

The Significance of Second Language Digital Literacy - Why English-language Digital Literacy Skills Should be Fostered in Korea

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Abstract—Although digital resources play an increasing role in Second Language Acquisition (SLA), Korean learners of English are provided with little deliberate instruction in Second Language (L2) Digital Literacy. Student computer usage for SLA purposes is minimal, but is governed by teacher expectations; if teachers do not encourage student use of computers in English, this will not likely spontaneously occur. Institutional recognition of the importance of L2 digital literacy to SLA is also limited.

However, the predominant use of English by non-native speakers will be in communication with other non-native speakers, not with native speakers. Secondly, the emergence of English as a global language has meant that the predominance of online discourse is in English. Thirdly, a critical threshold is approaching where the majority of interpersonal communications will be computer-mediated, rather than face-to-face; and this trend will likely accelerate.

Non-native speakers will mainly use their English to navigate English language digital resources, and publish online content in English; and in computer-mediated communication with other mainly non-native speakers of English. Therefore L2 Digital Literacy in English is critically important to student development. Proactive use of English-language digital resources is needed, as is the teaching and learning of English-language digital skills.

Keywords—computer-mediated communication; EFL; SLA; L2; CALL; second language; learner autonomy; digital literacy.

I. INTRODUCTION

“Digital literacy is the ability to understand information and - more important - to evaluate and integrate information in multiple formats that the computer can deliver. Being able to evaluate and interpret information is critical... you can’t understand information you find on the Internet without evaluating its sources and placing it in context.” - Paul Glister.

“...the uniqueness of this new [digital] literacy requires special skills, which should be systematically addressed in L2 instruction.” - James N. Davis.

Digital resources play a significant supportive role in Second Language Acquisition (SLA), but it appears that in

Korea, as elsewhere, little attention has been given to the deliberate instruction of Korean learners of English (KLOE) in Second Language (L2) Digital Literacy.

Many native English instructors use computers outside the classroom to research material and locate online resources, to prepare classes, and for administrative purposes including grade and attendance records. Teachers may sometimes use a single computer in class to present YouTube video extracts, PowerPoint presentations and similar audiovisual material.

However, my observations and surveys each semester on the use of digital resources [1, 2] suggest that student computer usage for SLA purposes is likely to be minimal. The most widespread use is the use of bilingual electronic dictionaries, whether dedicated (stand-alone), cell phone-based, or online. The occasional student may sometimes bring a notebook computer to class; some students may use computers outside class to prepare SLA assignments for submission, and a few students may use computers to research resources for SLA purposes. But in general, the degree of such uses will likely be governed by the nature of tasks set by the native English teacher and by native English teacher expectations and requirements for students to use digital resources in their SLA [3]. Therefore, if the teacher does not specifically encourage or require students to use computers using their L2 English, this is not likely to spontaneously occur.

Institutional recognition of the importance of L2 digital literacy to EFL (English as a Foreign Language) learning within Korea, in my experience, is also minimal. Whilst there is widespread support for the use of computers and digital resources by Korean students in their general education - and Korea is a world-leader in broadband penetration - this support does not usually extend to the SLA context. For example, in my private university (in Seoul), a grand total of 3 computers and one printer service about 30 full- and part-time native teachers, and that sole printer cannot be wirelessly networked. While Wifi networking and Overhead Projectors are provided in the classrooms, most classrooms are not furnished with a teacher’s computer (though teachers’ notebooks can be borrowed). Computer labs where instruction may take place are quite limited (notwithstanding the outstanding support of computer technicians), with only a few available labs (of 60 odd computers each) able to seat typical class sizes of about 25,

and multimedia use of these is constrained (in general no speakers, microphone or webcam). (In contrast, in Japan for example, Professor Hiroyuki Obari is using CCS, the Cyber Campus learning management system developed by eLPCO (the Research Center for e-Learning Professional Competency) to integrate e-learning and m-learning to foster autonomous EFL learning [4]. IT-related teaching materials and tools are used, such as Prontest software, CASEC computer-based English testing (which correlates well with TOEIC), and Hatsuen Ryoku software to train English pronunciation and listening, together with the Internet, PCs, the iPod, the iPhone, and 3G mobile phones.)

But three factors impact greatly on contemporary SLA, though I maintain that their import is poorly recognized. Firstly, as Graddol has shown [5], the predominant use of English by non-native speakers will increasingly be in communication with other non-native speakers - and not with native speakers as one might expect. This trend is particularly pronounced in East Asia. In Korea, many Korean students of English complain that the opportunities for them to use and develop their English skills with native English speakers are highly limited, and in many cases virtually nonexistent (while in Japan, Professor Obari advises Japanese students of English express similar frustrations). At the same time, international conferences held here in Korea are either bilingual in Korean and English, as in the KPSA (Korea Political Science Association) series of World Congresses on Korean Studies [6], or quite often in monolingual English (e.g. conferences in Convergence Technologies and in Applied Linguistics in which I have participated, which include ICCIT (International Conference on Computer Sciences and Convergence Information Technology), ICHIT (International Conference on Convergence and Hybrid Information Technology), IPC (International Conference on Intelligent Pervasive Computing), MUE (International Conference on Multimedia and Ubiquitous Engineering), SICOLI (Seoul International Conference on Linguistic Interfaces), KATE (Korea Association of Teachers of English), KAMALL-APAMALL (Korea and Asia-Pacific Associations of Multimedia Assisted Language Learning) etc.), recognizing the *de facto lingua franca* status of English as a global and academic language. In these international conferences held in Korea, I have observed that the tendency is for most participants to be non-native speakers of English - but they choose (and quite often need) to use English to communicate with one another.

Secondly, notwithstanding Graddol's recognition that substantial quantities of knowledge are being made available online in native languages other than English [7], the overwhelming emergence of English as a global language has meant that the considerable predominance of desired online resources and discourse is in English. For example, while Wikipedia in English has at the time of writing 2,810,453 content pages [8], Wikipedia in Korean has just 93,194 content pages [9], a relative proportion of over 30:1.

Thirdly, as I have elsewhere intuited and drawn attention to [10], I believe that we are fast approaching a critical threshold where we begin to realize and fully appreciate that the majority of interpersonal communications are becoming

computer-mediated, rather than face-to-face. I suggest that, with time, this will even come to be regarded as normal. The shift in interpersonal communication patterns is already becoming evident in the widespread use of cell phones, SMS, instant messaging, email, bulletin board chat groups, VOIP such as Skype, video-conferencing, fax etc. It is also evident in the long hours students devote to online activities such as computer gaming, chatting, social networking and online shopping. This trend - from face-to-face to computer-mediated interpersonal communication - will only likely continue, as population densities continue to rise, transportation costs - financial, temporal and ecological - continue to increase, computer-mediated communications continue to improve in accessibility, convenience and quality while becoming cheaper, and expectations for the use of digital communication continue to rise.

Taken together, these three factors indicate that the predominant use of English by non-native speakers is likely to be:

- in navigating English language digital resources such as web-pages, locating desired information, editing that information and contributing to it (e.g. Wikipedia), and publishing online content in English; and
- in computer-mediated communication with other speakers of English, the majority of whom will likely also be non-native.

The fact that both of these envisaged predominant uses of English by non-native speakers are digital (i.e. computer-mediated) is further evidence of technological convergence, and has profound implications world-wide for SLA in general, and in Korea for the SLA of Korean learners of English in particular.

The implications - particularly here in Korea - are that in the field of EFL/ESL (English as a Second Language), L2 Digital Literacy in English should be intentionally nurtured and developed. It would be wise for the EFL community in Korea to recognize the critical importance of non-native English digital literacy to student development, and be proactive in deliberately revisioning the use of digital resources and the teaching and learning of digital literacy skills within and outside the classroom.

II. LITERACY

Literacy is defined by the Chambers English Dictionary as *'the condition of being literate'*, and **literate** as *'learned; able to read and write; having a competence in or with'*. David Bawden, in reviewing concepts of information and digital literacies, suggests that while the term and the various concepts it describes have had a variety of meanings, which considerably vary over time, these dictionary definitions suggest three concepts of literacy: a simple ability to read and write; having some skill or competency; and an element of learning [11]. An informal definition would be that a literate person is able to read, write and understand his or her native language; but literacy, as McGarry points out, is a relative concept [12]; and further, has always had a dual nature, so that *"the concept of literacy goes beyond simply being able to read, but has always meant the ability to read*

with meaning and to understand. It is the fundamental act of cognition" [13]. Clifford suggests Literacy is conceived as a continuum, which extends to such language learning behaviors as logical thinking, higher order cognitive skills, and reasoning [14]. More recently, it has taken on the more prosaic meaning of competence, of being able to make effective use of information gained from written material, so that to paraphrase Bawden, Literacy:

- now embodies the general ability to understand and perform functions successfully, beyond basic reading and writing;
- means having the skills the individual needs to make the connection to the information necessary to survive in society;
- integrates listening, speaking, reading, writing, and critical thinking;
- incorporates numeracy;
- includes a cultural knowledge enabling a speaker, writer or reader to recognize and use language appropriate to different social situations;
- has the goal of an active literacy that allows people to use language to enhance their capacity to think, create and question, in order to participate effectively in an advanced technological society;
- is demonstrated competence in communication skills that enables the individual, appropriate to his or her age, to function independently in society with a potential for movement in society; and
- means an individual's ability to read, write and speak English, and to compute and solve problems at proficiency levels necessary to function on the job and in society, achieve his or her goals, and develop his or her knowledge and potential [15].

III. DIGITAL LITERACY

Bawden observes that Digital Literacy was used initially in the 1990s to refer to an ability to read and understand hypertextual and multimedia texts. The concept was widely popularized by Gilster, who defines digital literacy as *'the ability to understand and use information in multiple formats from a wide variety of sources when it is presented via computers'*, and further observes that *'digital literacy is about mastering ideas, not keystrokes'* [16]. Digital literacy extends the boundaries of definition, and includes the acquisition of skills of finding things, and the ability of using these things in one's life. A fundamental aspect is the appreciation of the two-fold nature of the Internet, which allows the user not just to access information, but also to interact, communicate and publish information [17]. Other forms of input also exist, the Internet being just one among many sources of ideas in a technological society, and digital literacy involves understanding how to support traditional forms of content with networking tools. Knowledge assembly, a core component of digital literacy, requires evidence from multiple sources; while acquiring digital literacy for the Internet requires mastering a set of core competencies which, to paraphrase Bawden, include:

- the ability to make informed judgments about what is found online, which equates to the art of critical thinking;
- in particular, making a balanced assessment by distinguishing between content and presentation;
- skills of reading and understanding in a dynamic and non-sequential hypertext environment;
- knowledge assembly skills;
- building a reliable information horde from diverse sources, by being able to collect and evaluate fact and opinion, without bias;
- searching skills, particularly those based on Internet search engines;
- managing the flow of multimedia, using information filters and agents;
- creating a personal information strategy, with selection of sources and delivery mechanisms;
- an awareness of other people and an expanded ability to contact them through networks to discuss issues and get help;
- being able to understand a problem and develop a set of questions that will solve that information need;
- an understanding of backing up traditional forms of content with networked tools; and
- being wary in judging validity and completeness of material referenced by hypertext links [18].

For Eshet-Alkalai, digital literacy *"...involves more than the mere ability to use software or operate a digital device; it includes a large variety of complex cognitive, motor, sociological, and emotional skills, which users need to function effectively in digital environments"* [19]. Eshet-Alkalai and Amichai-Hamburger's conceptual model [20] suggests that digital literacy skills are mainly *photo-visual* (reading instructions on VDUs) and *branching* (non-linear hypertextual navigation to construct knowledge) - both of which younger participants perform better at; *reproductional* (creating meaningful new digital materials from preexisting ones) and *informational* (evaluating its quality and validity) - both of which older participants perform better at; and *socio-emotional* (understanding rules that apply in cyberspace and applying them in cyberspace communication).

A personal example clarifies what I include in notions of digital literacy. Recently I created a new website for my research institute, the Institute of Traditional Studies, which before was created in Homepage, online software hosted at dotMac. Homepage is being discontinued, so I recreated and renewed the institute homepage using iWeb, which software is quite different from Homepage, and with which I am not at all familiar. The limited iWeb help file did not address a specific problem I encountered, of how to create downloadable links for PDF files of my papers, a task that had been quite easy to accomplish in Homepage. I then did a Google search using the terms < iweb download pdf >. The top search result gave the answer in a MacRumors Forum, enabling a solution to be very quickly found. In this context, electing to use the Google search engine, together with the selection of appropriate search terms, is an example of digital literacy in action (though alternative strategies - for example

posting a question on a support forum - might well also have been as successful).

IV. L2 DIGITAL LITERACY

More particularly, what is meant by L2 Digital Literacy, and in this context, specifically in English? By this I simply mean the developing ability, confidence and readiness of non-native learners of English to use English as a Second or Foreign Language to access, navigate, comprehend and contribute meaningfully to English language online resources and the online discourse of the online community. For Korean learners of English, it means that Korean students develop the facility to confidently engage in the English language with the virtual information cloud/matrix that the Internet and other digital resources support. The goal in the foreign language classroom is, therefore, that identified by Shetzer and Warschauer [21], and reinforced by Obari, Goda, Shimoyama and Kimura [22], i.e. *to utilize online learning as tools to encourage key learner autonomy*.

Davis, addressing issues missing from earlier research, such as the dimensions of interactivity afforded by new authoring tools for the Internet, and the possibility of engaging online collaborators in asynchronous and synchronous dialogues, reframes questions that have emerged from research-based enquiries into L2 reading and writing [23]. He shows how digitization blurs the distinction between reading and writing, as new communications technologies decenter texts, diminish the writer's authority, and subvert the prestige of print. He defines literacy as '*a semiotic toolkit for communicating and constructing knowledge*', and considers that the uniqueness of this new literacy requires special skills. These should be systematically addressed in L2 instruction - he maintains that **L2 digital literacy should be taught just as L2 analog literacy has been.**

V. DEVELOPING L2 DIGITAL LITERACY

There are many ways in which EFL student digital literacy in L2 English can be encouraged in Korea - the limitations are more likely to lie in the teacher's imagination. (Of course the technology may not yet be readily accessible; I wish to integrate SMS into my learning management system, and push announcements to student phones, and have students post SMS on online bulletin boards, but am currently prevented by technological considerations).

A. Shift to Hybrid (or Blended) Education

Firstly, I recommend teachers 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 learning. Administrative requirements to cover work from set textbooks may mean that many classes will still need to follow traditional procedures, and also institutional access to computers may be limited. But the required tasks that are set can be partially or entirely computer-based, and performed as homework. Quizzes that need to be set can be computerized, and done individually as homework if necessary. Finally, provided access to suitable computer labs is available, exams can also be computerized.

B. Make Tasks Computer-Mediated

Tasks can be set as homework, for students to accomplish in their own time on computers that they can access at home, in PC rooms, or on university computers. Tasks should be required to be submitted online. Tasks may also be explained in class (in English), using the teacher's computer with Overhead Projector to demonstrate to students how to access and to perform tasks (students sometimes photograph relevant demonstration screens using their cell-phone cameras). Explanatory handouts or online instruction (such as PDFs of task sheets) can also be provided. L2 English-language tasks I have set have included simply writing a personal introduction and submitting it by email; setting up a personal homepage on an English-language social networking site and linking and posting responses to other student homepages; making group English-language guides to their campus and posting and responding to other groups' guides on their social networking site homepages; working collaboratively in small groups in Google Documents to contribute to an online multimedia class guide to students intending to study in Australia; opening a Moodle account, enrolling in their course and posting a personal introduction on their profile page; having painting students view online videos of Aboriginal art and culture and post responses to them on a discussion board relating them to their own art and ideas on art; and posting responses to key set questions ("*Should Korea become bilingual in Korean and English?*", and, "*What part do you think computers and digital resources should play in EFL in Korea?*") on discussion boards, then posting replies to other student posts.

C. Have Periodic Classes in Computer Labs

Tasks can also be scheduled to be completed in class in computer labs, if periodic access to these can be obtained. Last semester, I found that having one hour computer labs every four or five classes worked well; this has accommodated several in-class tasks (as well as quizzes and exams), which have included administering a custom computerized version of the Oxford Quick Placement Test [24, 25]; and a survey of individual student use of digital resources, usage in English, and usage in relation to their EFL studies (as previously cited in [1, 2]). At the early stages of computer-implementation of homework tasks, I have found it beneficial to go over tasks in computer labs, then have students attempt the tasks there and then, encouraging them to help one another and offering support as needed. This semester I anticipate having my Korean EFL classes videoconference with Prof Obari's Japanese EFL classes using Skype Video (provided webcams are made available).

D. Computerize Quizzes

Once access to computer labs can be arranged, quizzes can be computerized and readily administered. Computerizing quizzes is best accomplished using either dedicated exam-writing software (such as FSCreations ExamView), or preferably that which is commonly integrated into LMS (Learning Management Systems, such as Moodle). These quizzes will tend to favor questions where a number of answers are provided from which to choose, e.g.

binary True/False, Multiple Choice (with just one correct answer), Multiple Response (with more than one correct answer), and Matching (where more than one question needs to be answered from a common base of answers) type questions (as shown below in Fig. 1). With some ingenuity,

cloze questions can be adapted (or the software may directly support them). Traditional cloze tasks and essay-type questions can also be set, submitted online, and the responses then individually evaluated by the examiner within the online environment.

GRAMMATICAL TERMS: Match the grammatical description above with its example below, using each answer just once:			
a.	Present Simple tense	f.	Negative
b.	Present Continuous tense	g.	Premeditated decision/intention
c.	Past Simple tense	h.	Spontaneous decision/intention
d.	Past Continuous tense	i.	Use of a comparative adjective
e.	Affirmative	j.	Use of a superlative adjective
___	1. Where do you work?	___	6. He's going to visit Singapore next week.
___	2. What are you doing?	___	7. This might be the most terrible movie ever!
___	3. I'll clean the blackboard for you.	___	8. It might take you longer than you thought.
___	4. When did they leave?	___	9. I can't tell you the answer.
___	5. Where were they going?	___	10. We could go out for dinner.

Figure 1. Matching question type (adapted for pen-and-paper hardcopy exam; online version has drop-down menus of answer banks besides questions)

E. Computerize Exams – But be Wary of Server Outages!

Once confidence in preparing and administering quizzes is achieved, exams can be set and administered. These will probably be Internet-hosted. It is absolutely critical to ensure that the hosting service is reliable, as it is problematic to postpone exams because servers may unexpectedly not be available. I strongly recommend having back-up pen-and-paper exams prepared; if unexpected server access problems develop, then the hard copy exam can simply be given instead. (For similar reasons, it is strongly advisable to back-up data frequently, and quiz and exam results should be downloaded immediately on completion). Although the automatic scoring of exams that LMS provide is a considerable advantage, be advised extra work is needed to prepare and thoroughly test online exams beforehand.

F. Encourage Student Use of Online Resources

As a means of developing L2 digital literacy, students should be strongly encouraged to use digital resources, particularly in English. Making all quizzes and exams open-book (except for tasks such as the Oxford Quick Placement Test) can then extend to the use of electronic dictionaries and any online resource the student may care or have the ingenuity to use, such as search engines, online dictionaries, online encyclopedias etc. Students need to access the Internet anyway to access the online-hosted quizzes and exams, (unless these are hosted on a local server), so it is good practice to encourage students to learn to use online resources in their target L2 English, rather than L1 (first language) Korean.

However, it is necessary to be prepared for student cheating through either cell phone SMS texting one-another (difficult to distinguish from legitimate use of cell phone dictionaries) or instant messaging each other (difficult to distinguish from legitimate online exam-taking). It will be necessary to actively proctor, and continually keep an eye on student computer screens as well as on cell phone usage.

G. Implement a Learning Management System

This last semester I have implemented Moodle, which LMS I elsewhere discuss at length [26]. This required a steep initial learning curve, but gave good results. Moodle is open source, and has the great advantage of being free, as well as infinitely scalable; and free hosting sites can be found. Moodle is being adopted by many educational institutions world-wide, as it affords integration of educational delivery together with course administration, evaluation and grading.

H. Force your LMS to use English only

LMS, and Moodle in particular, can have monolingual English set as a parameter, which forces students to use the target language to navigate the site. Not only is the content of tasks, quizzes and exams then in English, the meta-language needed to access, navigate and perform the required work is solely L2 English, which requirement directly encourages and supports the development of L2 Digital Literacy.

VI. CONCLUSION

There exist important skills of digital literacy - such as those van 't Hooft identifies of connection, collaboration and networking [27] - that in the context of non-native English are not simply subsets of general non-native L2 literacy in English, and which therefore may be neglected. Prensky identifies the disjunction between Digital Immigrants and Digital Natives [28], and shows how skills in digital literacy are of a new and qualitatively different kind. Davis maintains such L2 digital literacy skills need to be identified, consciously taught, and intentionally facilitated in SLA.

Absences of literacy, numeracy and language skills have been shown by Davitt to be key factors contributing to economic disadvantage, high levels of unemployment and social exclusion across EU Member States. Digital literacy is clearly very important for employability, with many jobs requiring ICT (Information Communication Technology) skills [29]. According to Haase and Pratschke, "Digital

inclusion is not only a factor of general ICT policy, but must now become a key element in social inclusion policy, as it is a factor of it" [30]. Digital literacy therefore involves social, ICT and education policies. Digital inclusion should be promoted and the digital divide bridged as society moves rapidly towards a more computer- and web-based era.

I have described certain means of developing L2 digital literacy. As with the EU, Korea needs to aggressively promote digital literacy skills, and in particular, directly teach L2 digital literacy skills in English. This will foster digital inclusion in the global digital village, the inhabitants of which increasingly communicate online, and in English. It will also increase employment activities, promote greater social inclusion, and improve the ICT skills of Koreans.

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