BETWEEN PRINT AND ICT: THE ROLE OF TEACHERS

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Introduction

The term Information Technology (IT) has evolved into Information and Communication Technology (ICT) in Britain, though IT is still used in the context of references to the National Curriculum for IT in England and Wales (Higgins et al., 1999). In this paper, ICT is the preferred term, but IT is also used when authors quoted use the term. There can be no arguing with the increasing reality of Information and Communication Technology (ICT) in today's world, even in developing nations like Malaysia. This is evident in the number of common functions that are being increasingly transacted 'online', through the desktop and mobile computers.

What, however, is interesting is the slow growth of general public awareness that ICT is becoming increasingly important, and will probably dominate lifestyles in the years to come. This awareness seems to be reluctantly acknowledged, and accommodated, in the face of government led drive to create a computer-literate and dependent society. There is in fact greater pressure on older citizens and teachers to adjust to the reality of the growing 'omnipresence' of the world of computers given that they have been able to function fairly well without computers in their lives. Such typical older citizens would be in their mid-forties and older, while teachers could be as young as in their thirties. The common denominator is that computers were not part of their growth, and educational experiences. Pressures increasing from the growth of computerisation have often necessitated accommodating a suspicion of all things 'technical', with a sense of wonder at some of the things that technology can do, and with a realisation that computers are here to stay, and have to be understood. Personal observations and revelations suggest that one result of this phenomenon has been to view the world of computers with suspicion and hostility to the point of outright and irrational rejection. Another reaction has been to panic at having to be with 'ICT', or lose-out in relating with modern world developments.

Perhaps it is time to re-evaluate such 'either-or' scenarios. It is suggested that, at best, one needs to be critically conscious of the various implications of the technology. Such a critical assessment will take into view how widespread computers really are in day-to-day existence, how relevant they are on an individual basis, and how far-reaching ICT is going to be in the immediate future. At the same time, individuals will probably have to make conscious self-assessment of how these implications are going to affect individual lifestyles, and more important, individual professional competence.

Teachers, especially those who are in their mid-careers, it appears, are in the unenviable position of having to accommodate their professional competence and development with almost every new technological development. The way in which teachers have been made to teach with-and-through the typewriter, audio-visual aids, language laboratories and even the portable tape-recorder/video are cases in point. When competent professional expertise in using new educational innovations and technology is demonstrated by expert practitioners, and the potential of the technology is allowed to capture administrative imaginations, technology is seen to be a must for education to succeed. Today, many teachers are in a bind, where they feel they are either in-with, or up-against ICT, depending on their orientation. Many teachers and parents legitimately question the need for a headlong rush to embrace computers, and the abandoning of the world of print and books. At the same time there are feelings of nostalgia and anger at the imminent 'decease' of the world of print, as well as increasing unease at the way media prophesises a print-less world in future. What do all these imply?

This paper deals with a few main issues. These issues relate to the future of print, the emotional relationship of teachers to ICT, and the mental and professional education of teachers with regard to ICT.

Print in the future

One aspect that needs to be addressed is the future of print. Will print continue to exist as it does today, or is it going to be electronic? Will books exist? Will print cease to exist, and therefore the concept of 'reading' (as we presently know it to be)? How imminent are possible changes? These issues naturally lead to the second aspect that needs to be addressed, namely, that of the professional abilities of teachers in general, and the teachers of literacy specifically. An effort has to be made to examine teacher unease at the developing scenario objectively. Also, one major issue to be addressed would be that of the teacher personal philosophies and attitudes. Further, what are some of the professional competencies that teachers should expect to develop, and what methodological accommodations and rethinking will these teachers have to undertake?

While conceding the value of the Internet, and his hopes for the growth of the Internet, Stoll (1996) argues that the information highway is an oversold medium, which raises expectations unrealistically. Further, such expectations fuel a non-critical acceptance of an online world, with little concern for any possible negative outcomes. Stoll (1996) seems to suggest that most of the electronic interactions cannot better existing human face-to-face exchanges. There is also the danger that in the headlong rush to embrace technology, some of the old-world virtues get sidelined and perhaps forgotten.

Harold Innis, (1951) suggested a long time ago that changes in technology (especially in so far as it pertains to communications) can affect the way we think, and what we think about. He suggested that the very nature of the community could be affected by changes to technology (1951).This phenomenon is, perhaps, best illustrated by the way our perceptions about early education have changed. Where there has been limited technology, knowledge has had to be preserved in the oral tradition, with emphasis on memory skills, aided by patterns of presentation such as songs and poems. Later, immediate rote learning gave way to copying (from blackboards for example) on paper to be learnt at leisure, which in turn has given way to not having to copy at all because the information is now available through personal copies of textbooks and photocopied notes.

Leu (1996) refers to arguments that while traditional print documents like books make us read deeply and intensively, the new digital information (Hypertext, multimedia, WWW) make us explore often unrelated topics at a superficial level extensively. Multiple electronic links take us away from reading and thinking deeply about topics. Print presents information in a linear fashion, and we read the information "in a sequence of patterns in a straight line" (Thomsen, 1972, p. 82), either from top to bottom or side to side. Such a presentation, Thomsen suggests, trains us to think in an unnatural linear way, when the nature of man's thinking occurs in a non-linear fashion. An examination of the way literacy spread, and the changes that happened along with the spread is further illuminating. Chandler and Marcees (1985) point out how in the early world of manuscript and early print culture, books were rare and authorship was not important (as in authorship of folk and fairy tales). Distribution of books and information depended on clerics, and texts were changeable. Copying was essential, and orthography varied. Reading aloud and listening were common skills. However, with the spread of literacy and print, books became widespread, and authorship of definitive texts became the norm. In this phase, publishers became important, with standardised conventions of writing and reading became an essentially private silent activity. The concept of individual authorship thus led to concepts of plagiarism. Where a networked society is concerned, Chandler and Marcees (1985) argue that authorship will become less important in the face of increasingly collaborative writing. Texts become changeable again, and the concept of copyright will cease. Reading will become participatory. Writers themselves will become publishers, and there will be challenges to the concept of writing conventions.

What kind of a world are we to envisage in the coming years as a result of the growth of ICT? An interesting exercise would be to establish parameters of the kind of world to be envisaged, and project the time frame for such eventualities to come about. The following come to mind:

a. the printed word will always exist

b. the printed word will become obsolete and irrelevant

c. the visual image will replace print

d. the visual image will continue to co-exist and complement print

e. a future where technology allows for the direct communication of emotions and thoughts without the need for speech or written word .

Kellner, 1998, argues that print literacy becomes increasingly important in the world of computers, precisely because of the need to process tremendous amounts of information (via the Internet, for example), necessitating new emphases and developments relating to reading and writing.

McLuhan (1964) argued long ago that the emergence of television has changed the way we receive information compared with the way we received it through print. Print, he claimed, appeals only to our sense of sight or the visual, while television and the moving image appeal to man's different senses, especially hearing. Television "is audile- tactile" (appealing to different senses), and not a visual technology, which thus liberates man from the limitations of print to the natural state of man, which he called "tribal man", in a state of oneness with his surroundings through the senses of hearing and touch. Thus, electricity, and electronics are increasingly bringing man back to the public sharing of information and experience through announcements and talk, and thus the tribe (McLuhan, 1964), while print made man a private animal. In the world of ICT however, while information has an extremely wide reach, as well as almost instant communication to large masses across the world, surfing the net through the computer, for example, is still a private, often solitary activity.

In fact, it could be said that with the evolution of ICT, the written word has evolved into an electronic word on the computer screen. From mere text, print has grown into hypertext on the Internet, which as yet still requires reading as the essential skill. It would perhaps be true to say that the traditional skill of reading and comprehending has now to be accompanied by the essential skill of being critical. Readers, especially young readers, have to be become critical readers who are able to evaluate the veracity and worth of information received through the computer. This becomes especially relevant in these days of misinformation through e-mail, which can seriously inflame otherwise peaceful situations. Kellner (1998) points out that

> "print literacy takes on an increasing importance in the computer world as one needs to scrutinise critically and scroll through tremendous amounts of information, putting new emphasis on developing reading and writing abilities" (p.116).

It could be argued that there is even greater need to focus on a heightened capacity to do well the traditional things that we called critical literacy. Such a literacy includes critically analysing, interpreting and evaluating information (Kellner, 1998). Thus, the evolution of print from text to hypertext (through the Internet) in a sense represents a hybrid media with a capacity to provide massive amounts of information. Linearity found in print drastically reduces, and a new literacy capable of dealing with hypertext, which is "often multidimensional, requiring the connecting of images, graphics, texts, and sometimes audio-visual material" (Kellner, 1998, p. 118) has to be developed.

How valid is McLuhan's (1964) implied claim that with the advent of television, print is likely to become 'obsolete'? Bruce (1998) suggests that the "kind of literacy associated with reading and writing does not go away when new media, such as the mass produced book or the computer, becomes available" (p.136). Rather, print and its associated literacies evolve, creating new kinds of literacy that get "added to our repertoire" (p.136). Kalantzis and Cope (1999), point out that changes to areas of modern life, such as citizenship, working lives and community life necessitate new paradigms for literacy pedagogy. Given the growing reality of new global orders, multilingual and multicultural diversity, as well as the fact that there is no longer a single English, but differentiated Englishes, the future lies in 'Multiliteracies'. Wilson (1999) argues that "being literate in one way by no means ensures being literate in other ways" (p.23). Literacy education has moved away from 'basics'. There is a need to move onto

being a multi-literate person, one who is in a position to access and use information in the new world-order. The best way to achieve this would be to develop awareness and competence in critical literacy (Wilson, 1999).

The feeling that the days of print are dated rests upon a number of assumptions. Perhaps the most compelling assumption is that all books, magazines, journals and newspapers will be digitised. A number of aspects that appear problematic include whether there is a need and desire to digitise all print, and whether this is at all feasible. Fears for the future of print are sustained by beliefs that most people will want to get and use information in electronic form. This appears highly unlikely, at least in the near future, given that the reading public still prefer to read print. In the first place, can all individuals personally afford personal computers, and the cost of getting connected? Apart from individuals, is it going to be economically feasible for educational institutions, across Malaysia for instance, to provide enough desktops for all or at least a majority of pupils and students? Furthermore, will all print publications in their various languages be capable of being digitised? The answer to this question rests also on basic fundamentals such as economics. Would it be financially feasible to translate all writing (and in all languages) into digital forms? This presumes that there exists a market for such forms, and with the technological means to access such information. Besides, does software exist for all the languages? This is not likely at this stage, but things could change in future. Common sense suggests that the complete digitisation of information is not likely, certainly in the near future, unless technological developments make immense strides, enough to make digital information as easily and cheaply available as the printed forms of today. It would also be prudent to ensure the continued availability of print given that digital information is capable of being wiped out through electrical and electronic failure. The Library Administrator's Digest, 1996, points out that the digital archive in Washington University in St.Louis vanished with memory failure.

Given all the objections against complete digitisation, one very important phenomenon is that many governments consider this to be a priority-spending item, especially in schools and government administration, as in Malaysia and Singapore. If the will and commitment of governments is sustained, then there is a strong possibility of changes to the way we perceive things, and perhaps the way things (such as computerisation) are done. ICT may indeed become a way of life. What should not be doubted is that the technology for ICT to replace print does exist. If there is a will, then the scanner easily becomes the machine whereby printed texts become transformed into electronic texts and books. Consider, for example, the invention of a gadget called 'Chatpen', and special 'Aronto' paper by Erickson (Star, April 24, 2001, p.30) where the special paper becomes a screen (like the computer screen) to perform computer functions, thereby substituting the role of say, the computer notebook. Together, the two innovations become, literally, a computer.

It is now widely accepted that for those who are computer literate, it is already possible to perform numerous daily tasks from the comfort of the home. These include buying and selling things, banking, booking seats and travel tickets, and accessing sources of information (through libraries, e-books, and newspapers). Furthermore, people are able to communicate through e-mail, thus chatting, debating or arguing.

In the face of the above considerations and developments, where does the computer 'illiterate' adult stand? We are all familiar with the jokes about children who have given up on their parents because the parents are not familiar with the world of ICT. At the same time, it is also possible to take note of the number of adults, and parents in particular, who are enrolling in computer classes to keep up with developments, and their children!

In other words, adults who are vary of ICT should realise that the growth of the technology is going to change what we think about, the way we think about things, and the way things are. Such developments call for awareness by adults, especially teachers, that many of the 'sacred cows' of their youth may not be quite so sacrosanct. Willingness to change, and awareness of new possibilities should be embraced as new dimensions of professional competence.

Teachers, in particular, are in an unenviable situation, given that they did not grow up with computers, while their charges have. Not only are children usually quick to learn, they are also recipients of the benefits of the major thrust towards digital world. Teachers, on the other hand, are usually ignored, unless they are young, or hold key posts, when it comes to whether they get the benefit of attending courses for personal and professional development.

Teachers and computer literacy

At a professional level, there are a number of issues and implications for teachers, which this paper attempts to discuss. These include:
a. personal commitment;
b. personal computer skill development;
c. understanding the nature of word processing;
d. re-examining learning philosophies;
e. re-examining their roles;
f. examining strategies of usage in their pedagogy.

Commitment to Learning

At a personal level, of course, each teacher has to assess personal benefits and costs, and decide how much he or she is willing to invest in the effort, and what it is worth at both personal and professional levels. While acknowledging the existence of technical, technological and mechanical phobias amongst older teachers, it is prudent to point out that often the fears are over-rated, and that the way forward is indeed to go in the deep end, and just start using the personal computer. It would be safe to suggest that generally, individuals learn relatively quickly that it is a user-friendly medium these days, and that learning to use personal computers is less painful than they believed. The bottom line is for teachers to realise that they do not have to get left behind, and that the way forward is much easier than they feared. Further, two compelling reasons to learn include the fact that, increasingly, teachers are expected to do clerical work simply because schools have bought computers, and that the Internet is a source of information, and therefore empowering.

Developing ICT skills

Once teachers make the decision to learn to use ICT, what would we consider to be the minimum 'basics' of ICT in order to operate comfortably? ICT capability, in whatever degree, should lead to the ability to use ICT tools effectively, as well as sources of ICT information to analyse, process and present information. Obviously, the first step would be familiarisation with word processing, and programmes such as Microsoft. At the same time, no matter how painful it might be for beginners, there is a need to learn the necessary jargon such as 'menu, files, folders, scroll, bytes, ram' and so on. While many have braved the learning process with the help of manuals on using the computer, many other older people have found the process painfully slow and frustrating due to the three-way nature of the task – looking at the print in the book, the keyboard and the screen. A quick survey of in-service teachers at Universiti Sains Malaysia revealed that almost 70 % of those who see themselves as computer literate learned to use the computer on a trial-and-error basis. Such an approach may indeed turn out to be the most practical method, given the hectic nature of teachers' lives. The next step would be using the web, and establishing an e-mail service. Teacher confidence and competence in using the computer should increase in time, with greater usage of these facilities. In this respect, it should not be forgotten that when it comes to teachers, ICT promises two elements, namely, self-empowerment and empowered teaching. With familiarity of ICT, teachers should ultimately be able to access information and use it for self-development and teaching, and create new avenues for students' learning.

In order that teachers are given sufficient encouragement and motivation to learn ICT, in-service training is an obvious requirement. Such training should lead to confidence, not only in the teacher's own ICT ability, but also in the ability to communicate knowledge of specific subjects to pupils through the use of ICT. Donnelly (1996) suggests that the way forward depends on Headmasters who are seen to use ICT in teaching and administration, provide adequate IT resources, see that it is used across the curriculum, and ensure that all teachers are

given the opportunity for in-service training in this area. For Crawford, however, IT in-service teacher education should lead to an understanding of the dynamics of the whole school's plans for IT, and of the cross-curricular nature of IT. It should also provide an appreciation of the range of CAL and CD-ROM software available, as well as how to evaluate these. Finally, such education should increase awareness of the potential of ICT in a range of subjects (1997).

Understanding the nature of word processing

At a professional level it is important that teachers become aware of the possible value as well as danger of using the computer. Teachers have to realise writing is generally easier than with pen. This is not to suggest that it is better to use the computer, or that using the pen should be discontinued. It merely acknowledges that children soon find it easier to control writing from their fingertips, and that the results look consistently presentable. Mistakes are easily dealt with, and children generally seem unworried by actual typographical and similar mistakes, knowing these can be easily set right. Further, editing facilities allow for a focus on the content and style of the written text and assignment rather than on 'writing' per se. Though purists would insist that learning to spell is an indispensable skill, from a writing perspective, the 'spell-check' facility leads to non-focus on spelling, and time better spent on content and style. Perhaps, the best argument for the use of computers to aid writing lies in the fact that finished product matches book print quality. Apart from looking good, the finished product creates interest in writing because the end-result motivates. Successful work also improves the child's self-image. On the downside, we have to concede that the actual physical skill of writing as we know it could decline, and become part of art studies and artistic pastime.

Re-examining philosophies of learning in the world of ICT

It is suggested here that teachers may want to re-examine their personal views on how children develop and get educated. The advent of new technologies provides an excellent opportunity to contextualise usage and the value of the technologies in the larger picture of education as a whole. A few examples of theories that have relevance to learning and teaching are provided here in the context of using ICT in schools, but it will be clear that the teachers may find other similar or more appropriate theories relevant for their professional development.

Halford (1972) has pointed out how for Piaget (1957), there are stages of mental development and behaviour, and that these stages occur when children are at certain specific ages. Thus the child moves from a sensori-motor stage from birth till the age of two approximately. This is followed by a pre-operational stage (2 till somewhere between 5 and 8 years), a concrete operational stage (till about 11 or more) and finally, the formal operations stage (from about the age of 11 onwards). During the sensori-motor stage, the child displays motor actions without thought activity. The only benefit for children being introduced to computers would perhaps be to develop their sense of touch and familiarity with computers. During the pre-operational stage, the child cannot distinguish between the general and the particular. At the concrete operational stage, there is "coordination of representations to produce general thought, albeit thought which is only a reflection of concrete things" (p.172). At the formal operations stage, children can relate their own thoughts to one another, and perform operations which have not necessarily been part of their experience, and are able to hypothesise. Piaget's concept of schema suggests that children are able to assimilate new objects to themselves, and then accommodate the new object into a new structure. Piaget's theory has implications for the teaching of mathematics and physical sciences, since both require operational thinking. Addition, subtraction, multiplication and division all require concrete operations, mathematics, physics and chemistry all require formal operations (1972). Using ICT seems to be an extremely useful way to accommodate the various stages and teaching materials, especially with multimedia, especially from the perspective of sound and sight.

Vygotsky (1978) is perhaps, best remembered for two outstanding concepts – 'inner speech' and 'zone of proximal development' (ZPD). The concept of inner speech becomes important for the fusion of semantic and vocal planes of speech, whereby proper meaningful speech as we understand the term develops. For Vygotsky, however, language and thought become one in the context of the linguistic, cultural and social aspects of the community. The ZPD refers

to the gap between the actual stage of development of the child and the level of potential development of the child. The child solving a problem with the help of adults, or more competent children, determines this potential. This can be seen as where the child is now, and where the child could / should be, and which can be achieved through the intervention of more capable people. The stages of help or scaffolding provided by the adult may comprise a series of questions that guide the child up to the required level. Thus, the child's learning is aided and speeded-up by the process of scaffolding. In order to provide appropriate scaffolding, the adult has to understand the child's actual level, and the required level, as well as the types of proper strategies (questions, tasks, explanations and so on) in the scaffolding. The teacher's knowledge has to be balanced by an immense capacity for patience when dealing with large numbers of individual learners. It will be readily apparent that the computer is an ideal avenue for such patient scaffolding. Further, group tasks with single and linked computers provide children with the appropriate scaffolding peers, and also, an ideal linguistic, cultural and socially cohesive learning community. Thus, teachers may want to re-examine the computer's potential to teach, and to, perhaps, do some things better than the teachers themselves can.

Gardener (1993) has suggested that we need to rethink our traditional views on intelligence. We need to realise that there are different types of intelligence, including linguistic, logical or mathematical, kinaesthetic, musical, spatial or visual, interpersonal and intrapersonal. The suggestion is that not everyone can be equally intelligent in all areas, but teachers can help develop these in children. Further, teachers can use their knowledge of the child's specific type of intelligence to structure new learning experiences. Thus some children may prefer learning from language-rich contexts, while another may prefer a logical or mathematical learning context. The potential of computers, specialised software and the use of multimedia naturally suggest themselves in this area.

Re-examining teacher roles

The use of ICT also allows teachers to distance themselves from the pressures of teacher-centred performance of actual teaching in front of the class. The use of ICT with self-designed and good commercial software allows teachers to assess the realities of actual practices and difficulties presented by different learning environments. Such practices contribute to "knowing-in-action" and "reflection-in-action", (Schon, 1983, 1987) learning from practices (both successful and less than successful), adding to the knowledge bases of practising teachers, and hence, indirectly aid in developing reflective practices (Chakravarthy, 1993; Wallace, 1991; Schon, 1983, 1987). Thus teachers can use their knowledge of their craft to construct ICT teaching materials that come out of their unique experience of teaching, and which are directly relevant to their own contexts. Once constructed, they can be used in multiple learning environments and adapted indefinitely as required.

What are the possible roles for teachers in the world of ICT? It would be fair to say that one should not expect drastic changes in their roles. On the other hand, there is bound to be a change perhaps in the emphases that are needed given the change in teaching media. In the first place, the teacher probably will remain what he or she has always been, burdened by multiple roles, responsibilities and expectations. These are not likely to change, certainly in the near future, and perhaps in non-urban or non-computerised situations. There is going to be increased expectation of being the source of answers regarding computer matters. Teachers are also expected to become guides, and organisers of meaningful activities. They will need to facilitate the painless transition from the world of print to that of ICT. Teachers will be moral counselors, responsible for children's correct behaviour when using ICT.

What can be realistically expected is that given whatever reservations people in general and teachers specifically may have, ICT can be expected to play an increasingly important role in schools. What are the implications for teachers of literacy? While the technology is the same, there will be different expectations of the way in which it is used in young and older children.

The first and most challenging of the tasks facing the teacher of literacy is that of deciding how and when ICT is to be used, especially in class. Apart from becoming totally convinced that ICT is a valuable and necessary tool, teachers have to then decide and devise ways in which ICT can play useful and meaningful role, especially befitting its potential. For example,

'cutting and pasting' using the computer is perhaps comparable to the same activity done with scissors and adhesives, and yet it is 'cleaner'. It must not be forgotten that this is only a mechanical activity. Children have to be taught to use this technique for more important and useful issues such as 'why paste', 'paste where', 'place what where' and so on. It must not be forgotten that all of the above can be done using traditional methods, and in a relatively cheap way. Computers are particularly important because they help in speeding up events and in saving, editing and transmitting information quickly.

One important issue is getting children to make adjustments to the way they read. Children have to be taught that with the computer screens, texts can be read in different ways to what they have been used to. When it comes to simple essay and letter type documents, reading is matter of continuing linear patterns, except that unlike paper and books (print), the screen faces them at a fixed elevation. With multimedia and Internet, children have to not only read in linear fashion, but also skim virtual texts, and realise that texts have to be assessed in non-linear (not from beginning-to-end) fashion.

Re-examining strategies of usage

Unless there are specified procedures and programmes laid out for implementation of ICT, the individual teacher will need to worry about how to incorporate specific strategies and techniques into the language class. This will require decisions on when to, what to and how much to introduce into each of the classes that the teacher is involved with. Once the decision to use ICT has been made, numerous teaching items and strategies come to mind. These include pupils:

a. developing typing skills

b. playing with layouts, fonts and design

c. moving texts around through cut and paste

d. doing skills-focused exercises...

e. doing drill and practice exercises

f. saving/deleting .

In the context of the Internet, children have to learn to:

h. skim and assess what's important and what is not on the web

i. manage 'in' and 'out' boxes

j. send / open attachments

k. learn letter styles and use the right tone in letters

l. deal with viruses

m. respect and observe copyrights

n. safeguard one's own and respect others' privacy

o. understand legal issues especially pertaining to e-mail

p. create interest with downloads for comprehension and cut and paste exercises

q. creation of meaningful items in quality format (greeting cards, memos, diary entries, notices etc)

r. creating essay type texts

s. creating collaborative stories

t. creating new and various stories through cut and paste

u. teaching language (jargon) associated with information technology

v. if costs allow, being able to build class libraries through downloads of children's books (which are usually not available in vicinity or bookshop).

Conclusion

Teachers should realize that while the technology is there, the essential question remains that of how the technology is used, and to what use it is employed. Technology, as it is pointed out often enough, is neutral, but there needs to be constant monitoring of the morality of its usage. While basic skills may be acquired relatively quickly, the proper morality to accompany such skills may need to be focused upon. There have been too many examples of lonely or bored people creating viruses and releasing these. The indiscriminate forwarding of e-mail messages often borders on the slanderous, and is done without thoughts on the appropriacy and correctness of such acts.

It would perhaps be prudent to realise that literacy, especially at the primary school levels, and in the domain of language learning still requires focus on the 4 basic language skills. It will require listening to instructions from teachers and socially relating with fellow students. It will require speaking to clear doubts and to describe findings and values from the resources available through ICT. There will definitely continue to be composition skills, as well as the need to skim and read critically when relevant materials are found. It may well be that the teacher may end up doing the same things that is being done now, except that these may be done through a new medium, and using new technologies.

Technology will dazzle at the beginning, and attract children naturally to use it. While this will be so, one should not forget that children can get bored with new 'toys' easily enough. Teachers would be well advised to ensure that any work done using the computer is meaningful and relevant to the children. Only then can we ensure continued interest. More important, teachers need to be clear in themselves as to what they will use ICT for, and what educational activities can continue with older, but as of now still relevant, technologies.

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