

iPad Tablet Computing to Foster Korean EFL Digital Literacy

Robert C. Meurant

Founding Director, The Institute of Traditional Studies • Seojeong College University
rmeurant@me.com • <http://web.me.com/rmeurant/INSTITUTE/HOME.html>

Abstract

Non-native speaker usage of English is changing. Under the historic impact of Information and Communications Technology and its critical Convergence, EFL/ESL usage will in future predominantly be online. It will be used to access, navigate and contribute to English language digital resources, and for computer-mediated communication with others who are in the main non-native speakers of English. These uses are computer-mediated, which has profound implications for Korean learners of English. For Korea to remain competitive in the global economy, its EFL should foster L2 Digital Literacy in English.

With fast Internet connections, Korea is perhaps the most wired nation on Earth. To take advantage of this, ICT facilities in educational institutions need restructuring. Computer-mediated second language learning needs to be facilitated, particularly for native teacher English classes. Multimedia capable, mobile web solutions are needed that place the Internet in the hands of all students and teachers. Wi-Fi networked campuses allow any campus space to act as a wireless classroom. Teacher computer consoles with high-speed Internet access and OHP are required for every classroom. All students require adequate computing facilities, that are available anywhere, anytime. This has become feasible through providing every student on enrollment with a Wi-Fi+3G enabled Apple iPad, on which educational providers install, maintain and update E-texts and content creation and consumption Apps.

Keywords: *ICT, Convergence, iPad, iPhone, iOS 4, EFL, ESL, L2, digital literacy, CALL.*

1. Introduction

Many areas of human endeavor are being radically impacted by the rapid development of ICT and its Convergence. Second Language Acquisition (SLA) is no exception, with digital resources playing an increasing role, and more attention being given to intentional instruction in English as a Foreign Language (EFL) Digital Literacy. In other words, digital literacy is gradually being encouraged in the students' Second Language (L2) English. In part, this is due to growing recognition of three key factors that I have identified as impacting contemporary SLA in a variety of recent papers that include [1] and [2].

Firstly, the predominant use of English by non-native speakers will increasingly be in communication with other non-native speakers, rather than with native speakers as one might expect. Secondly, English has now emerged as a global language, and this has resulted in the online resources and discourse that many find desirable being mainly in English. Thirdly, we are rapidly approaching a critical and profoundly symbolic threshold where worldwide the majority of interpersonal communications will have become computer-mediated, rather than the traditional face-to-face interactions that have characterized 3.4 million years of human evolution (as estimated from the time of the first stone tool artifacts).

As argued [3] in [4] and, these three factors taken together imply that the predominant use of English by non-native speakers will likely be of two kinds: firstly, it will consist of using English online to locate, navigate, edit, and contribute to English language digital resources. Secondly it will comprise computer-mediated communication in English with other mainly non-native speakers of English. That both of these envisaged predominant uses of English by non-native speakers are digital, computer-mediated, and exploit the Internet has profound implications for SLA, and specifically for Korean learners of English. It suggests that for Korea to be competitive in the global economy, we should in EFL nurture and develop L2 Digital Literacy in English. But how best may this be achieved?

Korea enjoys an enviable status as the most wired nation on the planet, with the fastest Internet connections in the world [5]. But computer facilities in educational institutions need reorganization, particularly for native teacher English classes. Opportunities for computer-mediated second language learning need to be greatly increased. Fixed desktop computer labs need to be replaced with multimedia capable, mobile web solutions that put the Internet firmly into the hands of all students and teachers. This is now feasible with tablet computing.

Existing computer labs appear to be mainly designed for class use in learning computer applications: students do not interact with one another, but focus attention on their individual screen, while also attending to the teacher, and her OHP class screen. But unfortunately this arrangement actively interferes with and discourages important interactive face-to-face networking and collaboration, whether structured or unstructured. These kinds of interactions commonly take place in the workplace, and are usual in L2 classrooms where pair work and small group activities are frequently held, or where teacher-student and/or student-student interactions are often demonstrated to the class.

Existing fixed computer labs should therefore be complemented with a comprehensive ICT solution. Wi-Fi networking is currently being implemented throughout Korea on many campuses, and should allow just about any campus space to act as a wireless classroom. In a number of colleges, a teacher's computer console is being provided, and this arrangement should become universal, so that almost every classroom enjoys high-speed Internet access, together with OHP and classroom printer. Most importantly, institutions need to implement systems that provide all students with adequate computing facilities that are available anywhere, and at anytime. Until now, this provision of what would almost constitute ubiquitous computing has been considered costly and impractical. But it has now become feasible, simply by providing each and every student, on enrollment, with a Wi-Fi+3G enabled Apple iPad (or similar tablet computing device), which would then be used in tandem with iPhones (or other smartphones) that students already privately own.

2. Introduction of the iPad

Apple announced the iPad tablet at the start of 2010 and released it in April (though regrettably it has been delayed in Korea until later this month of November). The first release features a 9.7-inch, 1024 x 768 display with 16-, 32-, and 64-GB capacities. The 13.4mm thin 0.68kg iPad is available in either Wi-Fi only, or in Wi-Fi+3G-capable models. The iPad tablet is designed to put the Internet into the hands of the public [6]. It is designed for using fingers on a touch screen rather than with physical keyboard and mouse as with PCs, and this is one contributing factor to what will likely prove to be a revolution in education. The effects will likely become particularly evident in language education, because of the integrated multimedia and telecommunications features that have application to language learning.



Figure 1. The Apple iPad exploits multitouch gestures and offers many apps

Warschauer has drawn attention to the increasing notion that is being given in the US to mobile computer-mediated language learning, as American schools create one-to-one classroom environments through connecting laptops wirelessly to the Internet [7]. Computers and the Internet are considered to be highly disruptive technologies that require extensive organizational restructuring and professional development for successful use [8]. Progressive universities, notably Abilene Christian University, have for some years integrated the iPhone into their curriculum and provided free iPhones to students [9]. To encourage classroom participation, polling software allows shy students to make choices without risking embarrassment. Web apps are used to turn in homework, look up campus maps, watch lecture podcasts and check class schedules and grades [10]. In 2008, Oklahoma Christian University provided MacBooks to incoming freshmen and faculty who attend a new student orientation, making Apple hardware mandatory for incoming freshmen [11]. Pilot projects using iPhones and Kindle e-readers at Francis Tuttle Technology Center [12] enable administrators to weigh technical and financial considerations: students save up to 50 percent on the cost of textbooks by buying them electronically. Computer mobility is considered key and critical to the future; it provides ways to get people access to learning content, no matter where they are. Nursing students are evaluating the iPhone and the iPod to carry medical reference books electronically instead of having to carry 5kg books around the clinics. In 2009, some staff and all 550 students of Tokyo's Aoyama Gakuin University received a free iPhone 3G, which also tracks attendance by taking advantage of its inbuilt GPS [13].

Commentators have noted that Korea enjoys a high level of broadband Internet penetration, with extensive 3G coverage and an exploding provision of free Wi-Fi hotspots (cafés, fast-food outlets, 24/7 convenience stores, city halls, subway stations and lines etc.) Many tertiary institutions already offer Wi-Fi networking, but in practice the use of computers in class is constrained. Firstly, institutional computer facilities are often limited, and demand may exceed supply, especially at exam time. Secondly, available computer labs tend to consist of desktop computers in fixed arrangements as in Figure 2 below. I presume this arrangement springs from a dated administrative perception that computing is a special kind of education, separable from general education, that takes place statically, and primarily in individual relationship to a teacher. But fixed computer labs do not enable or support the flexible groupings of students that typically occur in EFL classes, where students frequently alternate between whole-class activities and diverse individual, paired and group tasks. Educational theorists such as van 't Hooft rightly promote the importance to pedagogy of connection, collaboration and networking; but the existing architecture of Korean educational computer facilities discourages hybrid online/face-to-face collaboration and the integration of computer-mediated and face-to-face interaction that blended learning aims to achieve.

Thirdly, as of yet relatively few Korean students own laptop computers that they are willing to bring to class [14]. Fourthly, the penetration of smart phone usage in Korea is very high; but factors such as small screen and keyboard size, restricted applications and significant personal data costs limit their intentional use in class. Fifthly, many native English-speaking teachers encounter administrative wariness towards innovation, and typically being on one-year contracts, somewhat understandably tend towards caution in their approach to educational technology. Many probably lack the skill sets necessary to successfully implement computer-mediated learning in their classrooms. To a degree this is a reflection of unenlightened and reactionary administrative policies promulgated by those who have apparently proven incapable of comprehending the basic advances in Web 2.0+ thinking, as alluded to in [4].



Figure 2. Fixed desktop computer labs inhibit face-to-face group collaboration, while encouraging cheating in online exams

But students are not immune from the ICT revolution; rather, they are among the forefront of those adopting new digital technologies. This adoption is a trend that is increasing exponentially, notwithstanding that they simply take it for granted. As I argue elsewhere [15], this will inevitably affect their expectations of how teaching and learning should occur. At the same time, EFL textbooks are rapidly merging with digital media, and are increasingly being offered online [16]. A number of teachers are already integrating online placement tests, progress tests, and web-hosted Learning Management Systems into their courses [17]. As software and hardware continue to evolve towards providing greater user-friendliness through more intuitive user interfaces, this trend will only continue. In essence, the relationship to digital media in the classroom – as elsewhere - is evolving from that of a precious Internet that can only be accessed as a specialized scarce resource, to that of the taken-for-granted Internet as constant companion. The iPad caters to this new paradigm, as it promulgates it.

3. Ways to implement EFL digital literacy

3.1 Encourage EFL Digital Literacy through the use of existing facilities

In a variety of papers over the last four years, including [18], I draw attention to the critical need for EFL student digital literacy in English, and recommend ways to encourage it. These recommendations are made within a cognitive framework of using existing facilities more creatively, and encourage teachers to move from singular use of the traditional classroom to a more blended or hybrid form of education that combines traditional classroom instruction with computer-based language learning. Ways to achieve this include making tasks computer-mediated, to be undertaken by students in their own time on computers in the university, at home, or in PC rooms, and submitted online. Intermittent classes can be held in existing computer labs; a ratio of one computer lab session to about every four scheduled traditional class sessions may prove adequate (and can eventually accommodate all in-class tasks, quizzes and exams). As teacher confidence and expertise develops, quizzes and later exams can then be set online, to be conducted in existing computer labs, using Internet-hosted exam writing and management services. In this connection I warmly recommend Cognero at <http://www.cognero.com/>, a full-featured online assessment system that I have beta-tested. It allows the teacher to manage content, create and assign tests, deliver tests through a secure online test center, and have ready access to complete reporting and data-dissemination.

With online quizzes and exams, care needs to be taken to allow for server outages (with a contingency plan in place such as hardcopies, especially for exams), loss of data (know how to enable students to log back in to their exam and retain existing answers if unexpectedly logged out), and potential student cheating (the main problem as yet unresolved is how to prevent online cheating through instant messaging, email, or cell phone SMS). Students should be encouraged to make more intensive use of online resources in the target L2 language, here English (e.g. using <http://www.google.com> and <http://wikipedia.org> in English). Teachers are advised to implement a computer-based Learning Management System, such as Moodle (see <http://moodle.org>; Moodle's strengths include that it is free, and flexible: it is open source software, so that users are free to adapt and modify it, though I do not consider the interface to be quite as intuitive and user-friendly as it might be, and a steep learning curve is required). Hosting services will be needed (such as <http://ninehub.com>). LMS such as Moodle can easily be set to force English use only [19]. Each recommendation given above will help in some way to develop desired L2 digital literacy skills in English.

3.2 The iPad offers a comprehensive solution

But the release of the Apple iPad and iOS 4 operating system (previously named iPhone OS 4), the availability of Apps such as iWorks for the iPad and the associated Apps store, the eBookstore, and the trend towards digital e-texts have together provided a potential game-changer. An integrated ecosystem is being established that will likely revolutionize education, and it is one that is particularly well-suited to the second language learning environment. As Jobs observed in his iPad presentation [6], the key advantage provided by the iPad and its ecosystem is that together they put computing and the Internet firmly into the hands of their users, who in this context are EFL/ESL students and their teachers (and perhaps administrators). The Internet has emerged as a fast-developing powerful educational tool; but before now computing and the Internet have been regarded as something special, the province of the IT specialist, and that therefore need to be accessed indirectly. Students have had to locate a computer, make sure that it is connected to the Internet and is multimedia-capable, and then rather self-consciously do work on the computer on the Internet. But the advent of mobile computing through smart phones like the iPhone, multitouch input, and a succession of increasingly portable laptops arguably culminating in the MacBook Air, has signaled the transition to a new paradigm that the iPad fully recognizes and exploits: the Internet has now become something that is no longer special, but something that is taken for granted, that in principle is always available anywhere, and at anytime. We are starting to realize that the stored wisdom, knowledge and experience of mankind is becoming immediately accessible, as we realize that through computer-mediated telecommunications, the distant is becoming proximal. In practice, this means that students should now be able to access learning content wherever they are, and whenever they want.



Figure 3. Slim profile of the iPad contributes to its usefulness as a horizontal tablet

3.3 Advantages of such a comprehensive solution

- With the emergence of this mobile platform and ecosystem, dedicated computer labs are now of limited benefit to SLA. EFL students will no longer require desktop computers, complex cabling or computer desks. Any classroom space is suited to the iPad, which can be used on existing writing desks or on the lap.
- Textbooks are rapidly evolving from hardcopy heavy physical items that have to be carried, that are prone to being stolen, and that become obsolete every 3 to 5 years, to e-texts. This phenomenon should be taken into consideration when selecting textbook series, as I discuss in [16]. Many e-texts are adopting the emerging e-Pub standard format, and so can be downloaded onto the iPad as Apps or as e-books, and updated as frequently as considered desirable. The student only needs to carry and to bring to class her iPad, on which has been installed all of the e-texts she needs for all of her subjects.
- Publishers can now create hybridized content that draws from audio, video, and television, to provide interactive graphics in digital publications, whereas traditional paper layouts in books, magazines and newspapers are static. The e-texts can and should readily link to diverse multimedia digital resources and telecommunication services.
- Using the open e-Pub standard, institutions, departments and teachers can customize e-texts, and if they wish can create their own. These can then be integrated into customized institutional, departmental and teacher-implemented learning management systems. Storyist Software, Scrivener and Pages now allow conversion of a file to ePub by simply selecting it from the choice of export formats. The iPad is likely to make the ePub format the lingua franca of electronic books, in the same way that the advent of portable digital music players, especially the iPod, made the MP3 format the de facto standard for audio.
- Student networking and collaboration can be encouraged with tasks that include online components or that are completely online. These can be undertaken both more formally in class and informally by loose groupings of students in libraries, unused classrooms, campus cafés, and off-campus at Wi-Fi-enabled hotspots such as Starbucks, Lotteria etc.
- Telecommunications integrated with multimedia capability means that students can engage in L2 English videoconferencing - which is free using Skype video. This can take place both within and outside class, and be local and international. While EFL class students have often complained about the lack of other English speakers with whom to converse, distance videoconferencing may come to be regarded as a normal activity that substitutes for such demand. Figure 3 below shows a desktop videoconferencing session in L2 English between my Korean EFL students of Sejong University in Seoul, and Professor Obari's Japanese EFL students of Aoyama Gakuin University in Tokyo.
- The iPad is simple to use. Once the student is registered with the iTunes Store, which process could be part of enrolment administration, software can be installed in class by running the App Store application. The user is not bothered with choices during the installation process, and no DVDs, CDs or serial numbers are needed. Pre-existing user files such as documents are installed via synchronization to those stored on another computer. For student files this would be their teacher's class computer (connected to a classroom printer for controlled student use); alternatively synchronized storage in the cloud might be employed. Students cannot choose where documents are placed on the iPad; once synchronized, the documents simply appear for their respective applications.

- A better solution might be for these Apps to be pre-installed by the IT department of the institution before provision of the iPad to students. While previously this has required iTunes to set up the iPad, and for installing in-house applications, iOS 4 (which supports the iPad as well as the iPhone) provides institutions with the ability to distribute applications wirelessly. The capacity to push applications from a central location via Wi-Fi or 3G means far less work, and less worry about whether iTunes is up to date (or even installed). Colleges can wirelessly manage student iPads without needing to touch iTunes.
- Required iPad applications are cheap, so in principle costs could be absorbed by the educational institution. A new version of Apple's productivity software suite iWork, designed specifically for the iPad, includes Keynote (presentation slides), Numbers (spreadsheets), and Pages (word processing). The iWork for iPad suite takes advantage of the iPad's multitouch input, so slides in Keynote, columns in Numbers, and text and graphics in Pages can be rearranged by tapping, and dragging a finger. An on-screen keyboard appears when text needs to be typed. iWork for iPad apps can import iWork '09 and Microsoft Office documents; when creating documents in iWork for iPad, documents can be sent in iWork '09 and PDF formats. iWork documents are synced between a Mac and the iPad using iTunes; the iPad works with a Dock Connector to VGA adapter so the iPad can connect to a projector to display Keynote slides on a screen during a meeting. The iWork for iPad apps are available at the iTunes App Store, at just US\$10 each.
- An advantage for students is that iPad/iPhone apps are somewhat sandboxed from one another, so data from one application isn't generally available to other applications. Application storage can't be overwritten by another application.
- Users report the platform to be simple, intuitive, and highly usable for home computing tasks of viewing photos, listening to music, and watching movies. The underlying organization and architecture of the iPad need not be understood: the apps just work.
- Security problems commonly experienced on PC platforms, such as malware and viruses, are much less likely to be encountered.

3.4 The significance of iOS 4

The announcement of iPhone OS 4 (now iOS 4) in early April focused on seven primary features: multitasking, folders, Mail, iBooks, Enterprise features, Game Center, and iAd. While folders, iBooks and Enterprise features are relevant, the most significant of these features for the use of the iPad in SLA is multitasking. Apple is achieving the appearance of this through a combination of app-switching features and background processes managed by the operating system itself. This meets student productivity needs to use several apps to perform a task, and to switch rapidly between them, e.g. using Safari to find and download images for a task in Pages. Apps are also able to be frozen, and will pick up right where they have been left. They are also able to perform tasks in the background: for example the push-notification scheme; background audio; VOIP - so that Skype allows conversations to continue when switching to another app and to receive incoming calls; GPS tracking of location; Local Notifications; and task completion. These features should therefore satisfy issues of app switching, streaming audio, and location awareness.

3.5 Anticipated release of iOS 4.2

Update iOS 4.2, due later this month (November), is anticipated to bring the complete features of iOS 4 and 4.1 to the iPad, while also unifying Apple's mobile software platform across its devices - an intriguing development of convergence that portends exciting future developments in ubiquitous computing. Features of iOS 4.2 will include AirPrint enabling wireless printing from the iPad; AirPlay enabling streaming media - for example, music or video - from an iPad (or iPhone or iPod touch) to any compatible device; Notes; a software screen Orientation Lock; a Brightness slider; Safari additions; Multitasking; home screen Folders; Game Center; and improvements to Mail and Calendar [20].



Figure 5. L2 English videoconferencing between Korean Sejong Uni EFL students in Seoul and Prof Obari's Japanese Aoyama Gakuin Uni EFL students in Tokyo

3.6 Student use of the iPhone with the iPad

The initial release of the iPad lacks a camera. Although this should be rectified in later releases, the portability of the iPhone and its popularity in Korea, together with the compatibility of iPhone and iPad (which both run iOS 4), mean that the iPhone camera can readily be used to capture photos and video, and upload them to the iPad. A second front-facing camera in the newly released iPhone 4.0 also favors person-to-person videoconferencing. FaceTime can be used between two Wi-Fi enabled iPhones 4's, or between Wi-Fi networked iPhone 4 and a laptop/desktop. Small groups may prefer to view images together on the larger screen of the iPad, while using an iPhone for video capture.

3.7 Late 2010 upgrade to the MacBook Air



Figure 4. Late 2010 Update to the MacBook Air

The lack of a physical keyboard in the iPad is an issue that concerns some users, but aligns with Apple's tendency as technology evolves to omit what are fast becoming unnecessary features (floppy drive, mouse, optical drive, and now hard drive...?) While an external keyboard can be plugged into an iPad for extensive text entering or editing, the late 2010

update to the solid state MacBook Air (MBA) as shown in Fig. 4 above gives credence to the suggestion that this form factor is the future of laptops. Some suggest that the MBA may even cannibalize the iPad, arguing that a fully functional notebook in a very attractive form factor may resonate more with consumers than what they perhaps regard as a content consumption only device. Advantages of the new MBA over traditional laptops include solid state drives that are impervious to shocks, of small size minimizing bulk, light in weight, and rapid to boot, providing in effect an “always-on” capability. A sensible strategy for institutions is to offer an MBA option for those students for whom a iPad is considered too limiting - perhaps paid for by students, but covered by an incentive grant for those who maintain high grades.

3.8 Announcement of MacOS 10.7 Lion

On October 20th, Apple announced MacOS 10.7 Lion, due in Summer 2011. Apple drew on Mac OS X to build its mobile operating system; now in turn many iOS features are being implemented back into the Mac operating system [21], as convergence offers ever greater integration towards Ubiquitous Computing. Lion offers a Mac App Store for the Mac, similar to the App Store for the iPhone, iPod touch, and iPad. Mac apps may be purchased and downloaded the same way as on iOS devices, and offer integrated app updates. The store provides Mac users with the one-click download and automatic updates that mobile users are now accustomed to. Lion offers full-screen support for applications, thus mimicking the way apps work on the iPad. Mac users use a single click to enter full-screen mode and switch to other full-screen applications by a swipe of the trackpad. A swipe back accesses multi-window apps. Swiping depends upon support for multitouch gestures, another iOS-inspired feature in Lion. While for iOS devices, gestures are made right on the screen, Lion’s support comes through notebook trackpads, and Magic Mouse and Magic Trackpad input devices. Launchpad gives users instant access to all applications, which are shown on a full-screen display, with the ability to swipe between multiple pages of apps. Users are also able to arrange apps and create app folders, as on the iPhone and iPod touch. Mission Control expands on Exposé, and gives a view of open full-screen apps, Dock, and desktop. It also displays app clusters that take multiple windows from the same app and puts them together.

3.9 Resistance to Apple Mac in MS Win Korea, but iPads for all ChungKang students

Korea has for many years been an MS Windows stronghold, with MacOS regarded as a foreign language. But that may be changing. A recent Group Logic Inc. survey of IT professionals at 125 North American colleges and universities shows that the use of Macs on US campuses has risen and will continue to rise [22]. Mac use on campus is not expected to plateau any time soon, as campus technology leaders expect Mac use to rise by another 20 percent over the next five years. While Windows is still the most prevalent operating system, the gap is closing. A major motivating factor in students buying Macs is thought to be that many of them have iPods, iPhones, or iPads and have been impressed by them, making Macs a much easier sell [23]. In Korea, the local success of the iPod, iTouch, iMac, MacBooks and most recently the iPhone 3GS and 4 may be resulting in a similar halo effect. ChungKang College of Cultural Industries in Icheon City, Gyeonggi, has recently announced plans to provide iPads to all students, professors and officials at the university as part of a new initiative. An “i-College” is intended to improve communication between students and professors by making the relationship more interactive [24], and such initiatives are likely to attract students.

3.10 Fraser Speirs's experience of implementing the iPad into a Scottish school

In Scotland, Fraser Speirs has implemented comprehensive use of the iPad into the Cedars School of Excellence in Greenock, where 105 students aged 5 to 12 have been given an iPad each for lessons in English, mathematics, languages, art and history. Speirs reflects on his experiences in an insightful blog at <http://speirs.org/> where he suggests that it is advisable to be cautious in making definite claims about specific technologies,. Nevertheless, some long-term big trends can be identified: nobody will want a device that's more expensive and less capable than the iPad, nor want to carry around a device that's significantly heavier than the iPad all day [25]. No schools will want to deploy a device that requires more tech support than an iPad. No teachers or pupils will ever wish they had fewer computers, that their devices had shorter battery life than the iPad, that they had to queue up to get access to computers, that their Internet access was slower, or that they had a device that's harder to use than the iPad. No teachers will ever want to have to go to a special classroom to use The Computers; and no pupils will want to use a special "education device" when the market is going elsewhere. A fixation on specific technologies such as interactive whiteboards, has cost schools dearly while failing to meaningfully transform classroom practice; but the deployment of such technologies, which require a lot of care and maintenance, has built up a massive IT bureaucracy and threatens to fossilize educational technology in early 2000s business models and information architectures. The challenge now is not which device to buy, but how to move from a decision-making and deployment cycle of 3 to 5 years, to one of 6 to 8 months. Commercial software should be adapted to the needs of students and teachers, in the same way that commercial hardware has previously been adapted.

4. Conclusion

It has now become apparent that the primary uses of English by non-native speakers will, in future, increasingly and predominantly be computer-mediated. These will be in the use of online resources, and in distance telecommunication rather than in face-to-face interaction. This constitutes a qualitative change in human evolution that has profound implications. Communication using L2 English will be with other mainly non-native speakers, rather than with native speakers (as might have been presumed). Taking cognizance of these factors, there is a critical need within Korea to strongly develop L2 Digital Literacy in English. Advantage should immediately be taken of Korea's high level of broadband penetration by comprehensively upgrading Internet-connected computer facilities, to make them available to all students anywhere, anytime. This is effectively achieved by saturating campuses with high-speed Wi-Fi access, a process that is already underway; ensuring all classrooms have a teacher's computer with high-speed Internet access, OHP and printer, a process that some colleges are already implementing; and providing all students on enrollment with a Wi-Fi+3G iPad tablet, as in ChungKang. Required Apps and e-texts, which could be customized or even created by educational institutions, would be installed, managed and updated by their IT departments using Wi-Fi. Such a bold strategy, which puts the immense benefits of the Internet directly into the hands of both students and teachers, could be expected to greatly enhance Korea's integration and competitiveness in the digital global community.

Acknowledgments

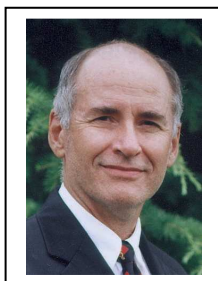
This paper expands upon research presented to NCM 2010: the 6th International Conference on Networked Computing and Advanced Information Management [26], develops research presented to ICHIT 2010: the International Conference on Convergence and Hybrid Information Technology [27], and further develops research to be presented to MulGraB 2010: the 2010 International Conference on Multimedia, Computer Graphics and Broadcasting, part of FGIT 2010: the Second International Mega-Conference on Future Generation Information Technology [28]. A related paper is to be presented to ALAK 2010: the Applied Linguistics Association of Korea International Conference 2010: Interdisciplinarity in Applied Linguistics [29].

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Author



Robert Meurant gained his BArch (Hons) and PhD in Architecture from the University of Auckland, New Zealand and his MA in Applied Linguistics from the University of New England, Australia. He is Founding Director of the Institute of Traditional Studies, an independent research institute and think tank, which he established in 1984 to encourage contemplative scholarship from within a traditional perspective. He has published six books and about 50 refereed papers on applied linguistics and ICT, structural morphology, traditional architecture and geometry, Space habitation and structures, natural harmony and ontology, and Asian Studies. His current research interests include the impact of the convergence of Informational Communication Technologies on Applied Linguistics and Second Language Acquisition, with particular regard to the effects on EFL/ESL in East Asia.