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Teaching Arabic with Technology: Word Processing, E-Mail, and the Internet

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INTRODUCTION

Today's students grew up with the computer. In fact, they know more about computers and use a wider range of computer applications than most of their teachers in high school, professors in college, or parents. While the average adult is most familiar with just three basic computer technologies—word processing, e-mail, and the Internet—the average student is at a dizzying technological level. He or she is not only using a personal computer as a writing aid and communication tool like adults but is also configuring laptops, cell phones, and other electronic devices with an ever-expanding range of applications to form complete information and entertainment centers. Thus, a student who has not mastered the most basic of technologies is exceedingly rare. Though advanced technologies come as second nature to most students, and while adults may be comfortable using word processing, e-mail, and the Internet in their personal lives, studies find that teachers nevertheless are hesitant in utilizing technology per se in their teaching.¹ Such commonplace technologies are not used with any regularity in the Arabic classroom.²

ORGANIZING PRINCIPLES

To encourage the use of technology in the Arabic classroom, this chapter focuses on how and why teachers can and should use an Arabic word processor, Arabic e-mail, and Arabic language on the Internet. The use of these three prevailing applications is encouraged because they have currency in the general marketplace and face little threat of being supplanted (as opposed to being continually updated) by new

technologies. All three have persisted for well over a decade now and even as they continue to improve in functionality and efficacy, they will grow to provide more and more options for the end user. Furthermore, because word processing, e-mail, and the Internet rarely require sophisticated installation, no specialized language-learning software, and no additional cost to the user, they are easily adapted to any Arabic language classroom and to any Arabic student's computer.

These three universal, current, and familiar technologies can be incorporated by Arabic teachers into their pedagogy, not simply because they are readily available but primarily because these are precisely the kinds of computer applications³ that benefit the student in acquiring higher levels of linguistic proficiency.⁴ Proficiency is used as an organizing principle in language-learning technologies. This usage permits consideration of the ways in which the Arabic language and technology are primarily used by native speakers and, as such, frames decisions about technology choices in pedagogy and curricula for non-native speakers.⁵

This chapter first specifies how to use these basic technologies with Arabic and then discusses the implications of these resources on developing the skills required for reaching full proficiency. In so doing, the pertinent pedagogical literature is referenced should the reader want more concrete ideas of how to employ a certain technology in the classroom and the ways in which it has been proved to enhance second language acquisition.

WORD PROCESSING IN ARABIC

For the first time in the history of personal computing,⁶ fully supported Arabic word processing is available within a mass-produced computer program—one used not just by specialists in Arabic and Middle Eastern studies but by the average person at home or at work anywhere in the world.⁷ This groundbreaking program is Microsoft Word 2003 with the additional installment of Microsoft Office 2003 Proofing Tools.⁸ Although far from the perfect program, Microsoft Word 2003 provides deeper Arabic support than any other program currently available for the personal computer (PC). An additional benefit of using Microsoft Word for Arabic word processing instead of any other commercially available program is that most teachers and students already own a version of it and are familiar with its powerful capabilities as a word processor. Because the majority of universities provide the program at a significantly reduced academic rate for their students and staff, Microsoft Word enjoys the status of being *the* universal word processing program in higher education, making it much easier to adopt as the Arabic word processor of choice in the Arabic classroom.

Fully supported Arabic word processing in Microsoft Word 2003 with Proofing Tools confers a wide array of features to PC users. These features include the ability to: 1) type right-to-left in an Arabic script; 2) type left-to-right in an Arabic transliteration/Romanization font with built-in diacritics; 3) define an Arabic and Arabic transliteration keyboard particular to the user's needs; 4) access an interactive pop-up keyboard that displays which keys on the English keyboard correspond to Arabic letters; 5) switch seamlessly between English, Arabic, and Arabic transliteration fonts on the same line of text; 6) search for Arabic and Arabic transliteration fonts with diacritics within a document; 7) copy and paste Arabic and Arabic transliteration fonts with diacritics to the clipboard; 8) check Arabic spelling and grammar in the document; and 9) look up Arabic words in the included thesaurus and bi-directional dictionary. While the first five functions are common in other word processors, the last four make Microsoft Word 2003 the word processor of choice for Arabic learners using PCs because of their ability to interact with Arabic in exactly the same ways they interact with their L1 (native language) within this familiar word processing

program. Yet though Microsoft Word 2003 with Proofing Tools is the Arabic solution for PC owners, it is not a universal solution per se because support is lacking for many of the nine features enumerated above within Microsoft's latest version of Word built for Mac OS X.⁹

WHY USE AN ARABIC WORD PROCESSOR?

Combined with a completely Arabicized PC,¹⁰ the ability to run a word processor in Arabic facilitates not just mastery of the Arabic keyboard but composition in the Arabic language—skills that mimic those of an educated native speaker and are, therefore, important to the attainment of total proficiency. In the process of writing an essay, a student who misspells a word need not choose the first word that appears on the spell checker's list of alternatives. Rather, the student can consider whether or not the first choice is appropriate by defining it with the help of the included bi-directional dictionary. In this way, the student is able to immediately correct mistakes and learn new words in context. In fact, studies show that students who use word processors tend to produce more written work, correct more mistakes found in their work, review their work more often, display fewer errors in the final draft of the assignment, and have more positive attitudes about writing in the target language.¹¹

Moreover, because Arabic can be enabled throughout the entire Microsoft Office 2003 suite of applications, both students and teachers can use their Arabic writing skills to create text art as well as Web site mastheads and content. If Arabic transliteration is needed, Microsoft Word 2003 with Proofing Tools has an award-winning, fully searchable transliteration font with all the possible diacritic character combinations to encompass the various Islamicate languages, including Arabic, Persian, Ottoman Turkish, and Urdu.¹² Finally, using Microsoft products will guarantee that the sharing of these creations and documents will appear correctly on different users' computers, without the garbled fonts and formatting to which many Arabic students have become accustomed. Hence, the incorporation of Arabic features into such a robust program as Microsoft Word 2003 with Proofing Tools is a boon to every Arabic student and teacher's PC.

HOW TO E-MAIL IN ARABIC

Students and teachers can now conduct e-mail communication in Arabic by two methods. The first requires a fully Arabicized computer.¹³ Arabic e-mail is composed within programs physically located on the computer (such as Microsoft Outlook and Eudora), within institution-hosted e-mail servers (such as Webmail and IMAP), and within free, sponsor-paid, online services (such as Hotmail, Yahoo!, and Gmail). However, the simple fact exists that when an Arabic e-mail message is sent through the Internet, the text is often garbled by the various servers through which the e-mail travels. The end product is very often an incomprehensible list of jumbled letters and symbols.

Currently the best, most effective, and easiest way to send and receive e-mail messages in Arabic is *not* to depend on an Arabicized computer. Incidentally, this practice grants the student and teacher greater flexibility because they can now send and receive an Arabic e-mail from any computer in the world. For sending and receiving Arabic e-mail through this second method, signing up for a free account with www.Maktoob.com, a sponsor-paid service that hosts one of the largest online Arab communities in the world is recommended. Maktoob is one of the few free online e-mail services with a pop-up Arabic keyboard and a text descrambler, two functions vital to guarantee the successful transmission of an Arabic e-mail. With Maktoob, an Arabicized computer is not necessary for sending e-mail messages because the

pop-up Arabic keyboard facilitates the typing of Arabic. This keyboard allows the students to click on the letter of their choice with the pointer if the computer is not equipped with an Arabic keyboard. In addition to this feature, the script automatically shifts from left-to-right to right-to-left and back again depending on the language of the e-mail message.

The most impressive feature of Maktoob is the text descrambler that attaches itself to every outgoing and incoming message. If the recipient of an e-mail opens it (whether within Maktoob or most other e-mail service providers) and finds a sequence of jumbled letters and symbols, clicking on the text descrambler unscrambles the message. The message miraculously appears with perfect Arabic syntax and punctuation.

Although many other companies (most notably Microsoft) have or will soon have their own methods of unscrambling e-mails sent in Arabic, Maktoob is found to have the most efficacious and user-friendly descrambler when used within commercial online e-mail programs (such as Yahoo!, Hotmail, Gmail, and Maktoob) regardless of the user's favorite Internet browser (Internet Explorer, Netscape Navigator, or Mozilla) and the user's chosen operating system (Windows or Mac OS). However, in the testing of the Maktoob descrambler, when the Arabic e-mail travels through some university e-mail servers that employ Webmail or IMAP *and* is read through Internet Explorer on a PC running the Windows operating system, the descrambler fails. Be aware then that no online e-mail system as of yet, including Maktoob, is a universal solution for Arabic e-mail. Nevertheless, Arabic e-mail and Arabic online chat is possible if all communication is sent to and from Maktoob and is not forwarded to a university e-mail account, despite whatever operating system or Internet browser is used.

WHY E-MAIL IN ARABIC?

Since the emergence of Web browsers that support Arabic text,¹⁴ Arabic e-mail, a form of asynchronous communication, can be used at many levels of language learning. Researchers have extensively discussed e-mail's benefits in foreign language teaching.¹⁵ One of the most important benefits of having students use e-mail in Arabic is the ability to engage in environments with which they are intimately familiar within the target language. Students already use e-mail regularly in their L1 for managing their personal lives, finances, academic life, and for exchanging information with friends and family members. Using Arabic in e-mail capitalizes on the use of technology as a form of "edutainment" that delivers the Arabic language to students at their technologically sophisticated and inventively savvy level. Utilizing e-mail exchanges in learning (whether between students, with a carbon copy sent to the instructor, or between e-mail "keypals", pen pals of the electronic age) increases students' out-of-class input time in composing and reading Arabic in the context of authentic, real-world interaction. This is an important social and professional skill set that instructors should assist our students in mastering so they can mimic native-speaker Arabic language skills.

Two native Arabic speaker skills particular to e-mail and online chat¹⁶ that an advanced Arabic student must learn to model are the various systems of Arabic transliteration and the assorted sociolinguistic diglossia levels. Arabic transliteration is disused in the Arabic online world because the technology required to type in Arabic script from right-to-left has been available for some time; yet it is a popular custom that continues to be used in e-mail and online chat rooms, particularly among the youth. Currently, transliteration is simply a skill picked up along the way in Arabic language training. Requiring students to use transliteration in their e-mail sketches to one another will provide them with a skill employed by native Arabic speakers and will thus bring them one step closer to proficiency.

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Appropriately learning and reacting to particular Arabic lexicons (formal Arabic versus dialectical Arabic) and the specific situations (speaking to a colleague or family member versus speaking to an employer or elder) in which they are used will impart to the student sociolinguistic nuances that mimic those of a native speaker and reinforce classroom instruction in the application of Formal Spoken Arabic (FSA) and Arabic dialects. Most communication in Arabic over e-mail is not conducted in newspaper Arabic or Modern Standard Arabic (MSA). For students to sound like real humans and not like robots or newscasters, the multiglossia levels learned in the classroom and practiced on the street must also find their way to e-mail and online chat forums. Today's Arabic language learner desires to interact with Arabs using the same media with which they interact with their friends and family in their L1. Thus, e-mail has now become a tool, much like the telephone, that allows students to fulfill authentic social and professional needs. Ignoring this training in applying Arabic to electronic media that is required of our most advanced students will be to their detriment and will bespeak our failure in preparing them for full proficiency.

USING THE INTERNET

Plenty of Internet uses exist that allow faculty to teach more effectively. Many instructors already obtain authentic teaching materials by scouring the Web¹⁷ and many more make digitized language lab materials available online for student use. A small number of teachers have begun adding online content to already existing Arabic courses through Blackboard (www.blackboard.com), a popular course Web site creation service. Yet none of these are true Computer-Assisted Language Instruction (CALI)¹⁸ programs that take advantage of Internet technologies as a program skeleton to address a particular pedagogical need.¹⁹ Once Blackboard supports scripting in Arabic, it will be more conducive to CALI by permitting creation of online Arabic materials such as real-time quizzes and proficiency tests.

Two sites, however, can model CALI technologies if used appropriately.²⁰ SCOLA (www.SCOLA.org), or Satellite Communications for Learning, receives and retransmits news, educational, and a variety of television programming unedited in the original Arabic to subscribing institutions and businesses. SCOLA promotes autonomous language learning by providing downloadable and burnable MP3 files for repeated listening (with a CD player, MP3 player, computer, mobile phone, or PDA), the Arabic transcripts, and translated transcripts of broadcasts, vocabulary lists, and review exercises. All of this material is included as a downloadable image file to stabilize the fonts. Students can, therefore, listen to the news while reading along in Arabic outside the classroom. Such bi-modal reading instruction has been proven to provide a more successful reading experience for poor readers or readers with disabilities.²¹

Aswaat Arabiyya, or "Arabic Voices" (langqtss.library.emory.edu/arabic-listening), is a free Web-based program designed to provide authentic materials to aid learners of all levels in improving their listening comprehension. *Aswaat Arabiyya* requires a few uncomplicated downloads (that are guaranteed to work on any major computer platform) for which instructions are provided, and a fast Internet connection to activate. The "layout" and "features" sections of the Web site perspicuously detail the pedagogy behind the site's development. *Aswaat Arabiyya* was envisioned as a form of "edutainment," or a fun educational experience. It employs the most advanced Web-based technologies and is a true piece of multimedia software that combines moving images, sounds, and text, all interactively controlled by the learner. In addition, it employs the latest research to enhance listening comprehension skills by including pre- and postlistening activities keyed to the videos and by allowing for variable listening speeds.²²

WHY USE THE INTERNET?

The case for utilizing the Internet in language learning needs no defense. This fact is in part due to its domestication: The Internet's encyclopedic content and easy navigational tools make it the ultimate consultant. And yet, why will it continue to be so? First, with operating systems changing every few years, a stable, interminably current platform for CALI that is consistently and constantly accessible to all students' computers, irrespective of operating system, is only possible with the Internet. Predicted to replace the book as the next medium of universally shared access to knowledge, the Internet is also emerging as the sole standard for Arabic CALI projects. Second, similar to e-mail, the Internet provides students with a familiar, fun environment in which to explore and discover Arabic. Proficiency is closely linked to students' utilization of the target language in a wide range of contexts. This use, coupled with the edutainment value of the Internet, makes it an invaluable language-learning tool.

CONCLUSION

The adoption of technology in teaching rests on a number of factors. First and foremost, the technology must serve the specific pedagogical needs of the instructor. SCOLA and the Internet provide immediate access to a superabundance of authentic listening materials from which lesson plans can be constructed. Word processing in Arabic affords students more time to fine-tune their grammatical constructions and their use of appropriate vocabulary and expressions instead of spending it constantly rewriting an assignment. Word processing and e-mail afford them the opportunity to learn and eventually master the Arabic keyboard, a vital skill to develop if functional, native-speaker proficiency is the goal. *Aswaat Arabiyya* boosts students' listening comprehension skills, a skill late in developing, given the reverse privileging inherent in much of Arabic language curricula.

Second, a familiarity with and competence in the application are positive indicators of potential use. A related factor is financial cost to the student, teacher, and institution. Word processing (particularly with Microsoft Word 2003), e-mail, and the Internet are easy to access on computers today, especially as most educational institutions and their staff are provided with site licenses to software at an educational discount. Likewise, for students and teachers today not to be able to acquire applications like SCOLA and *Aswaat Arabiyya* from the Internet is uncommon because these applications are built for universal compatibility. Most, if not all, professors and students are intimately familiar with the process of composing an e-mail message online, typing a document in Microsoft Word, and surfing the Web with Internet Explorer, Mozilla, or Netscape Navigator, all of which handle Arabic text with ease.

Third, the more flexible an application is, the more effective it will likely be. Students of the Internet generation demand access to programs in a nonlinear fashion; they enter at different points and exit at will. Students want to navigate quickly through some assignments, tarry on others, and save their work to complete at a later date. All the programs discussed here, particularly SCOLA, *Aswaat Arabiyya*, e-mail, and word processing, provide this kind of student-centered control.

Fourth and finally, employing technology in teaching requires an initial investment in time to learn, manage, and evaluate the technology in question. Unfortunately, such innovations in teaching may mean little for the professor's portfolio during the tenure review process in which faculty members' published research is very often given higher regard than their teaching record. Even so, as the applications previously discussed are not a significant departure in technology use for the average language teacher, the time necessary to master them is likely minimal. For example, one could set

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up a voice mail account in the amount of time needed to enable Arabic in Microsoft Word or your favorite Internet Web browser. If a teacher is committed to teaching languages effectively, however, this factor will not impede the use of technology in the Arabic language classroom.

As we increasingly depend on computers for learning, our expectations of language teachers will inevitably change. The aim here has been to highlight generic applications found on virtually any computer in the world so Arabic instructors will feel less inhibited about employing the basic technologies of word processing, e-mail, and the Internet in Arabic language learning. These technologies can assist the teacher in project-based learning where the technology is adapted to the learner rather than vice versa. The best Arabic learning still occurs at the hands of brilliant teachers who use flexible, universal technologies to amplify their pedagogy, not to replace it.

NOTES

1. Unfortunately, current statistics on adult and adolescent word processing, e-mail, and Internet use are unavailable. Nevertheless, based on data from 2001, DeBell and Chapman (2003) found that 90% of all American children and teenagers between the ages of 5 and 17 regularly use a computer, and that 54% regularly use the Internet and e-mail. Computer use is more common at an earlier age than Internet use but by ages 15–17, almost 75% of youth are online. They also found that, generally speaking, more American students use computers and the Internet at school than at home. Kleiner and Lewis (2003) reported that as of 2002, 99% of public schools in America had access to the Internet and 92% had Internet access in instructional rooms. To access the Internet, 94% of public schools with Internet access used broadband connections and 23% used wireless connections. Thus according to Lanaham (2002), in the year 2000, between 47% and 63% of all teachers in American public schools used the Internet in their classrooms for instructional purposes, although many required training to do so. Considering that the data from these surveys were collected between 3 to 5 years ago and that the percentages have been increasing rapidly since the mid-1990s, a supermajority of all teachers in American schools are assumed to employ computer technology in the classroom, although many schools do not provide their staff with the necessary training in technology pedagogy. Also see Henry Jay Becker's (2000), "Internet use by teachers."
2. To date, the most dynamic set of introductory Arabic instructional materials come from Kristin Brustad et al. (2004a,b). In each book, Brustad and her coauthors provide multiple inbound DVDs packed with drills, videos, games, cultural activities, and extra materials, all keyed to the textbook. The three basic classes of technologies discussed in this chapter are intended as supplements to core instructional materials such as these.
3. Word processing, e-mail, and the Internet are teaching-oriented tools, not computer tutors, and thus necessarily fall under the "successful use of computers" category as outlined in Dilworth B. Parkinson's (1992) foundational article, "Computers for Arabic Teaching." Instructional materials should be created based on these three core technologies to augment and ease the learning of Arabic and to hasten the path to proficiency.
4. For a definition of proficiency and the problems associated with defining it as pertaining to Arabic, see Mahmoud al-Batal's (1992) article, "Diglossia Proficiency," and Karin C. Ryding's (2005) concept of "reverse privileging" found in her article in this volume.
5. My methodology of determining when and how to use technology in the classroom is based in large part on communicative language teaching as assessed in Alice Omaggio Hadley (2001, pp. 116–120).
6. For the purposes of this chapter, the personal computer (PC) has been defined as one that runs one of the more recent versions of the Microsoft Windows operating systems.
7. See Joseph W. Meri's (2000), "Software and Technology Review" for the first major Arabic word-processing breakthrough for home PC users.
8. The Microsoft Office 2003 suite of programs only works on Windows 2000 Professional, Windows XP Home, and Windows XP Professional. The computer's operating system should be completely Arabized before operating Arabic within Microsoft Word 2003. For a briefing on Microsoft Office 2003 Proofing Tools, for detailed step-by-step instructions on Arabization, and for a summary of Arabic language compatibility within current and older versions of WordPerfect as well as within older versions of Microsoft Word on older operating systems, see al-Husein N. Madhany (2004), "Arabic Windows."
9. As of January 2005, Microsoft Word 2004 built for Mac OS X does not fully support all nine of the Arabic word-processing features listed above found in Microsoft Word 2003 with Proofing Tools, which was built for PCs with the Windows operating system. For this reason, Microsoft Word cannot be considered a universal solution for Arabic word processing. To date, the word processor that best supports Arabic

- on Mac OS X is Mellel, although it lacks many of the word-processing features listed earlier that are included within Word 2003 with Proofing Tools. The best word processor for Arabic support on Mac OS 9 is Nisus Writer, provided the Apple Language Kit for Mac OS 9 has also been installed. Again, Nisus Writer lacks most of the Arabic features found in Word 2003 with Proofing Tools. Unfortunately, an Apple Language Kit has not been created for Mac OS X but the Arabic font package can be found on the Mac OS X CDs.
10. To Arabicize a PC requires enabling complete reading and typing of Arabic capabilities within the Microsoft Windows operating system, your word processor of choice, and your Internet Web browser of choice. It also necessitates training in the use of an Arabic keyboard as well as the Visual and On-Screen Arabic keyboard. Madhany (2004), "Arabic Windows," and the accompanying online PowerPoint presentation of the same title illustrate these functions in detail.
 11. Roblyer, et al. (1997, pp. 128–134); Warschauer and Healey (1998, pp. 64–67). Also consult Tim Boswood (1997) and Alice Omaggio Hadley (2001 pp. 280–344).
 12. Consult Madhany (2004), "Arabic Windows," for an in-depth look at how Microsoft Word 2003 with Arabic Proofing Tools solves the transliteration quagmire by utilizing Arabic Typesetting, an award-winning, Unicode-enabled, OneType font. Some of the Islamicate/Arabic script languages supported by Arabic Typesetting include Arabic, Persian, Ottoman Turkish, Adighe, Baluchi, Berber, Dargwa, Ingush, Kashmiri, Kazakh, Kirghiz, Lahnda, Maghrib Arabic, Old Hausa, Old Malay, Pashto, Sindhi, Tunisian Arabic, Turkic, Uighur, and Urdu. Archaic Arabic letters, Qur'anic annotation signs, Arabic cursive positioning, Arabic ligatures, Arabic contextual glyphs, Arabic contextual teeth, and Arabic calligraphic templates are also supported by Arabic Typesetting.
 13. For Arabicization instructions, see Madhany (2004).
 14. Although the most recent versions of the major Macintosh and Windows-based Web browsers support Arabic text, they must be configured to do so. For Internet configuration instructions, see Madhany (2004), "Arabic Windows."
 15. See, for example, Ken Beatty (2003, pp. 62–68); Margaret Gonglewski, et al. (2001); Chapter 7 of Alice Omaggio Hadley (2001); and Terri J. Nelson (2000).
 16. E-mail is one technology in the class of asynchronous communication but unlike letter writing ("snail mail"), it easily lends itself to an informal writing style. Online chat, as a kind of synchronous communication, mimics spoken conversation very closely. A plethora of online chat programs exist; two examples are Instant Messenger (IM) and Internet Relay Chat (IRC). To mimic the language production of a native speaker, advanced Arabic learners and open source officers in the intelligence business must master both forms of communication in addition to the abbreviations, emoticons, acronyms, and e-slang that accompany them.
 17. The most common form of Arabic Web sites that teachers look for are news sites. My favorite meta-site for news sources in Arabic is <http://www.kidon.com/media-link/arabic.shtml>. Kidon Media sorts local and global Arabic news sources by country, digital format, and type of media.
 18. Computer-Assisted Language Learning (CALL) is used interchangeably with CALI in the literature, although the word "instruction" indicates a bias toward the teaching perspective.
 19. Ken Beatty (2003, pp. 7–15).
 20. Because of their rapidly changing nature, I have not discussed the growing number of bi-directional Arabic-English dictionary Web sites and the Arabic morphological analyzer Web-based tools.
 21. Ken Beatty (2003, pp. 49–51).
 22. Ken Beatty (2003, pp. 37–40, 49–51); Hadley (2001, pp. 176–229).

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