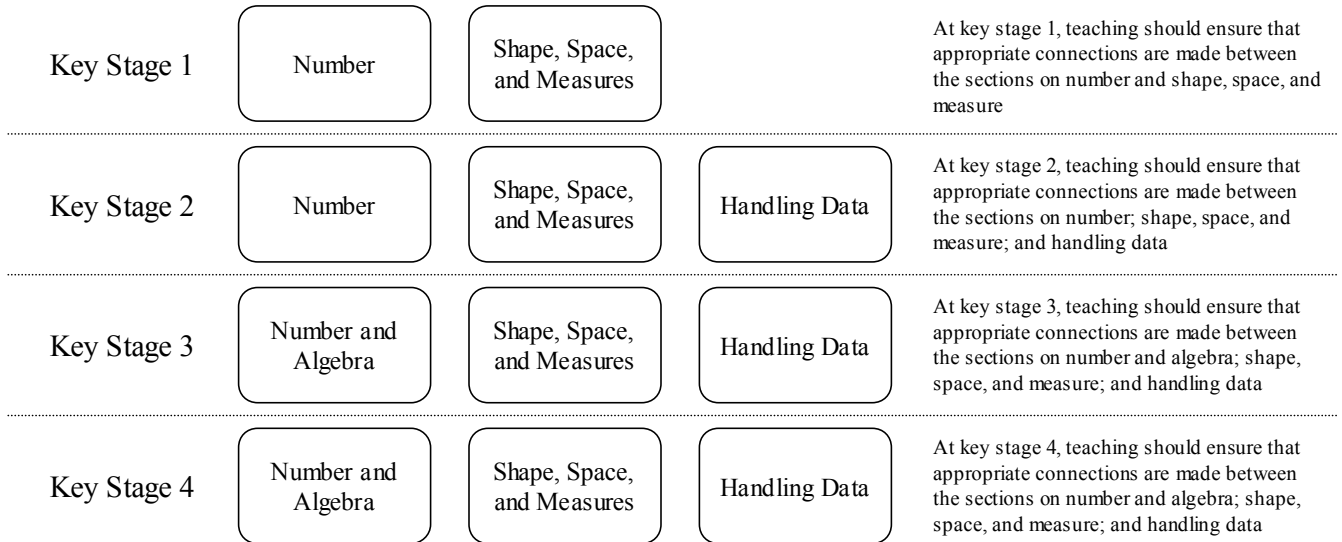
Each attainment target is graded according to its degree of difficulty using a scale from 1 to 8 or above. Each degree of difficulty (level 1 to 8 and above) is described by a level descriptor specific to the subject area and more detailed areas of content focus. Except in the case of citizenship, attainment targets consist of eight level descriptions of increasing difficulty, plus a description for exceptional performance above level 8. Each level description describes the types and range of performance that pupils working at that level should characteristically demonstrate. Levels are used to communicate progress through the national curriculum and are compared to expected levels of attainment at each Key Stage.

RANGE OF LEVELS WITHIN WHICH THE GREAT MAJORITY OF PUPILS ARE EXPECTED TO WORK		EXPECTED ATTAINMENT FOR THE MAJORITY OF PUPILS AT THE END OF THE KEY STAGE	
Key stage 1	1–3	at age 7	2
Key stage 2	2–5	at age 11	4
Key stage 3	3–7	at age 14	5/6/5

CONSIDERING LEARNING PATHWAYS

Developing a conceptual framework for the design of learning pathways for the GCSE curriculum is best achieved using specific examples. As an illustrative example, we have chosen to focus on the programmes of study for Mathematics. Mathematics is one of the three core subjects in the National Curriculum for England (the other two are English and Science). Programmes of study set out what students should be taught in mathematics at each key stage.

The process of constructing learning pathways for Mathematics begins most usefully by narrowing down the scope of focus. This can most usefully be done by constructing a series of ‘maps’, each of which describes a ‘learning pathway’. The first map illustrates the broad mathematics curriculum across all four key stages, identifying the main aspects of mathematics in which students make progress. Thus, it constitutes the complete learning pathway for learners wishing to progress from key stage 1 to key stage 4.



As we have noted, the above diagram maps out a large-scale learning pathway, which could represent as much as 11 years of learning in this subject area. This learning pathway can, however, be broken into smaller learning pathways, as represented by each key stage. At key stages 1, 2, and 3, this is relatively straightforward, but it is complicated slightly at key stage 4, because there are two programmes of study: mathematics foundation and higher mathematics. Each has different attainment targets, although obviously there are overlaps between them. Foundation mathematics is designed for those students who have not attained a secure level 5 at the end of key stage 3 (as we will demonstrate below, each key stage is broken into several levels and a student’s progress within a key stage is expressed in these terms). Thus, zooming in on key stage 4 provides us two more detailed learning pathways.

Key Stage 4 Mathematics Foundation

Number and Algebra

- *Using and applying number and algebra*
 - o Problem-Solving
 - o Communicating
 - o Reasoning
- *Numbers and the number system*
 - o Integers
 - o Powers and roots
 - o Fractions
 - o Decimals
 - o Percentages
 - o Ratio
- *Calculations*
 - o Number operations and the relationships between them
 - o Mental methods
 - o Written methods
 - o Calculator methods
- *Solving numerical problems*
- *Equations, formulae, and identities*
 - o Use of symbols
 - o Index notation
 - o Inequalities
 - o Linear equations
 - o Formulae
- *Sequences, functions, and graphs*
 - o Sequences
 - o Graphs of linear functions
 - o Gradients
 - o Interpret graphical information

Shape Space, and Measures

- *Using and applying shapes, space, and measures*
 - o Problem-Solving
 - o Communicating
 - o Reasoning
- *Geometrical reasoning*
 - o Angles
 - o Properties of triangles and other rectilinear shapes
 - o Properties of circles
 - o 3-D shapes
- *Transformations and coordinates*
 - o Specifying transformations
 - o Properties of transformations
 - o Coordinates
- *Measures and construction*
 - o Measures
 - o Construction
 - o Mensuration
 - o Loci

Handling Data

- *Using and applying handling data*
 - o Problem-Solving
 - o Communicating
 - o Reasoning
- *Specifying the problem and planning*
- *Collecting Data*
- *Processing and representing data*
- *Interpreting and discussing results*

Key Stage 4 Higher Mathematics

Number and Algebra

- *Using and applying number and algebra*
 - o Problem-Solving
 - o Communicating
 - o Reasoning
- *Numbers and the number system*
 - o Integers
 - o Powers and roots
 - o Fractions
 - o Decimals
 - o Percentages
 - o Ratio
- *Calculations*
 - o Number operations and the relationships between them
 - o Mental methods
 - o Written methods
 - o Calculator methods
- *Solving numerical problems*
- *Equations, formulae, and identities*
 - o Use of symbols
 - o Index notation
 - o Equations
 - o Linear equations
 - o Formulae
 - o Direct and inverse proportion
 - o Simultaneous linear equations
 - o Quadratic equations
 - o Simultaneous linear and quadratic equations
 - o Numerical methods
- *Sequences, functions, and graphs*
 - o Sequences
 - o Graphs of linear functions
 - o Interpreting graphical information
 - o Quadratic functions
 - o Other functions
 - o Transformation and functions
 - o Loci

Shape Space, and Measures

- *Using and applying shapes, space, and measures*
 - o Problem-Solving
 - o Communicating
 - o Reasoning
- *Geometrical reasoning*
 - o Properties of triangles and other rectilinear shapes
 - o Properties of circles
- *Transformations and coordinates*
 - o Specifying transformations
 - o Properties of transformations
 - o Coordinates
 - o Vectors
- *Measures and construction*
 - o Measures
 - o Construction
 - o Mensuration
 - o Loci

Handling Data

- *Using and applying handling data*
 - o Problem-Solving
 - o Communicating
 - o Reasoning
- *Specifying the problem and planning*
- *Collecting Data*
- *Processing and representing data*
- *Interpreting and discussing results*

As is clear from the above diagrams, the differences between the two learning pathways do not appear to be major, in terms of the structure. The primary differences are ones of omission, in that certain sections omitted from the Mathematics Foundation learning pathway are included in the Higher Mathematics pathway. However, closer scrutiny of the attainment targets reveals that the differences run considerably deeper than this. One example will suffice:

Properties of Triangles and Other Rectilinear Shapes

Mathematics Foundation

- c) Use parallel lines, alternate angles and corresponding angles; understand the properties of parallelograms and a proof that the angle sum of a triangle is 180 degrees; understand a proof that the exterior angle of a triangle is equal to the sum of the interior angles at the other two vertices
- d) Use angle properties of equilateral, isosceles and right-angled triangles; understand congruence; explain why the angle sum of any quadrilateral is 360 degrees
- e) Use their knowledge of rectangles, parallelograms and triangles to deduce formulae for the area of a parallelogram, and a triangle, from the formula for the area of a rectangle
- f) Recall the essential properties of special types of quadrilateral, including square, rectangle, parallelogram, trapezium and rhombus; classify quadrilaterals by their geometric properties
- g) Calculate and use the sums of the interior and exterior angles of quadrilaterals, pentagons and hexagons; calculate and use the angles of regular polygons
- h) Understand, recall and use Pythagoras' theorem

Higher Mathematics

- a) Distinguish between lines and line segments; use parallel lines, alternate angles and corresponding angles; understand the consequent properties of parallelograms and a proof that the angle sum of a triangle is 180 degrees; understand a proof that the exterior angle of a triangle is equal to the sum of the interior angles at the other two vertices
- b) Use angle properties of equilateral, isosceles and right-angled triangles; explain why the angle sum of a quadrilateral is 360 degrees
- c) Recall the definitions of special types of quadrilateral, including square, rectangle, parallelogram, trapezium and rhombus; classify quadrilaterals by their geometric properties
- d) Calculate and use the sums of the interior and exterior angles of quadrilaterals, pentagons, hexagons; calculate and use the angles of regular polygons
- e) Understand and use SSS, SAS, ASA and RHS conditions to prove the congruence of triangles using formal arguments, and to verify standard ruler and compass constructions
- f) Understand, recall and use Pythagoras' theorem in 2-D, then 3-D problems; investigate the geometry of cuboids including cubes, and shapes made from cuboids, including the use of Pythagoras' theorem to calculate lengths in three dimensions
- g) Understand similarity of triangles and of other plane figures, and use this to make geometric inferences; understand, recall and use trigonometrical relationships in right-angled triangles, and use these to solve problems, including those involving bearings, then use these relationships in 3-D contexts, including finding the angles between a line and a plane (but not the angle between two planes or between two skew lines); calculate the area of a triangle using $\frac{1}{2}ab \sin C$; draw, sketch and describe the graphs of trigonometric functions for angles of any size, including transformations involving scalings in either or both the x and y directions; use the sine and cosine rules to solve 2-D and 3-D problems

From this perspective, it becomes clear that choosing – or being placed on – one of these two pathways has significant implications for what learners will actually do and learn. This choice is also not arbitrary. As the mathematics foundation notes indicate, the key stage 4 mathematics foundation course of study 'is intended for those pupils who have not attained a secure level 5 at the end of key stage 3'. Thus, choice of learning pathways is mediated by progress of previous key stages.

As this point introduces the concept of levels within each key stage, we will turn our attention to this concept briefly before outlining the implications of the above discussion for design of an effective digital curriculum management system.

ATTAINMENT TARGETS AND LEVEL DESCRIPTIONS

According to National Curriculum documentation:

Attainment targets set out the 'knowledge, skills and understanding that pupils of different abilities and maturities are expected to have by the end of each key stage. Attainment targets consist of eight level descriptions of increasing difficulty, plus a description for exceptional performance above level 8. Each level description describes the types and range of performance that pupils working at that level should characteristically demonstrate.

In mathematics there are four attainment targets:

- Using and applying mathematics
- Number and algebra
- Shape, space and measure
- Handling data.

The level descriptions provide the basis for making judgements about pupils' performance at the end of key stages 1, 2 and 3. At key stage 4, national qualifications are the main means of assessing attainment in mathematics.

RANGE OF LEVELS WITHIN WHICH THE GREAT MAJORITY OF PUPILS ARE EXPECTED TO WORK		EXPECTED ATTAINMENT FOR THE MAJORITY OF PUPILS AT THE END OF KEY STAGE	
Key Stage 1	levels 1-3	at age 7	level 2
Key Stage 2	levels 2-5	at age 11	level 4
Key Stage 3	levels 3-7	at age 14	levels 5/6

From this, one can infer that the levels at which students would be working at key stage 4 would range from levels 4/5 to 8. Following the Higher Mathematics learning pathway, though, this would be narrowed down to levels 6 to 8, as students following this pathway are expected to have attained a secure level 5. To give an example, the attainment targets for level 5 are as follows:

- *Using and applying mathematics*
In order to carry through tasks and solve mathematical problems, pupils identify and obtain necessary information. They check their results, considering whether these are sensible. Pupils show understanding of situations by describing them mathematically using symbols, words and diagrams. They draw simple conclusions of their own and give an explanation of their reasoning.
- *Number and algebra*
Pupils use their understanding of place value to multiply and divide whole numbers and decimals by 10, 100 and 1000. They order, add and subtract negative numbers in context. They use all four operations with decimals to two places. They reduce a fraction to its simplest form by cancelling common factors and solve simple problems involving ratio and direct proportion. They calculate fractional or percentage parts of quantities and measurements, using a calculator where appropriate. Pupils understand and use an appropriate non-calculator method for solving problems that involve multiplying and dividing any three-digit number by any two-digit number. They check their solutions by applying inverse operations or estimating using approximations. They construct, express in symbolic form, and use simple formulae involving one or two operations. They use brackets appropriately. Pupils use and interpret coordinates in all four quadrants.
- *Shape, space and measure*
When constructing models and when drawing or using shapes, pupils measure and draw angles to the nearest degree, and use language associated with angle. Pupils know the angle

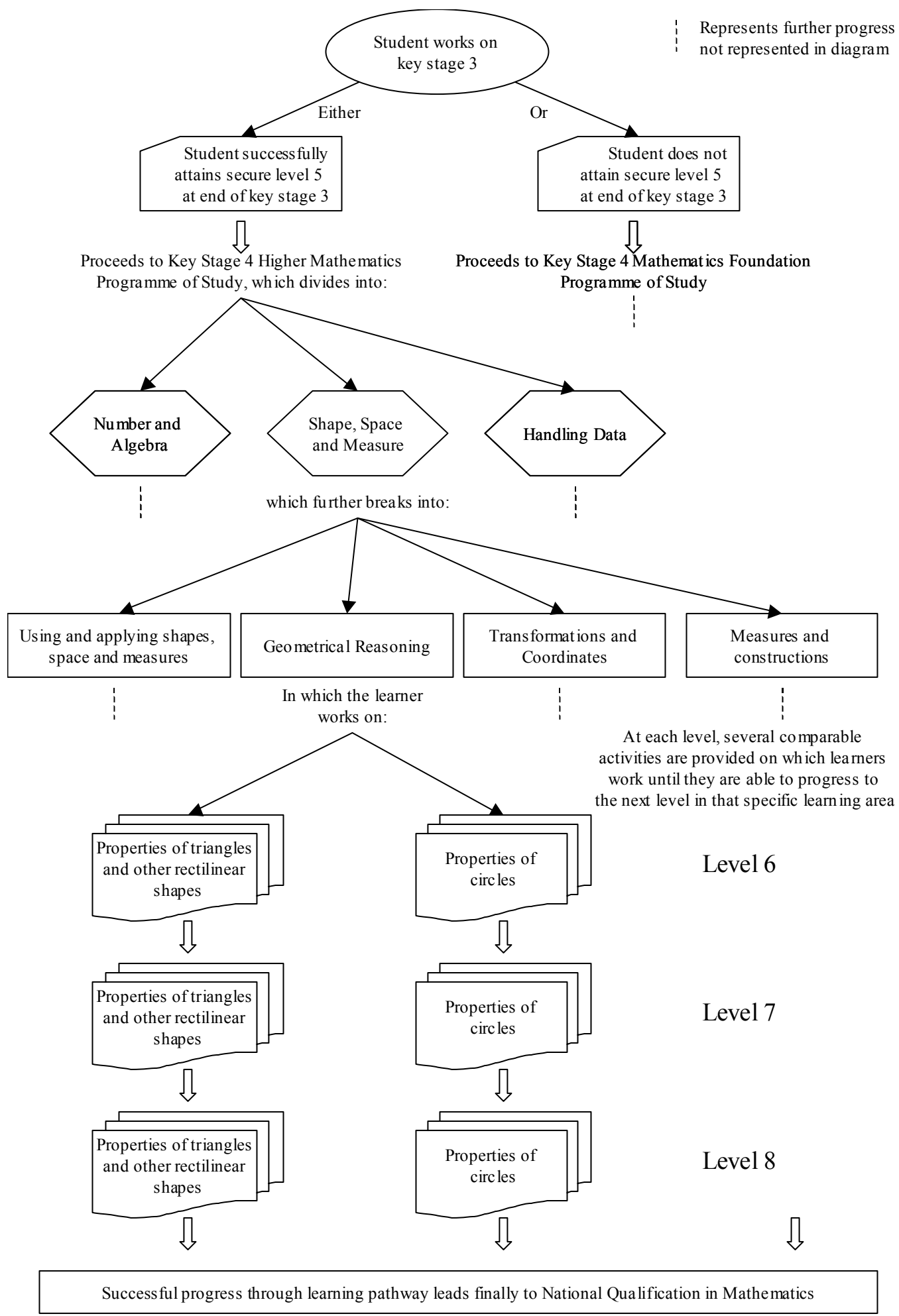
sum of a triangle and that of angles at a point. They identify all the symmetries of 2-D shapes. They know the rough metric equivalents of imperial units still in daily use and convert one metric unit to another. They make sensible estimates of a range of measures in relation to everyday situations. Pupils understand and use the formula for the area of a rectangle.

- *Handling data*

Pupils understand and use the mean of discrete data. They compare two simple distributions, using the range and one of the mode, median or mean. They interpret graphs and diagrams, including pie charts, and draw conclusions. They understand and use the probability scale from 0 to 1. Pupils find and justify probabilities, and approximations to these, by selecting and using methods based on equally likely outcomes and experimental evidence, as appropriate. They understand that different outcomes may result from repeating an experiment.

From this the following diagram emerges.

⋮ Represents further progress not represented in diagram



At each level, several comparable activities are provided on which learners work until they are able to progress to the next level in that specific learning area

Successful progress through learning pathway leads finally to National Qualification in Mathematics

IMPLICATIONS FOR DESIGNING WEB-BASED CURRICULUM MANAGEMENT SYSTEMS

The above descriptions have major implications for design of a portal focusing on curriculum content. Specifically, we it will be beneficial to build an underlying data management system for the Gauteng Online portal which performs the following functions:

1. The system should allow for entry of all of the base data of any curriculum, that is all information about outcomes, focus areas (or content areas), level descriptions, teaching and learning strategies, and so on. It should be required to capture all of this data in a way which enables the relationships between the data to be clear, and which allows for retrieval of this base data in a wide range of appropriate combinations.
2. In many cases, however, the retrieval of this base data in appropriate combinations will need to be transparent to the end-user, who will, in many instances, not be interested in the underlying pedagogical framework. Consequently, the key to success of the system will be to ensure that it establishes appropriate links between curriculum content and outcomes (as well as, in some instances, with appropriate level descriptions). This curriculum content can, in broad terms be categorized as one of two types (although some content may be categorized as belonging to both types):
 - Content that helps students to progress along their chosen learning pathway/s; and
 - Content that helps students assess their progress along their chosen learning pathways.Within these two broad categories, though, it will be critical to ensure that several sub-categories and parallel categories are developed to enable simple, tagged storage of any content type. It will also be critical to ensure that – even where content is apparently fully integrated – it is broken down into its smallest possible ‘bits’, as this will be the only sure way to build increasing flexibility into the system. Obviously, from this perspective, it becomes critical to ensure that this content is captured in such a way that its relationship to one or more learning pathways is clear (but transparent to the end-user), that content tags allow for easy retrieval of content in different and new combinations, and that addition of new content is simple, seamless, and designed to allow for increasingly diverse learning pathways and curriculum combinations as the system matures.
3. A final key to success of the system will be its capacity to retrieve data and present it to different users. Above, we have spoken of the importance of retrieving data in various combinations that constitute learning pathways. Beyond this, though, a range of reporting mechanisms will be critical to ensure that the system delivers long-term return on investment. These reports will have to focus on re-presenting content in a range of combinations so that curriculum developers can use it to create new learning pathways. Curriculum developers may, for example, want a simple retrieval mechanism that allows them to find all content that assesses learner progress in a particular course or module. Taking a different approach, they may choose to access all content that allows students to make progress on a specific level, across all courses or modules. They will want this content presented to them in a format which allows them to copy it and make new links to different curriculum areas, so that they can tailor it to a new purpose. When the system is able to deliver this level of flexibility, it can become a very powerful addition to any portal.

How Should Content be Referenced?

The system should be based on a process of managing various types of content (text, tables, lists, graphics, etc), and referencing them according to how they fit into a specific curriculum framework. All categorizing systems should be fully adaptable. We, however, envisage the following minimum tagging elements for content:

1. Relationship of content to identified outcomes (as specified both by individual organizations and in national curriculum frameworks);
2. Level of content (in relation to educational career – not age – of learner);
3. Focus area/s of content (which will be established as a fully recursive set of parent-child relationships, allowing infinite sub-categorizing of categories);
4. Location of content within university year, where applicable.

In addition, though, it would be useful to integrate a fully generic categorizing system, which will allow the end user to add his/her own categories (as well as any number of levels of sub-categories within those categories) to reference its own materials.

APPENDIX C

Criteria for Evaluating Educational Software

OPEN-ENDED QUESTIONS USED TO GUIDE INTERPRETATION ON CRITERIA

1. What is the purpose for the educational software? What is it intended for?
2. Does the educational software refer to and or attempt to model the future roles of the learners? Are learners guided in terms of applied competence? If so, in what ways and to what extent?
3. What assumptions about the learners' prior knowledge, experience and attitudes are implicit in the software?
4. What expectations about the learners' knowledge, experience and attitudes are implicit in the software?
5. Is learner ICT confidence or anxiety addressed? If so, in what ways?
6. Are any problem-solving strategies included in the software?
7. What skills for further learning are developed in the software?
8. Does the software invite feedback from learners, teachers and others for development purposes?

CRITERIA FOR EDUCATIONAL EFFECTIVENESS

This category for review is about the way in which clear and relevant information can motivate and direct learners effectively in their study. Learners need to understand from the outset the requirements of the various components of the software. As learners, they need to be motivated by relevant introductions and overviews within each individual module/unit. They also need to be clear about what they have to achieve in each unit and these aims and learning outcomes should be consistent with the goals of the course or software.

Introduction to the unit/section

- Explains the importance of the topic for the learner and creates interest in the material.
- Provides an overview of what is to come.
- Forges links with what the learners know already and what you are expecting them to learn.
- Points out links with other units/sections.
- Provides aims and learning outcomes in ways that are directly relevant and useful to the learners
- Gives an indication of how long the learner should spend on the material in the unit/section.

Learning outcomes

- Are stated clearly and unambiguously.
- Describe what the learners need to demonstrate to show their competence.

- Are consistent with the aims of the course and programme and aligned to the appropriate curriculum framework.
- Are supported by the content and teaching approach.

In contexts where rote learning and authoritarian views of knowledge have been the norm, particular attention needs to be paid to the way in which knowledge is presented. The perspective we wish to promote is that knowledge should be presented as open and constructed in contexts, rather than merely received in a fixed form from authorities. Learners should be given opportunities to interrogate what they learn, and their prior knowledge and experience should be valued and used in the development of new ideas and practices. Frequent opportunities and motivation for application of knowledge and skills in the workplace, where relevant, should be provided, but this should be done in a reflective rather than mechanical way.

Learning skills

- Summaries and revision exercises are included at frequent intervals to assist the learners to learn.
- Skills for learning (such as reading, writing, monitoring progress) are appropriate to the outcomes of the course and integrated into the materials.
- ICT skills are deliberately developed as appropriate
- The software models the processes and skills which the learners are required to master - i.e. they 'practise what they preach'.

Aside from the obvious importance of clear, coherent language at an appropriate level for the learners, the kind of style used is crucial. Style can alienate or patronize the reader, or it can help to create a constructive learning relationship with the reader. Style needs to be judged in terms of specific audience and purpose, and so a standard set of criteria is not useful. However, it is always helpful if new concepts and terms are explained and jargon is kept to a minimum

Language level

- New concepts and terms are explained simply and these explanations are indicated clearly in the text.
- The language used is friendly, informal, welcoming, and accessible.
- Learners are not patronized or 'talked down to'.
- The discourse is appropriate to the learning of the course.
- The language is sensitive as far as gender and culture are concerned.
- The language takes cognisance of the multilingual reality of Africa.
- The language is active and sufficiently interactive.

CRITERIA FOR INTERACTION AND FEEDBACK

A major strategy for effective teaching using educational software is provision of a range of activities and strategies to encourage learners to engage with the content. If the course designer provides feedback or commentary on these activities, then learners will experience a form of the discussion that takes place in lively classrooms.

Activities

- Activities are clearly sign-posted and learners know where each one begins and ends.
- Clear instructions help the learners to know exactly what they are expected to do.
- Instructions allow for students to understand the principles underlying them.
- Activities are related to learning outcomes.
- Activities are sufficient to give learners enough practice for confident use after using the software.
- Activities are distributed at fairly frequent intervals throughout the unit/section.
- Activities show a good range of difficulty.
- Activities are sufficiently varied in terms of task.
- Activities are sufficiently varied in terms of levels of interactivity (self, peer, group).
- Activities are life/work related.
- Activities are realistic in terms of time indications.
- The learners are encouraged to take some risks and explore some of the possibilities that the medium offers.
- Learners know which activities they have completed and when restarting on a new computer can easily locate their place.

Feedback to learners

- Feedback to learners is clearly indicated.
- Feedback is offered in the form of suggestions and is only prescriptive where necessary.
- The learners are able to identify the errors they have made, and they are able to assess their progress from their responses.
- Where calculations are required, the stages in the working are displayed and explained.
- Supportive comments are offered to learners.
- Feedback is offered immediately where appropriate.
- The software allows for multiple learning pathways to accommodate different learners with different needs and levels of competence

Assessment

- There is an assessment strategy for the module/course as a whole, which includes both formative and summative assessment.
- The assessment tasks are directly related to the learning outcomes.
- The assessment strategy and the assessment criteria are communicated to the learners.
- Self-assessment tasks form part of the activities and where appropriate learners can track and view their progress (see feedback below).
- Software assesses students' prior competence and allow for differentiated progress through the materials.
- Options to store and track learners use of the software and learning progress are available and support on managing this is provided

CRITERIA FOR PRESENTATION, ACCESSIBILITY AND NAVIGABILITY

This is to do with how content is taught. There is no one 'right' way to teach content – it will vary according to the subject and the audience. However, there are certain pointers for a reviewer. These include, clear explanation of concepts and a range of examples, as well as sufficient and appropriate ways for learners to process new concepts, rather than merely learn

them off by heart. What is at issue here is rigour, interest, and relevance. Content should be well-researched, up-to-date, and relevant to the African context. The learners should also be able to see how content is related to learning outcomes and goals of the course. Coherence is also important. If the components of a software application are contradictory or unrelated to each other, the impact of the course will be considerably lessened.

Presentation of content and teaching and learning approaches

- Teaching and learning approaches engage learners both intellectually and practically.
- Teaching and learning approaches promote learner responsibility.
- Concepts are developed logically.
- Concepts are explained clearly using relevant and sufficient examples or instructions.
- New concepts are introduced by linking to learners' existing knowledge.
- Ideas are presented in manageable amounts.
- A variety of methods are used to present the content and succeed in keeping the learner's interest alive.
- Content is up to date
- The materials acknowledge the sources of material included and no breach of local or international copyright laws is evident.
- The content of the materials is appropriate in terms of sufficiency and accuracy.
- The content presented is comprehensive and sufficient: it has a backbone of core activities as well several optional and additional components.

Multimedia use and visual (pictures, photographs, diagrams, cartoons, video, sound)

- Visual aids complement the written text.
- Diagrams are well drawn and appropriate for target learners. They are gender and culture sensitive.
- Where appropriate, concept maps and diagrams are included to help the learners to get an overview of the material and to assist the learning process.
- Captions and explanations accompanying visual aids are adequate and give the learners a clear idea of what their purpose is.
- Instructions accompanying diagrams are clear and the learners know what they are expected to do.
- Visual and auditory aids are well placed in the text and support learning.
- Visual aids are of suitable size (for efficient download and presentation).
- Visual aids are varied and make appropriate use of video, sound, animation, photographs and so on
- Multimedia options are suitable compresses and where appropriate offered a choice to prevent slow downloads

Effective layout of learning materials maintains a creative tension between consistency and variety. It is important that learners are able to find their way through the various units and sections by the provision of contents pages, concept maps, headings, subheadings, statements of aims and learning outcomes, and other access devices. The text also needs to be broken up into reasonable chunks, and the layout should assist the logical flow of ideas. At the same time, a very predictable format can lead to boredom. A good way of introducing variety is through the use of visual material such as concept maps, pictures and diagrams. This has the added advantage of catering for learners who learn best through visual representations of

ideas. Where appropriate, concept maps, pictures, and diagrams should be included.

Access devices

- Learners are guided around materials by navigation frameworks, which indicate how components are interrelated and how they can be used.
- Instructions on how to use materials are simple and appropriate to the prior computer competence of target learners.
- The numbering system makes it easy for learners to find their way through the software.
- Information is organized in a manageable way.
- Headings and sub-headings are used to draw attention to the key points of the course/module. This makes it easy for the learners to get an overview of the course/module at a glance. It also makes it easy to find parts the learners want to refer to.
- There is a contents page.
- Pre-tests are used wherever feasible to help the learners know what skills or knowledge they need to have before starting the unit or module.
- Links with previous knowledge and experience, with other parts of the same unit/section and with other units/sections are indicated.
- Learners can access help offered in the materials when required.
- The various elements of the different media are integrated, and the integration is clearly sign-posted.

Navigability

- Navigation is intuitive and easy to use.
- The navigation system is user-centred.
- There is a sitemap with links to all components of the site.
- There is a link back to the main page from all pages, and there is a link to a main level from each page.
- The purpose of various components of the navigation system is clear.
- There are fixed links that do not rely on the browser, i.e. back / forward / previous / main menu button.
- All pages are titled and each title is meaningful.
- There is a functional search facility.
- The site design and selection of fonts, graphics and styles help the user to move around and understand the site).
- Consistent symbols and words are used as navigation aids.
- The home page is attractive, has links to the main parts of the site, adequately explains the navigation structure and the information on the home page fits on one screen, i.e. the user does not have to scroll down.
- Different types of hyperlinks are clearly marked, and links are indicated using descriptive words.
- Overall, the presentation is appropriate to the professional/academic background of the target group.
- Overall, the final product is attractive and inviting.

CRITERIA FOR TECHNICAL COMPONENTS

Appropriateness of Technology

- The software is fit for purpose.
- The resource exploits the capacity of the medium for educational purposes. The software builds on the strengths of media or technologies chosen.
- Computer hardware requirements for using the educational software are made explicit and are appropriate to target learners. The software or supporting documentation explain to teachers, taking into account technical experience, what the technical infrastructure and requirements are for the use of the materials, how to access these, and keeps the materials within these.
- Where possible the software has been optimized to an appropriately assumed platform or software version.
- Software design is flexible for use on different platforms
- Educational software is appropriately integrated with functions that support management and administration, communication and other teaching and learning strategies.
- Where new content is developed by either learners or teachers, the software provides efficient ways to find, retrieve, and manage this data.
- Teachers can adapt software to suit specific purposes.
- Software can provide for individual needs of target learners.

Speed and Reliability of Service

- The site loads quickly.
- Graphics elements have been selected carefully to minimize download time.
- Graphics elements are small with the size of graphics generally no more than 40k each. The width of graphics generally does not exceed 472 pixels.
- The number of unique graphics is limited, and graphics are recycled where appropriate.
- Audio and video is used sparingly.
- It is easy to connect to the website.
- The number of crashed connections per session is low.

Readability

- The typography is clean and easy to read.
- Text is in upper and lower case, not all upper case.
- There is a high contrast between the background and the text to improve legibility.
- Text is generally left-justified.
- The number of typefaces used is limited.
- Text is broken up in small chunks¹.
- Page design is congruent with the contents of each page to minimize unnecessary scrolling, to enhance navigation, or to facilitate the ease and quality of print jobs.
- The screen appears to be clean and uncluttered.
- Text size is legible in different screen resolutions.

¹ *ibid.*

Consistency

- There is evidence of consistency in the design and selection of fonts, styles, bullets and graphics.
- The content is logically structured.
- Screen elements with similar functions share similar appearance, location and behaviour.
- Presentation of content is consistent with the way in which users use that piece of content.
- The purpose of various components of the site is clear.

Integration

- The different elements of the software site integrate seamlessly with each other.
- The choice of different technology components is clearly explained and reasons provided for the choice.
- Links are made between components.
- The selection of hyperlinks is purposeful and not overwhelming (i.e. not too many links).
- The strengths of each of the technologies offered are optimized.

Cost

- The site is designed in such a way that the learner does not incur unnecessary costs by spending unnecessary time online.
- Any software licensing agreements are favourable to schools and are cost effective.

Support

- Clear technical information regarding hardware and software requirements and installation procedures (where relevant) is provided.
- Clear instructions about how to use various functions are provided.
- There is a help function.
- Information is provided for accessing help (telecentre, staff details, etc).
- The software includes clear instructions on installing and using the technologies of the materials and also address different technology platforms.
- The software explain choices for, identify the links, and give reasons for the choices of and links between different technology components.
- Learners are informed of access to help for both the technical infrastructure as well as for applications.
- Software installation, maintenance and support is readily available and efficiently provided.

APPENDIX D

Content Production Process Flow

**Produced by Reusable Objects and
the South African Institute for Distance Education
AUGUST 2002**

TABLE OF CONTENTS

A. Introduction.....	3
B. Structure of This Document	3
1. Educational Needs Analysis	5
2. Audience Analysis.....	5
3. Content Analysis	6
4. Instructional Design.....	6
5. Content Design	9
6. Content Authoring.....	10
7. Functional Storyboard	10
8. Concept & Development Planning.....	12
9. HTML templates.....	12
10. Interactive Templates.....	13
11. Interactive Instructional Web Page.....	14
12. Embedded Learning Objects.....	15
13. Links to External Resources	15
14. Quality Control.....	15
15. Publish.....	16
16. End User	17
ANNEXURE I: DESIGN PRINCIPLES.....	18
ANNEXURE II: PRODUCTION ACCELERATOR 1 THE PROJECT ANALYSIS QUESTIONNAIRE.....	26
ANNEXURE III: PRODUCTION ACCELERATOR 2 THE CRITICAL REVIEW BRIEF	30
ANNEXURE IV: PRODUCTION ACCELERATOR 3 CHANGE REQUEST DOCUMENT.....	32
ANNEXURE V: PRODUCTION ACCELERATOR 4 USER ACCEPTANCE TESTING TEMPLATE.....	33
ANNEXURE VII: SUGGESTED RESOURCES	34

A. Introduction

This document serves to offer a tested approach and methodology to the development of robust online learning content.

B. Structure of This Document

This document begins with a flow chart diagram (Figure 1), which details each component of the proposed content production process. Thereafter, each flow chart component is explained in more detail. The Annexures contain support information in the form of:

- More extensive information regarding critical topics.
- *Process Accelerators*, designed to increase levels of production efficiency. These Accelerators have been offered in the form of reusable templates, which may be used to analyse and review standard procedures and investigations, which are common to most, if not all, content development processes. We encourage you to develop your own Process Accelerators as needed. Since the development of online learning content is often resource-intensive, we promote efficiency through reusability.
- The development of online instruction can be both time-consuming and costly. A team approach is needed, with input from a variety of areas. Proposed personnel requirements are listed below (Table 1). Personnel, skills and responsibilities are discussed throughout this document.

Table 1. Online Learning Development Personnel

PERSONNEL	SKILLS	RESPONSIBILITIES
Project Manager	Organisational, financial, administrative, planning	Manage scope, time, cost and quality
Development Team Leader	Organisational, planning, HR	Reports to Project Manager and assists with HR and time management, particularly as regards Web Development personnel.
Subject Matter Expert	High subject matter competence	Content Authoring
Instructional Designer	Systematic approach to the design, development and delivery of instructional content	Needs Analysis Audience Analysis Content Analysis Instructional Design
Data Capturer	Computer literacy, typing, accuracy, attention to detail	Conversion of raw content (possibly hand-written) into electronic format
Critical Reviewer	High subject matter competence, attention to detail	3 rd party Review of authored material
Proofer	Accuracy, attention to detail	Quality control
Senior Web Developer	Excellent working knowledge of the Internet and Internet-based technologies, html coding, Flash application	Conceptualisation and development of html and Flash templates
Junior Web Developer	Good working knowledge of the Internet and Internet-based technologies, html coding, Flash application	Digital conversion of bulk content through the application of html and Flash templates
Interactive Designer	Excellent working knowledge of Flash programming (know as 'ActionScript')	Conceptualisation and development of interactive Web page elements (e.g. using the Flash software tool)

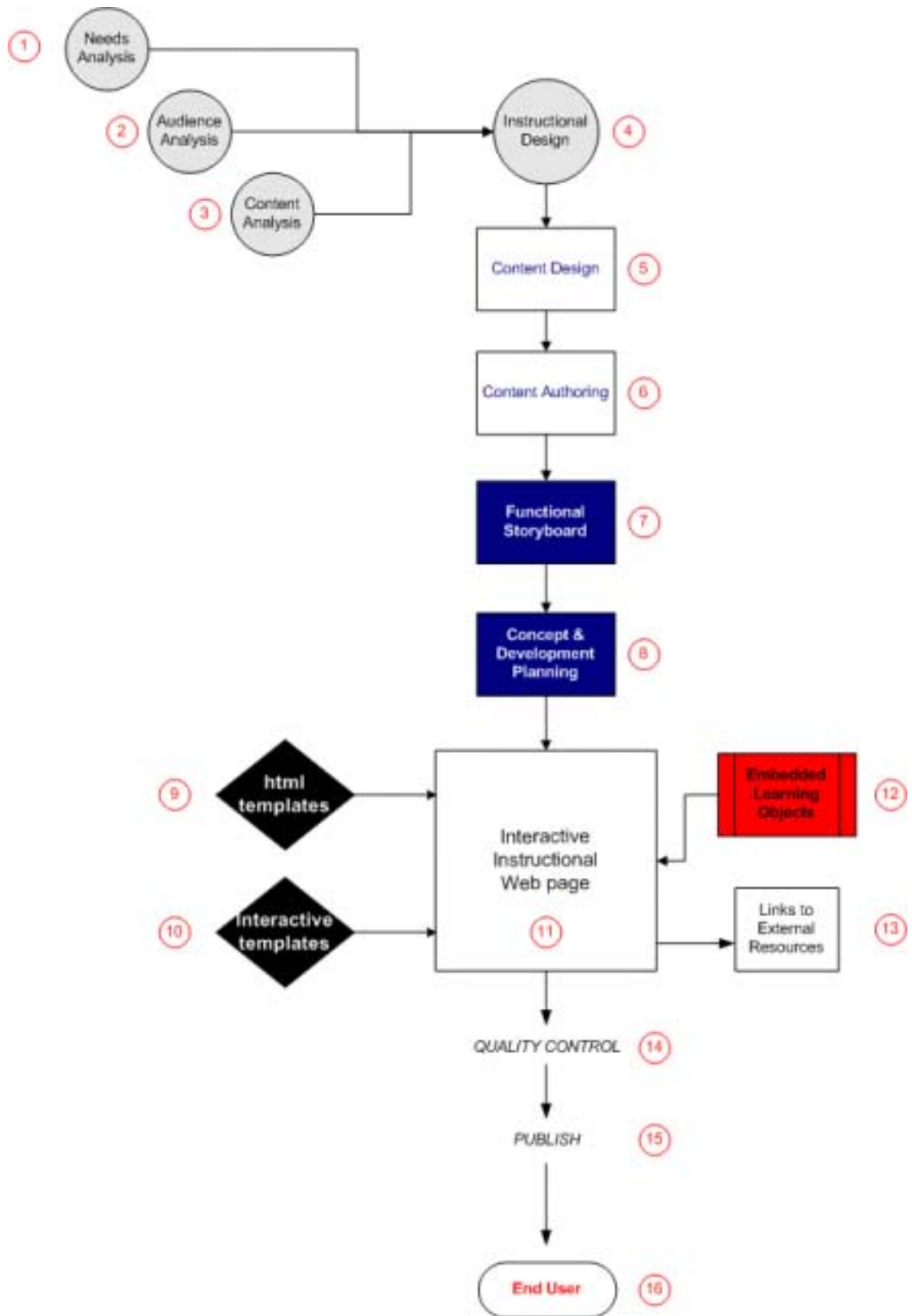


Figure 1: An educational content production work flow.

1. Educational Needs Analysis

The first step in developing instructional content is to perform a detailed Educational Needs Analysis. This will help to ensure that materials development is aligned with educational outcomes. It must take into account:

- Teaching aims and learning outcomes
- The most appropriate teaching methods
- Work requirements and learning resources
- Assessment methods
- Specific characteristics, learning styles and the needs of learners.

Involves the following personnel:

- Project Manager
- Subject Matter Expert
- Instructional Designer

2. Audience Analysis

This analysis is undertaken in order to determine learner characteristics. The results of an Audience Analysis inform decisions regarding the best ways to present information or to persuade learners to action.

An Audience Analysis should include indicators derived from demographic profiles, and wherever possible, preferred learning styles. Examples include:

- Educational background
- Professional experience
- Languages spoken
- Socio-economic level
- Age group
- Attitudes toward the topic of instruction
- Attitudes toward technology
- Cultural biases
- Cultural characteristics
- Physical environment

Involves the following personnel:

- Project Manager
- Subject Matter Expert
- Instructional Designer
- Interactive Designer

3. Content Analysis

A detailed Content Analysis is critical to the successful treatment and management of any digital interactive content development project. Successful Content Analysis allows for the segmentation of existing content into logical hierarchies, sets and sub-sets. This process enables the next critical process of Gap Analysis to be performed. The Gap Analysis distinguishes content sets that are required and available for a particular training outcome and those which are yet to be authored.

Content Analysis is performed in order to best understand the:

- Specific content type
- Content structure
- Content format (file-specific)
- Extent (scope) of content
- Intended training rationale / educational outcome(s).

Effective Content Analysis allows one to consider training materials systematically and as a logical set. This facilitates the effectiveness and efficiency of the initial authoring of required content from scratch, or the conversion of existent materials to a digital interactive format. Content Analysis ensures that final digital interactive product makes best use of specific media platforms and also best addresses educational outcomes.

Involves the following personnel:

- Development Team Leader
- Subject Matter Expert
- Instructional Designer
- Senior Web Developer
- Interactive Designer

4. Instructional Design

Detailed objectives-based authoring methodologies and systems allow for the sophisticated management of content creation. These processes include the specific design of instructional systems, which allow for effective content translation along a range of media platforms.

4.1 Planning the Instructional Strategy

Instructional strategy is defined as a combination of teaching methods and techniques designed to accomplish an instructional job. Effective e-learning programmes ensure that the learner plays an active role through self-paced content that is delivered via a series of learning activities with immediate feedback. This creates a positive, credible learning environment, where users believe they can learn and want to learn.

Achievement of learning outcomes can be ensured and verified by frequent exercises and interactive simulations throughout each learning event. If a Learner Management System (LMS) is used, each module may culminate in a formal assessment that will verify and record the achievement of the overall learning outcomes of that module.

4.2 Instructional Design Principles

Based on the learning events and outcomes identified, interrelationships are established between events and a strategy is created for progressing a learner through the logically structured learning events.

- *The Cognitive Structure Principle*
Promote the development of a cognitive structure that is most consistent with the desired learned performance.
- *The Elaboration Principle*
Promote incremental elaboration of the most appropriate cognitive structure to enable the learner to achieve increased generality and complexity in the desired learned performance.
- *The Learner Guidance Principle*
Promote that active cognitive processing that best enables the learner to use the most appropriate cognitive structure consistent with the desired learned performance.
- *The Practice Principle*
Provide the dynamic, ongoing opportunity for monitored practice that requires the learner to demonstrate the desired learned performance, or a close approximation of it. Supply feedback on both the results and the process followed.

4.3 Construction Tools

- *Anchoring*: use recurring examples/case studies that “grow” with the learner.
- *Scaffolding*: attach new knowledge to existing knowledge and build from there.

4.4 Instructional Strategy

The Knowledge Schema (Romiszowski, 1984) describes how learning may take the form of:

- Concepts
- Processes
- Procedures
- Principles
- Facts

This is explored in Figure 2, *The Knowledge Schema* and Table 2, *Knowledge Types*, below.

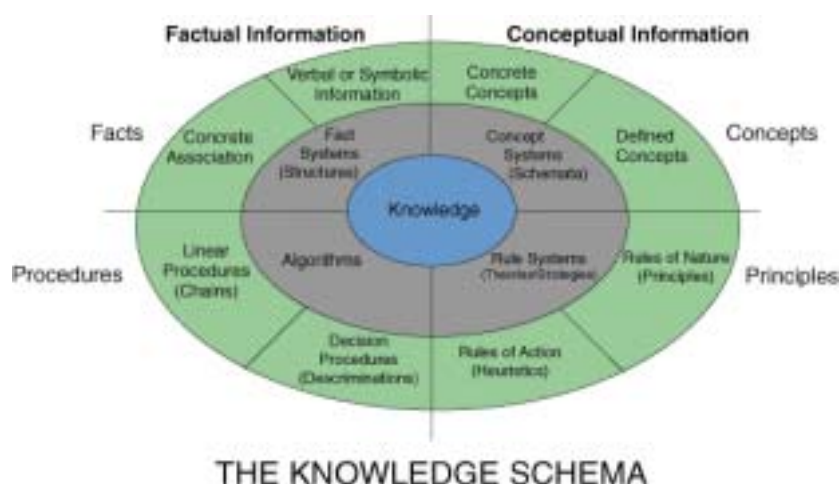


Figure 2. The Knowledge Schema

Table 2. Knowledge Types

<i>Knowledge Type</i>	<i>Description</i>	<i>Examples of things to be taught</i>
Facts	Unique, specific, one-of-a-kind piece of information. Presented as statements, data or pictures of specific objects.	10 millimetre = 1 centimetre
Concepts	<i>A group of objects, symbols or ideas designated by a single word or term.</i>	Cat, Computer
Principles	Requires judgement; must be applied to a particular situation.	Guidelines for managing learners with personal problems
Procedures	Describes how to...	How to fill out a timesheet
Processes	Teaches how a flow of events describes how a system works.	How a computer works

According to Tracey¹ (cited in Van Dyk et al, 1992:222) instructional strategy is defined as a “combination of teaching methods and techniques designed to accomplish an instructional job.”

Instructional techniques:

- Definitions
- Examples and non-examples
- Analogies
- Guided practice
- Demonstration
- Diagrams
- Pictures
- Graphic representations.

Involves the following personnel:

- Subject Matter Expert
- Instructional Designer

5. Content Design

The above processes of Needs, Audience and Content Analyses, as well as Instructional Design, informs Content Design. The output of the Content Design process should be the creation of:

- A Functional Specification document (a template for use is offered in Annexure II), and
- A Style Guide.

These documents should be rigorously applied throughout the development cycle in order to maintain consistent and effective standards.

Content Design consists, generally, of the following stages:

5.1 Authoring Standards

- Establish a framework for standards and delivery expectations.
- Agree on source document standards (length, complexity, and treatment).
- Agree on converted output standards (length, complexity, and degree of interactivity and treatment).
- Devise a phased rollout plan for content conversion from raw format (hand-written or Word document) and delivery; including internal and external deadlines.
- Stipulate authored content submission dates and internal and external involvement in quality cycles.

5.2 Annotation of Existent Content

- Assist Subject Matter Experts in annotating their initial documents, clearly defining how each content component must be treated in terms of:
- Type of interactivity (for example, text entry field vs. multiple choice)
- The possible deletion, addition or adjustment of material.

5.3 Global Interface Design

Develop a Look 'n' Feel/Interface Design for the content set as a whole. Design content set navigation framework.

5.4 Component Interface Design

Develop a Look 'n' Feel/Interface Design for each content sub-set, as needed. Design internal navigation framework for each content component.

¹ Van Dyk, P.S. Nel, P.S. & Loedolff, P.V.Z. (1992). *Training Management: A multi-disciplinary approach to human resources development in Southern Africa*. Halfway House: Southern Book Publishers 219-221.

6. Content Authoring

After the Gap Analysis has been performed, Subject Matter Experts must devise and create content that is not already available. Content Authoring constitutes the initial writing of required materials that, in this case, will eventually form online instruction. It is extremely useful to devise Content Authoring briefs, which identify and detail key aspects of the authoring process for each content intervention. A brief should:

Be clear enough for a potential range of authors to follow.

- Offer examples, where possible.
- Enforce a consistent authoring format and style.
- Be in accord with required educational outcomes.
- Take account of media platform specifications.

Content Authoring Briefs must draw on the outcomes of the above Needs, Audience and Content Analyses, as well as Instructional Design processes.

Involves the following personnel:

- Subject Matter Expert
- Instructional Designer

7. Functional Storyboard

The purpose of the Functional Storyboard is to pre-define the development of the intended instructional Web page(s). Construction of a thoughtful storyboard is a crucial (possibly the most important) component of creating quality online learning. It allows a visualisation of how all the pages relate to each other and how they work together as an organic whole.

The storyboard can be created using any visual display tool or methodology, which allows the sequencing of pages, as they are intended to link to one another. For example, it is often useful to use:

- Flowcharting software (e.g. Microsoft's Visio)
- Paper or speech cards mapped out according to the eventual structure of the instructional Web site and its content.

Every unit in the storyboard should contain sufficient detail as regards the final content, layout and sequencing (linking) of the live Web content. If the instructional material will contain interactivities and/or animations, it is often useful to detail these in the storyboard. The purpose of this is to inform the Web development team exactly how to proceed in order to achieve desired instructional outcomes.

Figure 3, below, shows an example of a functional storyboard. The storyboard should show how all the Web pages are linked together and how each may be accessed from within any page.

Involves the following personnel:

- Project Manager
- Instructional Designer

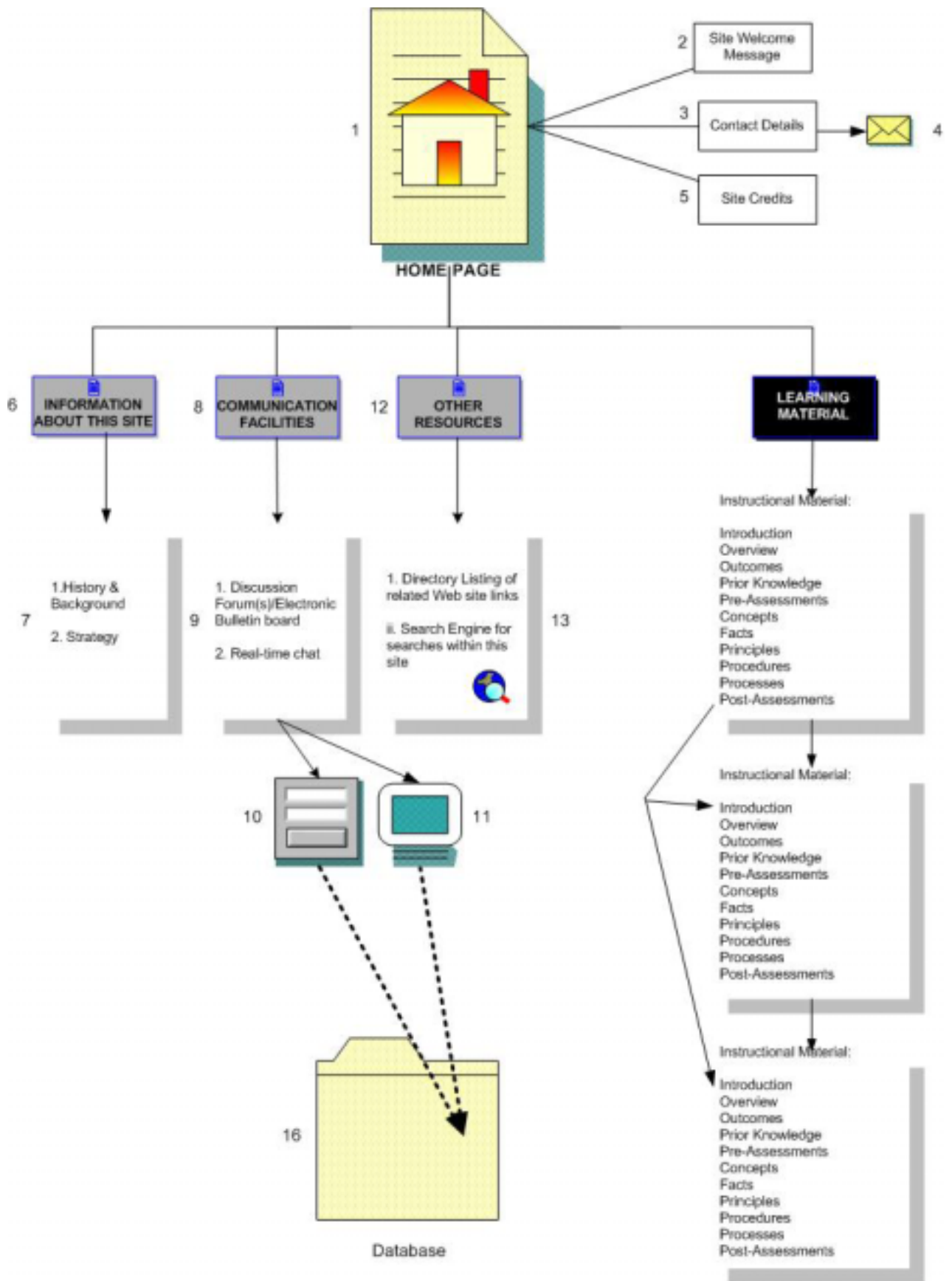


Figure 3. An example of a functional storyboard

8. Concept & Development Planning

The development of online instruction can be both time-consuming and costly. Online learning, in particular, often requires a team approach with input from a variety of areas, which may include subject matter experts, graphic designers, instructional designers, computer programmers and multimedia developers.

Once the above analysis and planning processes have been completed the development team must devise internal plans for the treatment and conversion of raw content into a digital interactive instructional offering.

It is proposed that development teams work through the following stages:

- Resource planning activity, which takes into account the educational outcomes of the project, defines deliverables and timing and plans internal rollout in terms of achieving these objectives (instructional and technical planning).
- Devise internal Development Team Work Plan.
- Allocate specific Development Team resources for each element of the content to be converted.
- Allocate / source hardware and software for each element of the content to be converted.

Planning must take into account at least these critical success factors:

- Budget
- Time
- Content authoring resources (personnel) and submission dates
- Instructional design capacity (personnel) and submission dates
- Content review and quality assurance resources (personnel)
- Web development resources (personnel)
- The availability of development software and hardware tools
- Infrastructure issues, such as hosting configuration and end-user bandwidth availability.

Involves the following personnel:

- Project Manager
- Development Team Leader

9. HTML templates

The purpose of using templates is reusability and therefore production efficiency. Since many instructional Web pages may be similar, if not identical, in terms of interface design (layout, look 'n' feel, menu navigation structures) it is important that templates are well-considered and deployed continuously throughout the development process. This allows for standardisation of final instructional product.

Consistency is key since learners should not be made to come to terms with or understand the basics of how to use an educational site every time they visit another page. Ease-of-use should allow learners to focus their time and energy on the learning area at hand, rather than on basic navigation.

Templates designed in html (hypertext markup language) may be easily re-used, allowing for standardisation of look 'n' feel as well as navigation architecture. Content within each html template may be adjusted or integrated according to the specified function to be performed by each page in the Web site or lesson component.

Involves the following personnel:

- Development Team Leader
- Instructional Designer
- Senior Web Developer
- Interactive Designer

10. Interactive Templates

As with html templates it is critical that development is made more productive and consistent through the use of reusable interactive templates. Given the relatively high cost of creating interactive learning components, it is advised that interactive templates, such as those created in Macromedia's Flash are designed upfront to be redeployed over an entire site or even multiple sites.

The development of content treatment strategies and html and interactive templates occurs as follows:

- Allow upfront for the efficient processing of all content:
 - Make re-use of existent templates wherever possible to avoid duplication.
 - Make re-use of content by adapting existent content for use in specific contexts.
 - Incorporate learning objects (discrete components of knowledge) where these exist and may be customised to suit the learning outcomes of the current course and / or curriculum.
- Assign specific Flash interactivities (described below) throughout content set.
- Assign JavaScript and html treatment throughout content set.
- Manage the development of Flash back-end Action Script Templates for each content component.
- Re-deploy templates and consistently throughout the development(s).

Table 3, below, gives a list of common interactive activities found in online learning. Complexity Levels I – IV indicates, in general, the extent of resource costs that are required in the development of interactivities of this kind.

Table 3. Interactivities vs. Development Complexity

DEVELOPMENT LEVELS BY COMPLEXITY	INTERACTIVITY
LEVEL I	Static html Mouse over On-click
LEVEL II	Javascript pop-up windows Graphics (still illustrations) Photo stock (treated) Animated (Flash) Process Flow Diagram
LEVEL III	Step-by-steps True or false Multiple choice Basic Animation Drag 'n' drop Fill in the blanks (text entry field)
LEVEL IV	Complex Animation Flash simulations Advanced Action Script

Involves the following personnel:

- Development Team Leader
- Instructional Designer
- Interactive Designer

11. Interactive Instructional Web Page

The creation of interactive instructional Web pages must draw on the above planning and preparation processes. There are many steps that constitute this process. In particular, this stage should rely on the previous conceptualisation and creation of:

- Available learning pathways (from the storyboard)
- Interface design
- Navigation and menus
- Html templates
- Interactive templates (Flash)
- Existent content aggregated and adapted for use (Learning Objects)

Involves the following personnel:

- Development Team Leader
- Instructional Designer
- Data Capturer
- Senior Web Developer
- Junior Web Developer
- Interactive Designer

12. Embedded Learning Objects

There is a need to focus on re-using information in different ways without generating significant additional cost. Archived discrete learning objects (knowledge components) may be designed in such a way that they can be deployed into courses and curricula, customised to the needs of differing contexts, target audiences, technical platforms and educational frameworks.

Learning objects, that suit the needs of the learning material in development, may be available on the Internet or from learning object archives (repositories). These can be seamlessly embedded into the current content development process. In general, these learning objects may require adaptation in order that they match the authoring style, context specificities, as well as look 'n' feel of the course under development. However, the cost of adaptation or customisation will be substantially lower than the cost of development 'from scratch'. The creation of fundamental knowledge principles (components), in the form of learning objects allows for the sustainable rollout of high quality learning content.

Many global and local standards and specifications have been developed, or are in development, regarding the creation of interoperable learning objects. These standards facilitate the re-use of learning objects according to compliancy checklists which take into account both educational requirements as well as technical specifications.

For more information, refer to the Advanced Distributed Learning Network home page, <http://www.adlnet.org/>, which explores The Sharable Content Object Reference Model (SCORM), defining a Web-based learning "Content Aggregation Model" and "Run-Time Environment" for learning objects.

13. Links to External Resources

Rather than developing the entire learning content set within a particular production process, budget and time constraint, it is possible to link to available external resources online. External links, however, require a commitment on the part of those people responsible for maintaining the Web site. This is due to the fact that external Web sites may, over time, move their hosted location and therefore Web address (url), or might even be removed from the Web entirely. An external link set which points to unavailable resources will frustrate end users in their attempt to derive educational benefit from online learning.

When linking to external sites it is recommended that permission for the use of links be obtained – particularly if the external resource forms a fundamental aspect of the material on offer in the primary (host) Web site.

14. Quality Control

Quality Control cycles occur throughout the planning and development stages, before final sign-off and publishing. Below is a table indicating and describing instances of the content production workflow that require quality control intervention:

PROCESS	INITIAL RESPONSIBILITY	QUALITY CONTROL
Instructional Design	Instructional Designer	<ul style="list-style-type: none"> • 3rd party Instructional Designer: <i>Critical Review</i>
Content Authoring	Subject Matter Expert	<ul style="list-style-type: none"> • Senior Subject Matter Expert (Critical Reviewer): <i>Critical review to ensure subject relevance and appropriateness; ensure content is aligned with assessments</i> • Instructional Designer: <i>Instructional systems design review to ensure best content sequencing and structure.</i>
Functional Storyboard	Senior Web Developer Instructional Designer	<ul style="list-style-type: none"> • Web Developer • Instructional Designer • Subject Matter Expert: <i>Assess the working of the instructional system as an inter-linked whole, i.e. sequencing, linking and navigability.</i>
Html templates	Senior Web Developer	<ul style="list-style-type: none"> • Web Developer • Instructional Designer: <i>Review and test the technical functionality of each template.</i>
Interactive templates	Senior Web Developer	<ul style="list-style-type: none"> • Web Developer • Instructional Designer: <i>Review and test the technical functionality of each template.</i>
Interactive Instructional Web page	Senior Web Developer	<ul style="list-style-type: none"> • Web Developer • Instructional Designer: <i>Review and test the technical functionality of each page.</i> • Subject Matter Expert: <i>Ensure the subject matter appropriateness and relevance of each page.</i> • Proofer: <i>Full content proofing, ensure that final digital content is in accord with initially authored content.</i>

In particular, the content quality review cycles involve several different team members. As such it is imperative to ensure that all correction requests are effectively and efficiently addressed. Refer to Annexure IV for an example of a Change Request document, which may be used to document and manage change (edit) requests.

Involves the following personnel:

- Project Manager
- Development Team Leader
- Instructional Designer
- Critical Reviewer
- Proofer
- Senior Web Developer
- Interactive Designer

15. Publish

Live publishing of online content may occur in different ways. Publishing directly to a Web site may make use of an FTP facility (File Transfer Protocol). The FTP address and unique access login details will be made available by an Internet Service Provider (ISP). The ISP provides the Web hosting

service, and is also able to register the unique Web site name (url). For more information contact any of the multiple ISPs offering Web hosting services.

Alternatively, publishing can occur through a Learner Management System (LMS). LMS's are database-driven engines through which one can store, manage, sequence and display content. LMS's also allow management of learners who will make use of the content, by indicating individual learner usage and performance through database-tracking facilities. Using an LMS allows for the segmentation of users into different profiles, for example, learners vs. teachers vs. administrators. In this way, different content sets can be displayed to different users based on their profiles. Use of an LMS will still require ISP hosting services and domain name registration of the unique Web site address (url). Alternatively, the use of a Learner Management System (LMS) may be licensed through an e-learning software service provider.

Involves the following personnel:

- Project Manager
- Development Team Leader
- Senior Web Developer

16. End User

Any end user (learners, teachers, etc) that has access to the World Wide Web through the use of a browser (such as Microsoft's Internet Explorer, or Netscape Navigator) will be able to access online learning content from an Internet-enabled PC.

It is useful to note particular issues regarding end users and their individual PC configurations. Online content may display differently depending on the unique set-up used by an individual PC. For example, Netscape Navigator and Internet Explorer have inherent differences in the way they display content. Online learning content should either be optimised for most commonly used platforms or a clear indication should be given regarding the specifications required for use of a particular piece of learning content or entire Web site.

In addition to the provision of content, which may be accessed in a self-paced manner (asynchronously), it is often critical to consider the use of other forms of online education provision. Some examples of these include real-time chat (synchronous) and bulletin boards / forums (asynchronous). These facilitates often add depth to the online learning process and help to instil in learners a sense of being part of a knowledge or learning community. In addition to enabling teachers, tutors etc to communicate and collaborate with learners these online services often empower groups of learners to interact and help one another.

ANNEXURE I: DESIGN PRINCIPLES

This Annexure presents principles for good interface design and the creation of an effective learning environment. It has been adapted for use with the permission of its author, Debbie Adendorff.

Design Principles

Overview

Introduction There is no conclusive research results that prove that Computer-assisted Learning (CAL) yields better results than traditional methods. Some researchers have claimed that this is true only because the CAL used was poorly designed.

Without effective design, the computer remains wires in a box.

Interface The interface is the window through which a user looks at your lesson. It holds the key to making your lesson useful or not.

- Your goal should be to make your interface clear and transparent, so that your user only concentrates on the lesson objectives.

Didactic principles Together with a user-friendly interface, your lesson should employ the best means of teaching the lesson content.

Sequencing

Why is sequencing important? According to Van Dyk et al (1992:219), "proper sequencing of instructional objectives and teaching points is essential, as it can have a significant impact on the efficiency and effectiveness of the learning situation".

What needs to be done? There are a number of approaches that can be used to sequence learning experiences.

- General ⇔ Specific
- Specific ⇔ General
- Concrete ⇔ Abstract
- Known ⇔ Unknown.

Tracey (cited in Van Dyk et al, 1992:220) suggests some additional guidelines:

- Place easily learned tasks early in the sequence.
- Introduce broad concepts and technical terms that have application throughout the course early in the sequence.
- Place application of concepts and principles close to the point of their initial introduction.
- Place previously learned knowledge and skills in the sequence just prior to where they have to be combined with new knowledge and skills.
- Provide for practice and review of skills and knowledge essential for later parts of the course.
- Sequence the objectives into closely related, self-contained groups.
- Place complex or cumulative skills late in the sequence.

Reference Van Dyk, P.S. Nel, P.S. & Loedolff, P.V.Z. (1992). *Training Management: A multi-disciplinary approach to human resources development in Southern Africa*. Halfway House: Southern Book Publishers 219-221.

Instructional strategy

Why is instructional strategy important?

The concept of the course may be in the form of one of the following:

- Concepts
- Processes
- Procedures
- Principles
- Facts.

There are appropriate strategies for presenting this information in an instructional environment!

What needs to be done?

According to Tracey (cited in Van Dyk et al, 1992:222) instructional strategy is defined as a “combination of teaching methods and techniques designed to accomplish an instructional job.”

For CBT development, instructional strategy refers specifically to the combination of CBT mode, for example:

- Drill and Practice
- Tutorial
- Simulation
- Game
- Test.

Instructional techniques, for example:

- Definitions
- Examples and non-examples
- Analogies
- Guided practice
- Demonstration
- Diagrams
- Pictures
- Graphic representations.

Technology Assisted Teaching/Training (TAT), for example:

- Colour
- Fonts
- Boxing and highlighting
- Animation
- Sound
- Video.

The look

Screen design

Purpose

The purpose of screen design is communication.
It is not merely to impress, amaze or delight the user!

Functions

- Focus attention.
- Develop and maintain interest.
- Promote deep processing (make user think).
- Promote engagement.
- Facilitate navigation (user-friendly screens).
- Minimise memory load.

Rule

Only apply a design principle if you can justify it in terms of the instructional objective.

Principles

Keep It Short and Simple.

This is done by:

- consistency
- clarity
- aesthetic consideration.

Consistency	<p>Be consistent with regard to the following:</p> <ul style="list-style-type: none"> • Style • Placement • Use of colour • Access (menu's and headings) • Prompts (appearance and operation of instructions) • Style of graphics • Density and white space • Terminology • Interactive behaviour required.
Clarity	<p>Clarity requires the following actions:</p> <ul style="list-style-type: none"> • Ensure that your language is compatible with your user. • Avoid jargon. • Be lean by using short sentences and bullets. • Write in the active voice and use action verbs. • Avoid negative statements. • Use informal language. • Use personal pronouns (I and you). • Use familiar examples. • Use inclusive language (non-sexist, non-racist).
Aesthetic consideration	<p>Adhere to three principles:</p> <ul style="list-style-type: none"> • Balance • Harmony • Unity.
Balance	<p>Balance can be formal or informal, symmetric or asymmetric. Formal and symmetric balance (figure on the left below) is often perceived as less exciting than informal or asymmetric balance (figure on the right below).</p>
Harmony	<p>Harmony is largely achieved by consistency. In the figure on the left below, the two graphics are not consistent. The right hand figure represents a more consistent style of graphic.</p>
Unity	<p>Unity refers to the wholeness of a screen display. All the elements on the screen should belong there, and none should be unnecessary. In the figure below, the clutter reduces the focal point of the screen.</p>

Evaluation question

Basic layout

Purposes	<p>Assist focus. Help the user to understand the message correctly.</p>
Rule	Use consistent functional areas.
Principles	<ul style="list-style-type: none"> • Provide meta-cognitive support. • Avoid cluttering information content with "screen junk". • Create balance. • Consider the following elements: • Line length • Screen density • Font selection • Justification • Icons and buttons • Speed of display.

Evaluation question

Colour

- Purposes**
- Draw attention.
 - Address affective requirements.
 - Improve cognitive processing.
 - Use conservatively.
 - Recognise power of colour as coding technique.
- Rule** Colours must conform to social conventions (red for stop).
Design in monochrome first.
- Principles**
- Do not get carried away! More than 5 ± 2 colours used to discriminate lose their meaning.
 - Less is more.
 - Pair colours that have adequate contrast.
 - Be consistent.
 - Be prepared to justify your colour usage.
 - Visibility – middle spectrum (yellow green) more visible than ends (blue red).
 - Prefer value to hue.
 - Beware of differences in display units.

Evaluation question Does the use of colour assist the communication of the lesson objective?

Graphics

- Strengths**
- Multiple representations.
 - Quick communication.
 - Ease of understanding.
 - A picture paints 1000 words.
 - What the learner encounters first and last are remembered better than in-between!

Draw attention to important concept and do not demonstrate the computer's capabilities.

- Purposes**
- Illustration.
 - Description.
 - Explanation.
 - Simplification.
 - Quantification.
 - Interpretation – help understanding.
 - Organisation – organise information in a coherent structure.
 - Transformation – help memorization of key information.
 - Decoration – make information more attractive.
 - Amusement – cartoon snippets for laughter.
 - Representation – help visualise an event, person etc.

- Principles**
- Graphics should reinforce the lesson objective.
 - Adhere to conventions.
 - Text and graphics on a screen should support each other.
 - Avoid using graphics that are not supported by labels.
 - Place explanations against illustrations.
 - Display picture first!
 - Cartoons assist in developing a situated learning experience.
 - Avoid unnecessary realism.
 - Avoid unnecessary 'bells and whistles'.
 - Avoid concentrating on graphics to the detriment of effective instruction.
 - Print and pictures are more durable than speech because they are available for processing longer.
 - Organised displays aid learning.
 - Build up complicated graphics.

Evaluation question Do the graphics assist in communicating the lesson objective?

Text

Purpose Text is the main transport mechanism for your message.

- Principles for easy reading**
- Avoid / limit scrolling.
 - Chunk units.
 - Use white space.
 - Use left justification, but avoid right justification.
 - Avoid wide lines.
 - Use medium sized text.
 - Use upper and lower case.
 - Be consistent with regard to colour.
 - Avoid decorative fonts.
 - Use sans serif fonts on screen, but serif fonts on paper.

- Principles for clarity** Clarity requires the following actions:
- Ensure that your language is compatible with your user.
 - Avoid jargon.
 - Be lean by using short sentences and bullets.
 - Use screens to present information a piece at a time.
 - Write in the active voice and use action verbs.
 - Avoid negative statements.
 - Use informal / conversational language.
 - Use personal pronouns (I and you).
 - Use familiar examples.
 - Use inclusive language (non-sexist, non-racist).
 - Write as concisely as possible.
 - Use correct grammar, spelling and punctuation.
 - Use that in stead of which.
 - Use tenses in the following way:
 - Present Tense: Lesson content and test questions
 - Future Tense: Objectives
 - Past Tense: Summaries.

- Highlighting mechanisms**
- Colour
 - Inversion
 - Underscore
 - Bold
 - Blinking text
 - Reveal.

- Problems often encountered by readers (learners)**
- Where are the key ideas?
 - What must I do with this info?
 - This example is too complex.
 - Why is there no example here?
 - How is this thing organised?
 - I don't have time to read all this.
 - These instructions are too vague.
 - What I need is scattered in 20 places.

- Problems often encountered by writers (content authors)**
- I always have trouble getting started.
 - I have problems being concise.
 - I never know how much detail to use.
 - I can't get the thing to flow – what is the correct sequence?
 - How do you spell this word?
 - I spend far too much time on this.
 - I can't write for diverse audiences.

Evaluation question Is the text on the screen clear and easy to read?

Animation

Strength Animation creates movement that cannot be represented on paper.

Weakness Time consuming and therefore expensive.

- Purpose**
- Cosmetic – cue to invite reaction, motivate through aesthetics or humour.
 - Illustrate and/or simulate a process.
 - Present information of primary importance – time, movement, trajectory, analogy.
 - Grab attention – cue to direct attention.
 - Provide practice in a simulation of a process when reaction to movement is required.
- Rule**
- The animation must be congruent with the lesson objectives.
 - Animation must only be used if it enhances the lesson objective.
 - Choose appropriate speed.
 - Allow repetition for review purposes.
 - Do not use it for motivation or punishment!
- Guidelines for video**
- Person in a video window is too small to talk.
 - Text must match video – text tends to take preference.
 - Size and sound does not change with the size of the window.
- Guidelines for sound**
- Keep it subtle and subdued.
 - Avoid repetition.
 - Sound tends to stop when the frame ends.
 - Don't use sound to punish the learner.
 - A poor presentation cannot be improved by adding sound.
 - Allow user control of volume, pauses and repetition – provide earphones.
 - Keep in mind that the learner might be deaf.
 - Speech is easily forgotten.
 - Be careful of synchronisation.
 - Text is more effective than speech when content is complex.
 - Human speech is a powerful expressive medium.
 - Some accents may be hard to understand or be subject to cultural bias.

Evaluation question Is the text on the screen clear and easy to read?

The interaction

Individualisation

Purpose Individualisation enables a user to direct his or her own learning requirements and therefore to take greater responsibility for his or her performance.

- Principles**
- Only construct your user on that which s/he does not know.
 - Provide user control where possible.
 - Provide levels of difficulty and branching.

Evaluation question Can a user control the learning experience if s/he wants to?

Instructions to your user

- Purpose**
- To make your user feel comfortable with the interface.
 - To provide orientation information to the learner.
 - Inform learner about error messages and help options.

Rule for introductions Do not force your user to complete a lengthy introduction.

- Principles for introductions**
- If your user by-passes the introduction, provide information on how the user can access this information later.
 - Small units of context sensitive help are better than a long, once-off help sequence.
 - Provide practice if applicable (mouse).

- Rules for instructions**
- Never advertise a key that is not functional.
 - Never assign a function to a key if it is not advertised.

- Principles for instructions**
- Place them consistently.
 - Operate them consistently.
 - Always display them.
 - Use icons where possible to avoid clutter.
 - Select words carefully.

Evaluation question Is the user always instructed on how to proceed?

Interaction

Strengths Interaction demands an active user.
The computer can have the user interact with other objects or ideas.

Purpose Involve the user.
Assist construction of own knowledge.

Types

- Reactive (user responds).
- Proactive (user initiates).
- Input devices:
 - Keyboard
 - Mouse
 - Trackball
 - Touch screen
 - Pen / stylus
 - Joystick.
- Questions:
 - Fill-in
 - Multiple choice (MCQ)
 - Multiple correct
 - True / False
 - Matching
 - Click and drag.
- Answers:
 - Correct
 - Incorrect
 - Partially correct
 - Unexpected
 - Neutral
 - Timeout
 - Confidence.
- Feedback:
 - Knowledge of results
 - Knowledge of correct result
 - Error contingency.

Rules Never keep a user in an endless loop.
Always provide the user with the option to escape.

Principles

- User must receive some feedback to monitor own behaviour.
- Be consistent.
- Provide shortcuts.
- Provide dialogues for closure.
- Provide simple error correction.
- Provide easy reversal.
- Avoid timed pauses.

Interface principles

- Easy to learn and remember.
- Pleasant to use.
- Efficient to use.
- Low error potential.

Evaluation question Is the lesson objective more prominent in the user's mind than the interface?

Practice

Strengths Provides opportunity for repetition for mastery.

Purpose Practice is a larger construct than simple interaction. The user is allowed to apply new skills or knowledge.

Types

- Questions
- Drills
- Simulations
- Games.

- Principles**
- Practice should be varied, not constant.
 - Increase the difficulty level as your user's skill increases.
 - For some types of learning, practice should progress from accuracy to speed to automaticity (information processing that occurs without conscious control).
 - Feedback should identify the successful and unsuccessful features of the interaction and describe why incorrect responses or omissions are insufficient.
 - Practice events should require users to use information and discover and derive new relationships in information.
 - Practice should be designed to motivate users.

Evaluation question Once a practice session is complete, has your user definitely mastered the new skill or knowledge?

Feedback

Strengths Feedback is the mainstay of computer-assisted learning. It makes it possible for you to keep your users on track, and to give your users a pat on the back.

- Purpose**
- Motivate.
 - Reinforce or remedy.
 - Encourage user involvement.

- Types**
- Positive or negative.
 - Delayed or immediate.
 - Artificial or natural.
 - Error handling.

Rule Be positive and avoid negative or degrading remarks.

- Principles**
- Provide reinforcement.
 - Provide immediate feedback in tutorials and drill & practice..
 - Consider delayed and natural feedback in simulations and games.
 - Use error handling.
 - User input should be visible when the feedback is presented.
 - Do not force your user to input the correct answer if you provide it after various attempts.
 - Provide conclusive feedback after a maximum of 3 attempts.

Evaluation question Does the feedback provide a supportive learning experience?

ANNEXURE II: PRODUCTION ACCELERATOR 1 THE PROJECT ANALYSIS QUESTIONNAIRE

This Annexure presents The Project Analysis Questionnaire, which is used to assist in pre-project scoping. It has been used with the permission of Reusable Objects (Pty) Ltd.

Thank you for taking the time to complete this document. From a content perspective it is important to complete all sections of this document in order for us to gain a complete and correct assessment of:

- The project's end user target audience profile
- Desired educational / training outcomes

This document forms the basis upon which we are able to scope and cost the requested content development work and associated project plan. In addition, this document will help to set parameters for audience capabilities and technical standards for the site.

Final agreement on all items is required.

If you have questions about any part of this document, please contact:

I. Project analysis questionnaire

Date	
Company Name	
Completed By /[name & title & your project role]	
Phone Number	
Fax Number	
E-Mail Address	
Key Person/s on Project & Role/s	
Person's Name	Role on Project

Section A: Project Information & Scope

Project Objective/s		
What do you expect us to produce (the outputs of the project)?		
What do you expect us NOT to do (exclusions)?		
Project Partners / Other External Players?	YES	NO
If yes, who and what are their deliverables / roles?		
Project Task List		
Dependencies		
Projected Timeline/s		
Projected Budget		
Has this budget been approved?	YES	NO

Section B: Strategic / Business Goals for the Project

What are the strategic / business goals for the project?
How do you feel about the project's success potential?
What performance measures will indicate that the project has been a success?

Section C: General Background

How does your company feel about the use of outside resources?
Describe the structure of the your project team / resources (provide an organisational chart if possible) and their responsibilities.
Who are the internal resources that will confirm content accuracy; check look 'n' feel and review content? If so, what are their names and roles?
Who will be responsible to give final sign-off on the content?

Section D: Target Population Analysis (users)

Demographics			
Size of training group		Geographical Location	
Age/s	Gender	Racial / ethnic mix	
Communication			
English as a first language %	English as second language %	Additional comments?	
Education			
Reading ability	Writing ability	Educational qualifications	
Learning styles	Learning preference (e.g. Instructor-Facilitated vs. Self-Directed)		
Attitudes			
Positive to new technology?	Resistant to new technology?	Additional Comments?	
Motivational			
Frequency of computer use	Daily	Weekly	
	Monthly	Other	
Prior Computer Experience			
Computer Usage	None	Limited	Regular
Mouse Usage	None	Limited	Regular
Internet Usage	None	Limited	Regular
Other [specify]	None	Limited	Regular
What methodology and technology platform will be used for this project (e.g. self-paced CD-ROM-delivered course)?			
How has this audience been trained in the past?			

II. Functional specification

Section A: Target Specifications Analysis (users)

Establishing clear audience specifications enables production to have a targeted goal. It is often difficult, if not impossible, to maintain consistency of experience from one browser or platform to the next. It is important for the HTML production team to understand the target end user.

Priority/Target	
Screen Resolution	640 x 480 800 x 600 1024 x 768 Other (explain)
Browsers	Internet Explorer Netscape Other (explain)
Browser Versions	3.x 4.x 5.x 6.x Other (explain)
Platform/Operating System	Macintosh Windows Other (explain)
Page Download Size (typical page)	30k and under (probably text only) 30 - 80k (typical page) 80k (graphic heavy, animation) 100k+ (not recommended unless a high-bandwidth site.)
Processor Type?	
Computer Memory (in Megabytes)?	
Sound Capability?	

Section B: Target Specifications Analysis: Functionality

The addition of specific technologies that allow greater functionality can greatly enhance the training outcomes.

	Preferences
Frames	
Forms	
JavaScript	
Pop-Up Windows	
Cascading Style Sheets (CSS)	
Dynamic HTML (DHTML)	
Flash	

Section C: Client's Web Presence

Does your company have a Web Site?	Yes (specify url)	No
If yes, maintained internally? By whom?		
If not maintained internally, maintained by whom?		

III. CONTENT AUDIT

The following is an audit of the content to be supplied to us, and the format in which we will receive this content.

Section A: Content Analysis

Unit Name	Content File Name / Description	Format	Content Type & Volume [Graphics, text, video etc.]
		Electronic & Print	Type: text Qty: pgs / kb
		Electronic & Print	Type: Qty:
		Electronic & Print	Type: Qty:
		Electronic & Print	Type: Qty:
		Electronic & Print	Type: Qty:
		Electronic & Print	Type: Qty:
		Electronic & Print	Type: Qty:
		Electronic & Print	Type: Qty:

Section B: Content Analysis

Is this content accurate, relevant, current and complete?	Yes	No
If no, please list exceptions.		

Section C: Assessment Management

What are the exit points per module in your training course, regards assessment? In other words, at what points in the training material must assessments occur?	Module Name	Assessment Type Pre/Post	Exit (Yes/No)

IV. CLIENT SIGN-OFF

On behalf of Company Name:
Name & Title:
Signed:
Date:

ANNEXURE III: PRODUCTION ACCELERATOR 2 THE CRITICAL REVIEW BRIEF

This Annexure offers a template to be used during the (third party) critical review of authored materials. It has been used with the permission of Reusable Objects (Pty) Ltd.

Critical Review Brief

General Concepts

- When designing digital interactive learning material, one of the key points to remember is that learners will use the material:
 - At their own pace;
 - Often without the aid of an instructor or facilitator.
- Bear this in mind by ensuring that the content is clear, self-explanatory and does not need to rely on face-to-face facilitation or instructor-led intervention.
- Learners will have different levels of prior knowledge, that is, we must enable each learner to use the material in the way that best suits their individual learning needs. Therefore the material should be structured to allow learners to either access it in a linear fashion (chronologically, chapter by chapter), or to 'jump in' at the specific point they require. Thus, key concepts must be both:
 - Contextualized within the Course as a whole;
 - Able to stand-alone and be understood discretely.
- Ensure that you understand how this material is to be used by learners. Is it:
 - Initial instruction - for those with little or no prior knowledge;
 - A reference tool - for individuals seeking only to access knowledge components they lack;
 - A reference tool – used to refresh and reinforce specific concepts and terms.
- Check for:
 - Obvious mistakes, such as spelling errors and typos.
 - However, you should check for deeper, but less obvious errors as well, such as **"holes"** in the information. Either attempt to fill in the missing material, where possible, or clearly indicate that it is deficient.
 - Also, remove extraneous material. Delete anything that doesn't contribute to the student's understanding of the subject matter.

Audience		
Has the appropriate audience been addressed?	Y Comments?	N
Tone		
Does the tone of the writing suit the audience?	Y Comments?	N
Does the tone of the writing suit the content?	Y Comments?	N
Content		
Is the content both necessary and sufficient?	Y Comments?	N
Should information be added or removed?	Y Comments?	N
Is the content 'short and sharp'? Does it make succinct points?	Y Comments?	N
Does the content have an appropriate number of examples?	Y Comments?	N
Grammar and Syntax		
Are there any grammatical or syntactical errors?	Y Comments?	N
Content length		
Is each unit of content the correct length?	Y Comments?	N
Images		
Is every image labeled correctly and clearly?	Y Comments?	N
Are the images used both necessary and sufficient?	Y Comments?	N
Format		
Does the formatting suit the style of the content?	Y Comments?	N
Does the formatting aid readability and enhance understanding?	Y Comments?	N
To aid learning efficiency, can bullet points replace any large 'blocks' of text?	Y Comments?	N
Is underlining used only for Web addresses (hyperlinks)?	Y Comments?	N
Structure		
Are the units sequenced correctly?	Y Comments?	N
Should any information be rearranged?	Y Comments?	N
Does every title/heading match its content precisely?	Y Comments?	N
Are all headings as short and descriptive as possible?	Y Comments?	N
Citations and references		
If copyright is needed for any text or images, is this clearly referenced within the material?	Y Comments?	N

 Proofer/Critical Reviewer

 Date

 Signature

ANNEXURE IV: PRODUCTION ACCELERATOR 3 CHANGE REQUEST DOCUMENT

This Annexure offers a Change Request Template (Track Changes Document), which may be used to document and manage quality control cycles – particularly between in-house and external teams who are working together. This template has been used with the permission of Reusable Objects (Pty) Ltd.

Project Title:	
Project ID:	
Date:	
Client Name:	
Client Contact Details:	
This item is a:	<ol style="list-style-type: none"> 1. Client-requested change 2. Additional item request 3. Outside original budget/scope 4. Other _____
Description of change request:	

Description of Services	Estimated Hours	Cost

I am in agreement with the additional charge, description, timeline, and details outlined above.

Client Signature

Date

Client Name (printed)

ANNEXURE V: PRODUCTION ACCELERATOR 4 USER ACCEPTANCE TESTING TEMPLATE

This Annexure offers a User Acceptance Testing Template. It is useful in managing project finalisation (sign-off). This template has been used with the permission of Reusable Objects (Pty) Ltd.

For Project:

Project Team:

Core Team:	Extended Team:

Submitted for testing on:

Tested by:

Date:

PROPOSED TESTING PROCESS

It is advised that Test Teams review the live site and report any errors by annotating, on the page in question, the print copy. Once site components have been approved and signed-off, the CHECKLIST, below, may be completed.

USER ACCEPTANCE CHECKLIST:

Site – hosting	
Site – look 'n' feel	
Home Page	Y
Instructional Page 1 – <i>name</i>	Y
Instructional Page 2 - <i>name</i>	Y
Site – copy	
Home Page	Y
Instructional Page 1 – <i>name</i>	Y
Instructional Page 2 - <i>name</i>	Y
Proof of Compliance: User Acceptance Checklist completed	Y
Sign-Off Section:	
This system conforms to agreed specifications.	
Signature	
Date	
Name/Position	
Signature of Test Team Leader	
Name/Position	

ANNEXURE VII: SUGGESTED RESOURCES

This Annexure offers a very small selection of useful resources in the form of Web hyperlinks. There are many more available tools, applications, guides and general information sites available online that will assist with the process of content creation for online learning purposes.

Online Learning Development Resources

- <http://paws.wcu.edu/kirk/HRcourses%5CHR678/CourseDocuments/ELDevResources.htm/>
- <http://www.webmonkey.com/>
- <http://www.macromedia.com/>

South African Resources

Gauteng: Department of Education (GDE)

- <http://www.education.gpg.gov.za/>

Gauteng Online

- <http://www.gautengonline.com/>

SchoolNet SA

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

South African Institute of Distance Education (SAIDE)

- <http://www.saide.org.za/>

National Department of Education

- <http://education.pwv.gov.za/>

Pretoria

- <http://www.pta-online.co.za/education/edudex.htm>

Eastern Cape: Education and Training

- <http://www.ecprov.gov.za/educ.htm>

KwaZulu-Natal: Provincial Government

- <http://www.kwazulu.net/>

Mpumalanga: Department of Education

- <http://edu.mpu.gov.za/>

Northern Cape: Provincial Administration

- <http://ncwebpage.ncape.gov.za/>

Northern Cape Premier's Education Trust Fund

- <http://ncwebpage.ncape.gov.za/ncpetf/index.htm/>

Northern Province: Department of Education

- <http://www.northern-province.gov.za/depts/education.html/>

North West Province: Department of Education

- <http://nwpg.org.za/>

Western Cape: Provincial Administration

- <http://westcape.wcape.gov.za/>

Western Cape: Department of Education

- <http://wced.wcape.gov.za/>

The Khanya Technology in Education project

- <http://wced.wcape.gov.za/home/projects/khanya.html>

eDegree

- <http://www.edegree.co.za/>

Learning Channel

- <http://www.learn.co.za/>

M-School

- <http://www.mweb.co.za/>

Multichoice Africa Foundation

- <http://www.shoma.org.za/>

International Resources

- http://dir.yahoo.com/Education/Instructional_Technology/
- http://dir.yahoo.com/Education/Distance_Learning/
- <http://dir.yahoo.com/Education/>
- <http://www.usic.org/>
- <http://www.learningcircuits.org/>
- <http://www.learningcircuits.org/glossary.html>
- <http://www.elearningpost.com/>
- <http://www.elearningmag.com/elearning/>
- <http://www.ed.gov/Technology/elearning/>
- http://www.unesco.org/education/portal/e_learning/index.shtml
- <http://www.onlinelearning.net/>
- <http://www.onlinelearningmag.com/>