

## Talent competences in the new eLearning generation

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### Summary

The talented lifelong learner in any country -no matter what economic, social, linguistic or disability background- has the civic right to gain access to a good quality online learning environment. This paper considers the dynamics of the digital workplace, and in particular the key competences (as recommended by the European Commission, 2006, p.10) for lifelong learning in this context. These aptitudes include digital and multilingual competences, together with social and civic abilities.

Digital competence implies the capacity to find, select, judge and evaluate good quality online content. The nature of content filters is explored in this article, together with search engine operation and stability and the consequences for data collection. The paper also considers multilingual competences and the challenges faced by 'talents' in terms of the need to communicate in one or more foreign or local languages. Case studies examining the filtering of minority languages (eInclusion) together with the challenges faced by minority groups in accessing online content dominated by the English language are highlighted.

To be successful, 'talents' in the digital environment also need to achieve a high level of social understanding (social competences). 'Virtual' communication varies substantially from 'real world' interactions, and some of the problems inherent in virtual communication are identified here. In order to ensure that 'talents' reach their full potential at the digital workplace, factors relating to different social and cultural dilemmas need to be negotiated and reconciled. The new learning generation also needs to be equipped with the skills to 'fully participate in civic life' (civic competences). The importance of equalizing opportunities for all European citizens (including minority groups) is also considered. In relation to disability, we highlight the need of more assistive technology to address access issues to the virtual workplace.

In conclusion, this paper recommends more comparative research, accelerated by a sense of urgency, to achieve the inclusion of 'talents' (including those with disabilities) in the actual online multicultural context.

**Keywords:** competences, talent, eLearning, eInclusion, abilities, lifelong learning, digital workplace

### Introduction

The new learning generation is not only diverse in age, gender, language and technological background, but also in cultural composition and background. This paper explores current trends in cross-cultural e-learning by using a number of key competences for the digital age as a contextual framework. The paper discusses the dynamics that are inherent in the digital workplace and also considers the different needs that the new learning generation may have in developing their key talents. How can 'digital inclusion' be ensured for all European Citizens including those marginalised through disability, social and/or economic deprivation? The paper posits that enabling 'talents' is driven by technological, multilingual and multicultural realities of

the 21<sup>st</sup> Century. It recommends, in conclusion, more comparative research, accelerated by a sense of urgency to achieve inclusion and enabling of 'talents' in an online, multicultural and multilingual context.

Talent is considered here in the context of lifelong learning, where the new learning generation of different ages is motivated to get the most out of their learningful journey of life, study, work and leisure. Study, work and leisure are inclusive elements of the same journey towards human fulfillment and thus talent enabling. 'Talents' operate in an online interconnected multicultural world. Therefore, schools and workplaces need to facilitate lifelong learners to enhance their talents and enjoy their ambition. Necessary competences need to be acquired to participate with success in our increasingly complex world<sup>1</sup>.

The European Commission (2006.p.10) recommends a number of key competences for lifelong learning. These include digital competence, communication in foreign languages, awareness of cultural issues together with social and civic competences. The boundaries between e-learning, e-work and cross cultural communication in the modern workplace are becoming blurred. The new generation learner is keen to enhance his/her potential in a multicultural and high-technology environment and he/she sees the internet and its various applications as an increasingly crucial interface in enabling and growing that talent.

The following paragraph discusses the EU recommended competence for lifelong learning in the digital age, 'digital competences', before going on to consider 'multilingual competences', 'social competences' and finally, 'civic competences' and the need for 'digital inclusion' at the virtual workplace.

## Digital competences

According to the European Commission (2006) and the Adecco Institute (2008) technological and digital competences are among the major skills requirements for future 'talents'. Digital competence implies a real understanding of many aspects of the digital workplace and classroom, including hardware, software and communication. It also includes the ability to find, select, judge and evaluate good quality online content. Lifelong learners should therefore be able to deal with all kinds of content filters that vary from language use, commercial search engines, pop-ups, and information restricted due to intellectual property rights<sup>2</sup>. The following findings originate from the FILTER project ([www.filternetwork.org](http://www.filternetwork.org)), a European Special Interest Group aimed at identifying and analyzing hidden filtering mechanisms that hinder accessible, fair and affordable knowledge. The FILTER project is sponsored by the European Commission, Directorate-General Education and Culture, the eLearning Initiative (2004-2007). The project looked at the nature of the filtering-in and filtering-out effects that hinders the access to reliable, and affordable content for all lifelong learners. The project identified some hidden, unforeseen or unwanted cultural filtration of online content, illustrated by the role of the teacher and the use of languages in the online classroom. Representatives (researchers, policymakers) of 12 European countries participated in the project. Both authors of this paper had a (co)ordinating role in steering the work packages. Large scale dissemination took place via conferences, publications, radio and tv performance, and web presence. The outcomes were published in the book 'World Wide Work', VU University Press, 2006, edited by dr Sylvia van de Bunt-Kokhuis.

Content filters can be hidden. This can have unintended (negative) outcomes: for example filtering can limit the ability to form an independent opinion. Technical search and sorting out filtration too, have particular implications for the new learning generation. Search and sorting out filtration relate to the quantity (volume) and quality (validity) aspects of content and are

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<sup>1</sup> Both in education and companies the need for talent development from a lifelong learning perspective is increasingly acknowledged. For example the British lifelong learning initiative of the University for Industry ([www.ufi.com](http://www.ufi.com)) aims to improve digital and communication skills and create potential talent. These skills are considered essential to build success on a personal, corporate and national level.

<sup>2</sup> See also FILTER project (2006) and Sluis, van der & van de Bunt-Kokhuis (2009) pp. 27-55

enhanced by search engines trying to structure online content. The fact is that no single search engine can handle all internet information, which means access to pluralistic sources is not always possible. This raises a number of critical questions: what drives cultural and ideological filtering and what level of confidence can be placed in it? Is the content offered in a multicultural context or mono-cultural context? Is the content of learning 'culture specific' or 'context specific'? Lankes (2008, p.104) is pessimistic about the neutrality of technical search and sorting out filtration. He argues that users simply fail to recognise many of the more technical influences on internet content (such as load time of webpages or site design). There is also a great deal of information manipulation - built-in filters, assumptions, bias and distortion - that occurs, but which is not discernible by the user. Thus, digital competences are central to ethical issues such as access, affordability, cost effectiveness and fairness of content. We will give a few illustrations:

*Popularity equals credibility.* In a critical study Lankes (2008, p.106) shows how search engines like Google determine the quality and relevance of content using a 'link-popularity' metric. Popular pages are displayed higher in the search results. Only a few people visit lower ranked pages. This implies that these hidden pages of potentially high quality may be completely ignored. According to Lankes, this kind of searching and ranking system sets up a sort of 'popularity equals credibility heuristic'.

*Quality erosion of content.* Wouters, Helsten and Leydesdorff (2004) investigated the practices of Google and Alta Vista. They found that search engines systematically erode the quality of information, and subsequently are unreliable tools for data collection, particularly for research that aims to reconstruct a historical record. This unreliability is not caused by sudden instabilities of search engines. On the contrary, it is the result of their operational stability in systematically updating the internet. Due to the continuous updating of data, it is very hard to find original sources of documents. The authors show how both Google and Alta Vista systematically relocate the time stamp of web documents in their databases from the more distant past into the present and the very recent past. This is caused by the fact that search engines are tied like clocks to updating frequency cycles of the web, rather than to the historical development of their structures. Subsequently various 'presents' and 'pasts' live together side by side on the internet. Frequent updating may occur of individual web pages by their author or web master and by the structure in which these web pages are positioned. Also, the frequency with which these web pages are visited by search engine crawlers, the search engine databases, the sorting algorithms of the search engine and its presentation mechanisms are subject to frequent updating. Wouters et. al (2004) found that Google and Alta Vista frequently delete documents. Both search engines continuously reconstruct competing presents that also extend to their perspectives on the past. This has major consequences for the use of search engine results in scholarly research and talent development schemes in general. Therefore it is necessary to build tailor made archiving tools that are independent of the available commercial search engines and thus independent of quality erosion.<sup>3</sup>

## Multilingual competences

Another key competence of the new learning generation is the ability to communicate in one or more foreign or local languages. To understand and deal with the diversity of languages is one of the major challenges for 'talents' in the digital age. At the virtual workplace English is one of the dominant cross-cultural languages and is increasingly affecting other languages as well. It influences daily communication and thus the interpersonal and ethical aspects of the talent environment. New hybrid languages are emerging such as Spanglish - Spanish influenced by English, Denglish - German (Deutsch) influenced by English, Franglais - French influenced by English and Swenglish - Swedish influenced by English. According to Hansson, in the Swedish language, written communication has changed, for example combined words are most often written in one word in standard Swedish - example *mobilttelefon*, but increasingly people spell it

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<sup>3</sup> Wouters contributed his research findings to the Filter project, see Wouters (2006) and founded a dedicated Virtual Knowledge Studio for the Humanities and Social Sciences.

out wrongly in two words, *mobil telefon*, influenced by the English language where *mobile phone* is common (Filter project 2006 and Hansson and van de Bunt-Kokhuis, 2004). The vowels å/Å, ä/Ä, ö/Ö in Swedish cannot be used in email addresses or URL's and therefore result in personal name changes, for example *Börje* becomes *Borje*.

### *Minority languages*

The internet may have positive filtering-in effects (e-inclusion) for minority languages (Filter project, 2006). At the same time minority language groups may further isolate themselves (e-exclusion) from opportunities to further develop their own language and culture and possibly identify with the mainstream culture. This is a serious threat for the new learning generation among these language groups. Subsequently it may hinder 'talents' from acquiring the key competences of (foreign) language learning. Thus, language can be a cause of disability, or can become a disabling rather than enabling factor. The digital and linguistic divide remains a serious threat for potential 'talents', or like Taborn (2008, p.39) states: "*Saying that the Digital Divide is closing because minorities have greater access to computers is like saying minorities have a stake in the automobile industry because they drive cars.*"

To ensure that 'talents' from minority groups also have access to online content, Hoel (2005) recommends scaffolding systems. Different types of scaffolding systems are needed in a multicultural society where talented users are not necessarily native speakers, to minimize the barriers as much as possible. Such systems could be translation services of administrative and domain specific terminology and vocabularies, dictionaries and thesauruses, calculators, help systems, search tools, sign language, captioning, speech systems, the possibility to communicate with a real person, using chat etc.

*Sub-Saharan Africa case.* Language competency is an important vehicle towards e-inclusion of people in this part of the world. Here we will take a closer look at the situation for scholarly workers at universities and if/how e-inclusion is at stake. According to Ondari-Okemwa (2007) in sub-Saharan Africa, the official languages of scholarly communication are English, French and Portuguese. Many scholars in the region do not master these (second) languages fluently. Nearly all African countries use English and French as their official languages. Only Angola and Mozambique use Portuguese. Scholars in this region might find themselves in a situation where their manuscript (e.g. for publication in an international journal) is rejected because of bad grammar. Subsequently, they will not have a chance to earn any academic recognition and remain excluded from the international scholarly arena. Ondari-Okemwa (2007) recommends the recognition of some widely indigenous languages in sub-Saharan Africa, like Kiswahili and Afrikaans for scholarly communication. Further language inclusion should be explored. Technical opportunities like translation engines could be instrumental in this case.

### *Standardization of African languages on the web.*

In his study relating to African languages on the web Fantognan (2005, p.106) concludes that African languages appear on the web more as topics of study than as vehicles of communication. African language courses and computer solutions that can standardize fonts for African languages are rare on the web. However, these tools are needed to reach potential 'talents' that speak only an African language. Furthermore Fantognan recommends the promotion of multilingual sites with communication in at least one African language. According to Fantognan (2005, p.107) there are high hopes that Microsoft Windows and Office software will soon be translated into Swahili. Swahili is without a doubt the most widely spoken language of about 100 million people on the African continent and islands in the Indian Ocean. Other Microsoft translation programs are planned for other African languages, such as Hausa and Yoruba. The author is critical about the possible monopoly of Microsoft and hopes that the standardization efforts of African languages will also be of benefit to Linux and other open-source software. Good practice initiatives in the field of open source software are under way in Burkina-Faso. Local Languages such as Mooré and Dioula are being customized with Open Office software. Similar initiatives can be found in Mali with Bambara, in Bénin with Fongbé, Yoruba, Mina and Dendi. Fantognan is hopeful about efforts of UNICODE to standardize the N'ko language. Problems that still need to be solved are related to orthography and the

standardization of African languages. Because many African languages are still transcribed phonetically Fantognan sees a real risk of each language losing its alphabet and disabling the new learning generation in African classrooms.

*Heritage of local languages.* Finally, it is important to safeguard the heritage of local languages. From anthropological studies we can learn that the local environment and culture has an impact on the language people use. Thus, for example, the Koga speakers in southern India have seven different words for bamboo, yet have not a single word for snow. Whereas the Eskimos have a complex classification for different types of snow, such as drifting snow, softly falling snow, compact snow, and so on (Ferraro, 1994, p. 48). This illustrates the importance of culture and localization while discussing multilingualism on the web. It very much affects the everyday life of the new learning generation. Some issues for future talent research are:

- *emerging talent markets*; little is known about the emerging talent markets in Asia and some African countries. The language gap hinders international recruiters in finding the best local ‘talents’. So in fact the recruiters suffer from linguistic disabilities. Multilingual talent recruitment and development schemes are needed.
- *competences of international talent developers*; they must have a deeper understanding about different languages around the world. It is an asset to speak more foreign languages, preferably one non-western language such as Hindi, Japanese, or one of the Arab or Chinese languages.
- *multilingual talents*. There is a high demand for multilingual talents in emerging economies such as China and India. These skilled ‘talents’ are valuable ambassadors across cultures. Research is needed to further develop their language potential and language diversity on the internet (see also Paolili, 2005).
- *Developing language translation tools*. Sophisticated language tools are being developed to enable e-learners to work in a multilingual environment. Thus, for example, technical opportunities come from the project Medics on the Move ([www.medicsmove.org](http://www.medicsmove.org), or [www.medicsmove.eu](http://www.medicsmove.eu)) providing medical professionals working abroad with language tools to help them function effectively in their new workplace. MoM uses the latest technology to deliver a purpose-designed language training programme that addresses the needs of medics in everyday situations. It includes more than 1000 everyday medical terms in six European languages, and basic search facilities in Arabic, Polish, Romanian, Russian, and Turkish.
- *Safeguarding Indiginuous Languages (UNESCO)*: according to UNESCO there are approximately 6000 languages in existence - however many of these are under threat (UNESCO, 2003). “About 97% of the world’s people speak about 4% of the world’s languages; and conversely, about 96% of the world’s languages are spoken by about 3% of the world’s people” (Bernard 1996, p. 142). A small number of people therefore control language use across the globe.

In 2002/2003 UNESCO set about developing a framework to safeguard indiginuous languages. In order to ascertain the potential endangerment of languages, nine criteria were drawn up. These included, absolute number of speakers, proportion of speakers within the total population, intergenerational language transmission, attitude towards own language, shifts in domains of language use, governmental and institutional attitudes, type and quality of documentation, response to new media and availability of materials for language education and literacy ([www.unesco.org/culture/ich/index.php?pg=00142](http://www.unesco.org/culture/ich/index.php?pg=00142)). It was proposed that this methodology be used in establishing the ‘viability’ and ‘function’ of a language together with helping to establish the measures required to ‘maintain’ or ‘revitalize’ a language. See also [www.unesco.org/culture/ich/index.php?pg=00144](http://www.unesco.org/culture/ich/index.php?pg=00144) on linguistic diversity.

## Social competences

Another key competence for the new learning generation is the ability to identify social dilemmas and to achieve a level of social understanding. In general the social dynamics and

flexibility evident between conversational partners in the real world is missing in online communication. These 'e-factors' may hinder the level of professionalism to be achieved by 'talents'. How can social and cross cultural issues in virtual communities be identified and dealt with? Squire (2008, p.170) shows how players in World of Warcraft from different nationalities and cultures debate problems of a scientific nature, arguing over the causes of problems in the game, weighing up theory and evidence and judging - based on new social and cross cultural rules - the merits of counterarguments. Similarly, at the digital workplace, different social and cultural dilemmas will have to be negotiated and reconciled.

The communication culture at the digital workplace influences the 'talents' potential of achieving key professional digital competences. Reeder et. al. (2004) identify some of the hidden barriers inherent in intercultural communication, which can adversely affect the social competence of 'talents'. Technical features such as different power supplies, varying keyboards or non-matching plugs are often considered major barriers to online communication. However, these are relatively minor problems compared to the social barriers. Stahl (2004, p.160) argues that "e-teaching supposes a certain kind of metaphysics, usually an objectivist world-view, which is a particular view and cannot claim impartiality". Social barriers touch on the very essence of the cultural way the new learning generation construct their worlds and the level of professionalism they can reach. Thus, for example, the 'bulletin board' in the virtual classroom is based on the basic social assumption that 'talents' like to publish their thoughts or initial ideas. However, this 'e-tool' for communication is not popular among some cultural groups e.g. in Asian countries where the fear of loss of face influences their online behaviour. Also, e-platforms such as WebCT and Blackboard, which are based on a western style of efficiency, are not necessarily appropriate tools for all intercultural 'talents' across the globe.

Some tools lack crucial social communication elements that may hinder professional and/or performance aspects of communication. Chat, for instance, is of a distinctly oral nature. At the same time, virtual chat lacks important features of verbal communication, and is predominantly rooted in literacy. Reeder et. al. (2004) found missing elements in electronically mediated communication such as context perception, parallel visual channels, direct eye contact, gestural information, side talk, dynamic real-time repair mechanisms and avoidance mechanisms. As these mechanisms may be a vital aid to 'real world' communication for people with certain types of disability, the absence of such mechanisms in the 'virtual world' may hinder communication even further. For example due to the often frenetic nature of many online chat rooms (i.e. different subject discussions all happening simultaneously), people with learning disabilities may have particular difficulty keeping track of chatroom activity. In addition many chat rooms use the programming language Java which is not always designed to work with screen readers ([www.webaim.org/articles/archives/chats/](http://www.webaim.org/articles/archives/chats/)).

*Japanese Case Study.* Komukai (2006) examines the complex background of e-learning in Japan reflecting the needs of today's society but also based on cultural assumptions that are often centuries old. Historically, Japan places high status on learning and envisages high standards of information technology. One of the projects is called NPO, Unlimited Potential Ohita Project for disabled e-learners. It originated from a Microsoft educational outreach programme in 2003. The Web Contents JIS (JIS X 8341-3) in 2005 has paved the way for the standardization of services and online facilities in Japan. In contrast to the USA and European countries where online information services are regulated, Japan had no guidelines until the Web Contents JIS was created. Advanced technology has made it easier for learners with visual difficulties to participate in e-learning through the use of voice-browser services which can transform the displayed information into voice messages. New technology also helps the new learning generation with colour recognition problems. This software is also applicable to e-learners with presbyopia, as it has a function to enlarge small characters. The university in Ngano developed technology for students with hearing problems. However, there are too many words in Japanese that have the same pronunciation but with different meaning. The touch-panel technology for e-learners who have manual dexterity difficulties, has greatly improved keyboard operations. The touch panel is so user friendly that not only 'talents' with disabilities use it, but it is also used by many young 'talents' without disability. Other projects in Japan

include psychological experiments with distance learning for pupils and students who are extremely nervous in meeting people, e.g. The Space Io in Akita Prefecture. In Japan quite a few students benefit from e-learning because they spend much of the year in athletic training or are subject to heavy work schedules, for example actors or models.

## Civic Competences

As set out in the European Framework (2006) globalization presents many challenges for all European Citizens. To meet the challenges imposed by a globalized environment, individuals will need to develop the knowledge and skills appropriate to enable effective study, work and leisure within this context. The new learning generation needs to be equipped with the skills to “fully participate in civic life, based on knowledge of social and political concepts and structures and a commitment to active and democratic participation” (p.16) - importantly, in the absence of discrimination. Communication is key to this competence “based on an attitude of collaboration, assertiveness and integrity”. So as to respect and value diversity and ensure the personal and social well being of lifelong learners in an e-global context, it is vital that all individuals, including ‘talents’ who have hitherto experienced marginalisation, form part of this inclusion. In this respect we will take a closer look at ‘talents’ with disabilities (disability may include sensory, physical, mental health or intellectual and learning disabilities, and may also include people with certain medical conditions such as cystic fibrosis, multiple sclerosis) that are hindered in exploring their civic competences.

According to a World Bank report (Metts, 2000) the number of people with disabilities in any national context is about 10%. The report also suggests that this figure varies, with current estimates tending to be revised downwards rather than upwards, possibly attributable to the fact that much data relating to disability is sparse and incomplete, thus making it difficult to establish accurate figures for disability. Metts suggests global estimates to be anywhere between 235 million and 549 million people (Metts, 2000, p.4), almost 10% of the world population, and the world’s largest minority (United Nations).

There is an emerging global commitment to equalizing opportunities for disabled people. This implies much more than a simple commitment to traditional anti-discrimination principles. Social and environmental barriers that have traditionally restricted access for people with disabilities need to be removed (Metts, 2000, p.9). To ensure civic inclusion of the new learning generation, including learners with disabilities, Metts (2000, p.53) suggests that the international community, (primarily through policy initiatives, and the adoption of institutional mandates by large international organisations) must be educated about “appropriate and cost effective approaches to disability”. This may include employment and financial incentives and support to access the required tools. Metts argues that international organisations must show commitment towards developing comprehensive and integrated national and international strategies.

To facilitate access to the virtual workplace or classroom, many new generation learners with disabilities require assistive technology (as discussed in the Japanese Case Study above). Technical aids may include Braille materials, magnifiers and text-voice converters for visually impaired e-learners. Lip-speakers may help learners with hearing impairment, and special keyboards can assist those with mobility impairment. Gerrard (2007) argues that pedagogical, practical and strategic issues are at stake when responding to the needs of disabled university students. In the UK the Disability Discrimination Act (1995) was extended to higher education in the form of the Special Educational Needs and Disability Act (SENDA) in 2001. SENDA made it unlawful to discriminate against any disabled students. Simpson (2002, p.154) suggests that learners experiencing mental health difficulties or learning difficulties such as dyslexia find distance education a particularly attractive option. Such options may negate previous unsatisfactory educational experiences. And for e-learners with mental health problems assistive technology is a great enabler, or like Simpson (2002, p.155) states “learning can be therapeutic and offer validation that is hard to find in the rest of their lives”. Below we take a closer look at some disability access issues and solutions.

*Visual Impairment.* According to Fight for Sight Eye Research (UK) ([www.fightforsight.org](http://www.fightforsight.org)) 315 million people worldwide are visually impaired - with one person in the world going blind every five seconds. Cataract is the leading cause of blindness. However other age related causes are also on the increase. According to the National Council for the Blind in Ireland ([www.ncbi.ie](http://www.ncbi.ie)) age-related Macular Degeneration (AMD) is the leading cause of age related blindness in the western world. AMD is a degenerative disease of the macula, a small area located in the centre of the retina at the back of the eye responsible for visual acuity. The National Council for the Blind in Ireland says that AMD is becoming an increasingly common form of registered blindness in Ireland, affecting one in ten people over the age of fifty. In the UK AMD is the most common cause of visual impairment, accounting for 40% of the total registered as visually impaired ([www.fightforsight.org](http://www.fightforsight.org)).

Assistive Software is continuously being developed and upgraded to facilitate access to the internet for blind and visually impaired users. For example Microsoft has developed a daisy plug-in for WORD, available as a free of charge download “this will enable the translation of millions of Open XML documents into DAISY XML, the lingua franca of the globally accepted Digital Access Information SYstem, or DAISY, standard for digital talking books” ([www.microsoft.com](http://www.microsoft.com)), thus ensuring more equitable access for print disabled readers. Another example: the Dutch company SenseCom ([www.sensecom.nl](http://www.sensecom.nl)) has developed all inclusive software for users with visual impairment. This software helps visually impaired learners to gain easy access to the internet, and enables greater levels of virtual inclusion for the purpose of study, work and leisure.

Voice Over is a screen reader that is built into every Apple Mac, ([www.apple.com/accessibility/voiceover/](http://www.apple.com/accessibility/voiceover/)) and recent enhancements include a “new high-speed, high-quality voice, plug-and-play support for refreshable Braille displays and international language support”. The system also includes an interactive tutorial making it easy for new users to learn. Other products include JAWS 10 ([www.freedomscientific.com](http://www.freedomscientific.com)) incorporating many new features and improvements over previous versions of JAWS - including AutoForms (that facilitate interaction with web forms), and RealSpeak™ Solo Direct (a Nuance® product including a variety of languages/local accents, all of which are compatible with JAWS Version 10, and MAGic Version 11, available from February 2009) - thus enabling users to personalise how they interact with computer and internet applications. Kurzweil 1000 (Kurzweil Education Systems, [www.kurzweiledu.com](http://www.kurzweiledu.com)) allows users to read printed materials including books, magazines and newspapers. Materials are first scanned into the computer. Kurzweil then converts the typewritten material into speech.

Magnification tools can be very useful for new generation learners with low vision. An advanced portable product, FarView, a magnification tool (developed by [www.optelec.com](http://www.optelec.com)) and due for release early 2009) enables users to navigate with ease. Whether they are viewing street signs or class notes, materials and text can be adjusted to the needs of the user, and/or easily stored and later transferred for review or sharing on a PC.

And for visually impaired music lovers the latest version of iPod nano (see [www.apple.com](http://www.apple.com)) includes enhanced accessibility features, for example, spoken menus, making it much easier to browse and play the music you want to hear, and large font options. Apple has also improved accessibility to iTunes.

*Hearing Impairment:* hearing impairment may range from hearing difficulties associated with age to more severe hearing loss and deafness, sometimes associated with illness, certain activities or hereditary factors. Being able to adjust the sound options and volume within computer software programmes is very important for users with mild/moderate hearing impairment. iCommunicator is a patented technology for learners who are hearing impaired or deaf. iCommunicator converts speech to text, video sign language and/or computer generated voice ([www.mycommunicator.com](http://www.mycommunicator.com)). iCommunicator also has rehabilitative benefits. New generation learners with speech disorders can benefit from learning the proper pronunciation of

words with iCommunicator's voice output, and the visual display of spoken words appeals to the preferred learning style of visual learners. ([www.mycommunicator.com/productinfo/](http://www.mycommunicator.com/productinfo/)). iCommunicator's iText tool also enables users to translate text to Sign-Language or voice output, from web pages, email, and word processing documents.

*Dexterity Impairment.* dexterity difficulties may arise due to illness including, arthritis, stroke, multiple sclerosis, or repetitive strain injuries including carpal tunnel syndrome. Assistive technology that may be of help to such new generation learners includes, speech recognition systems, on-screen keyboards and touch screens. There are also a number of alternative input devices (see [www.microsoft.com/enable/](http://www.microsoft.com/enable/)).

*Learning Disabilities:* New generation learners with learning disabilities may find word prediction programs and other reading tools useful. Speech synthesizers and voice recognition software may also be beneficial.

Below are three examples of how organisations are endeavouring to ensure greater inclusion for e-users with disabilities.

*Open University, Browsealoud.* Browsealoud is a speech tool that is available for use on the Open University (UK) website ([www.open.ac.uk](http://www.open.ac.uk)). It works by converting online text to speech, thereby enabling webpage content to be read to the user as he/she navigates around the website. In addition to reading from individual web pages, the tool is also capable of reading from pdf and word processing documents and has a facility whereby audio material can be saved to an mp3 file for later review. The tool is mainly used by learners with mild visual impairment and the OU does point out that it is not a replacement for screen readers. It is also useful for non native speakers of English, and more generally as a revision tool, allowing students to record material and listen to it away from the main study environment.

*South Africa: Moving from 'Segregated' to 'Inclusive' Education.* Schoeman (2002), discusses the extensive consultation processes that have been undertaken in South Africa, (since the transition to democratic governance in 1994), with the objective of implementing an integrated and inclusive education system. Schoeman talks about the introduction of 'White Paper 6', which includes key strategies such as school improvements, facilitating the participation of some 280,000 children and young people with disabilities who are currently outside the school system, the development of specialist support teams together with the early identification of disabilities. These proposed changes enable the adaptation of Curriculum 2005<sup>4</sup> to facilitate the provision of integrated and inclusive education, thereby meeting the needs of a diverse population.

*Beijing Disabled Persons' Federation* (BDPF, and the Chinese Federation, <http://www.cdcpf.org.cn/old/english/index.htm>). In cooperation with the UNESCO office in Beijing the BDPF developed and conducted courses on cartoon-design and typesetting training for 71 unemployed physically disabled people. The training enabled the learners to find jobs as graphic cartoon editors, cover and package designers and professional typesetters in the public and private sectors.

*Google, Accesible Search:* Google Accessible Search aims to identify and prioritise search results that are accessible to blind and visually impaired users. How does it work? Google Accessible Search "looks at a number of signals by examining the HTML markup found on a web page" - thus "pages with few visual distractions and pages that are likely to render well with images turned off" are most likely to feature in search results.

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<sup>4</sup> Curriculum 2005 - a single curriculum (developed to meet the needs of all learners) introduced following the election of democratic government in 1994 and hailed as one of the most progressive educational policies ever developed. (see <http://www.info.gov.za/view/DownloadFileAction?id=70282>).

(<http://labs.google.com/accessible/faq.html>). This should help visually impaired learners to locate accessible websites more easily.

There is an urgent need for continued development of such software so as to ensure that the new learning generation with disabilities are not excluded from job selection because of contemporary technological barriers. There is also a need for greater awareness amongst educationalists and employers as to the technical opportunities that are available to assist and enable learners and employees with disabilities. See also [www.visio.org](http://www.visio.org).

## Towards Inclusive Competences for Lifelong Learning

The future question is not *if* but *how* learning organisations can facilitate the new learning generation to acquire the necessary inclusive competences, like digital, social and civic competences, to participate with success in our complex world. Both digital and social/civic horizons need to be explored further in an inclusive manner. This will enable younger generations (including 'talents' with disabilities) to fully integrate online social networks into their everyday lives. In this paper we have seen how radical innovations to traditional learning may occur in various ways to overcome barriers and facilitate knowledge exchange. New innovative learning dimensions are being identified every day. In a few years from now these multimedial options will become required inclusive competences and will be applied in a flexible way by our best hope of the future, namely young talented learners worldwide. In this paper we have seen that there is an ethical responsibility for educationalists, policymakers and employers to enforce the key competences of the new learning generation. The talented lifelong learner in any country -no matter what economic, social, linguistic or disability background- has the civic right to gain access to a good quality online learning environment. The ongoing development of disability legislation like we have seen in the UK (SENDA) has great impact on everyday e-learning. It is vital that governments and NGO's take a stronger and more proactive role where learners with disabilities are afforded the necessary tools to engage effectively with others in the public domain and to enable "critical and creative reflection and constructive participation in community or neighbourhood activities as well as decision-making at all levels, from local to national and European level" (European Framework, 2006, p. 17). Meeting these targets forms an integral part of the Lisbon Strategy with key emphasis on not only meeting economic targets for 2010, but also endeavouring to ensure greater social cohesion as part of this process (<http://ec.europa.eu/education/policies/2010>). Nonetheless, achieving social inclusion continues to be a major challenge across Europe. A number of frameworks have been designed to ensure that social cohesion becomes a reality. This is particularly evident for access to education, with EU policy focusing on the need for greater levels of inclusion, and equal opportunities for all its Citizens. The *2007 Lisbon Declaration - Young People's Views on Inclusive Education* outlines proposals to facilitate greater inclusion in schools, with 'special education needs' identified as being one of sixteen core indicators as to achieving benchmarks in education and training. (European Union, 2008, p.133). Last but not least: innovative didactics and tools for enhancing the talents of disabled learners more often have a broader impact where all learners can benefit. Future success depends on creating a learning landscape in which the new learning generation can realize their full potential and enjoy their ambition.

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