Webwords 58

Internet resources

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How timely it was that, just as Webwords' minder completed an entry (Bowen, in press) in Jack Damico and Martin Ball's massive, 4-volume encyclopaedia, intended for students of human communication sciences and disorders and the "educated general reader", the topic for the July 2017 JCPSLP landed, somewhat belatedly, on her desk. The topic, "Shaping innovative services: Reflecting on current and future practice", harmonised perfectly with the encyclopaedia essay, which covered both internet innovations, and online resources that have existed since the www was initiated. Accordingly, Webwords 58 comprises the complete entry, reproduced here, prior to publication, by kind permission of the publisher, in the hope that SLP/SLT students around the world will find it helpful. Typically for encyclopaedias, the piece does not include parenthetical citations of published works.

Internet resources[1]

"Internet" is a portmanteau of *international* and *network*. The internet is often called *the net*, or mistakenly labelled the *web*. Founded as a publicly available service by Sir Tim Berners-Lee in August 1991, its most popular components are, *email* and the *World Wide Web*. "Web 1.0" is a retronym for the foundation stages of the internet; the so-called *"read/write"* or *"read only" web*. Hypertext Markup Language (html) pages were connected, with revolutionary hypertext links (hyperlinks), and websites and "web-based" email flourished. Web 1.0 supported e-commerce and searches for, and dissemination of, knowledge, engaging people within and across settings that included the minority world. It contained essentially static sites or "home pages" with subpages, sub-subpages, and so on, developed by few authors ("webmasters") for a large audience. Web 1.0 was "social" from the outset, with its founder envisioning it as "a place where anyone, anywhere could meet and read and write", but it is Web 2.0 that is dubbed *the social web*. As an outgrowth of Web 1.0, it saw the materialization, between 1999 and 2000, of Wikis, blogs, tags, RSS (Really Simple Syndication) feeds, video sharing, podcasts, folksonomies (a web content classification process called collaborative tagging or social bookmarking), and networking. Rather than passively reading websites and email, users could now engage in highly interactive environments. The development of Web 3.0, *the semantic web* **www.w3.org/2001/sw/**, continues in combination with Webs 1.0 and 2.0 offering *cloud-based computing* services, e.g., Microsoft's communication and collaboration suite Office 365 **https://portal.office.com**. Cloud computing is a service package (comprising computation, file storage, and other facilities), rather than a product. Shared resources, software, and information are sent to *devices* (computers) as utilities, over a network, typically the internet, as a low-cost metered amenity.

Although they are time-consuming to master, email and the web require of the user little, if any, technical savvy, beyond conquering computer use with a desktop, laptop, tablet, or smart phone. The device, must have: (a) a current, routinely updated *operating system* (e.g., iOS, Linux, Windows), (b) an up-to-date *browser* (e.g., Chrome, Firefox, Opera, Safari), (c) *plug-ins* or *browser extensions* (e.g., Adobe Flash Player, Java applet, QuickTime Player); an *email client* (e.g., Apple Mail, IBM Lotus Notes, MS Outlook, Mozilla Thunderbird) and/or (d) browser accessible web mail; and, for mobile computing, (e) access to WiFi or a G3 or G4 network. Mobile computing technology employs Bluetooth, near field communication (NFC), or WiFi, and mobile hardware, to transmit data, voice and video via a computer or any other wireless-enabled device, without necessarily being connected to a fixed physical link.

Information and communication technology: ICT

ICT includes products and software applications that enable users to store, retrieve, manipulate, transmit or receive information electronically in a digital form. To locate and use internet resources for professional purposes, computer literate audiologists (AUDs), clinical linguists, and speech-language pathologists/therapists (SLPs/SLTs) and students in those disciplines must have an appropriate device and essential *peripherals* such as a printer, scanner, DVD player, and backup drive. The device must be furnished with needed *applications*, including a portable file document (pdf) reader (e.g., Adobe Acrobat, Foxit Reader, Nitro PDF Reader, Sumatra PDF), a word processing program such as MS Word or OpenOffice, a means of making slideshows (e.g., Apple Keynote, MS PowerPoint, Prezi), transferring files (e.g., Box **https://app.box.com**, Dropbox **www.dropbox.com**, Google Docs **https://docs.google.com**), viewing videos (e.g., iTunes, QuickTime), and participating in video calls (e.g., via Facebook Video Chat, Facetime, GoToMeeting, Skype, or VSee which has stronger security and privacy settings than the previous four). Students and researchers will want statistical software (e.g., Datamelt, Matlab, Maxstat, SPSS) and spreadsheets (e.g., Lotus 1 2 3, MS Excel), while some practitioners may use business, taxation and practice management software on a subscription basis or purchased outright. Assorted consumables and gadgets—e.g., USB flash drives (memory sticks, thumb drives), a USB hub, an Ethernet cable, and headphones—may aid ease of device and internet use.

Communication sciences and disorders (CSD) professionals everywhere utilize *mobile applications* (mobile apps) designed to run on smartphones and tablet computers and *browser-accessible web technology*. These include the open access content management systems (CMS) such as Drupal **www.drupal.org** and Joomla

www.joomla.org made by enthusiasts and available free, with the opportunity for users to donate funds towards upkeep, and create, co-create, contribute to, and comment on websites, wikis and blogs. Mobile technology also facilitates participation in social media platforms for CSD professional purposes; and the use of eBook readers (e.g., Amazon Kindle, Kobo, Google Books) for electronic texts that usually have a lower price-tag than their hard copy equivalents. They use them for aspects of: academic teaching, learning, mentoring and supervision (e.g., via Moodle **hpps://moodle.org**, Nicenet **www.nicenet.org**); retrieving, with appropriate eligibility, confidential databases (e.g., clients' health records), scientific databases (e.g., CINAHL, Education Resource Information Center ERIC, Medline/PubMed, Ovid, ProQuest Central, ProQuest Social Sciences Premium Collection, PsycINFO, and Web of Science), and scholarly journals, meta-analyses, reports, and data sets on their publishers' (e.g., ASHA, Sage, Taylor & Francis, Wiley) websites.

Once analogue, serial, static, restricted in distribution, modestly interactive, and self-contained, scholarly journals are transforming to become digital, parallel, dynamic, widely dispersed, highly interactive, and multiply connected; expanding to include data sets and audio-visuals. ASHA's "home of scholarly journals", ASHAWire **http://pubs.asha.org**, boasts sophisticated navigational tools that embrace enhanced PDFs, signposts to related articles and topic collections, PowerPoint slides from figures, and supplemental materials. Such innovations, expedited by the internet, influence the expectations of publishers, authors, editors, reviewers, and readers, and the way they communicate with each other. ASHAwire and other resources in a password-protected members' area are available to certified ASHA members, and for modest annual sum, to International Affiliate members who may access the same resources as full members (see **www.asha.org/members/international/affiliate.htm**).

Apps and browser-accessible web technology also support alternative and augmentative communication (AAC) systems; book publishing (e.g., SAGE Reference Tracking), clinical assessment, intervention, mentoring, and supervision; collaborative writing; communication with colleagues and clients via email, VOIP (Voice Over Internet Protocol) phone, text messages, and SMS; surveys (e.g., SurveyMonkey **surveymonkey.com**), focus groups, Delphi problem solving, polls, and crowdfunding (e.g., GoFundMe **www.gofundme.com**, Pozible **https://pozible.com**); fulfilling and logging continuing professional development (CPD) or continuing education unit (CEU) activity; handling sales, subscriptions and registrations; manuscript peer review platforms (e.g., Informaworld, Manuscript Central, Scholastica HQ); marketing and advertising; mentoring; podcasts and RSS feeds; professional self-regulation; quality assurance; reading and/or downloading open-access, subscription-based and pay walled scholarly publications; record-keeping; reporting; secure document transfer; self-guided learning packages and online courses; simulation and virtual social worlds in clinical teaching; telehealth, video conferencing, and webinars.

Social media platforms and online services

Social media rely on connections between people who produce, disseminate and share information and ideas in virtual communities or networks, hence "online communities" and "social networks". They depend on web-based ICT in the building of interactive online platforms. These platforms include: blogs (e.g., ASHAsphere blog.asha.org); collaborative projects (e.g., Wikipedia® **https//en.wikipedia.org**); content communities (e.g., Slideshare **www.slideshare.net**, YouTube **www.youtube.com**); content curation tools (e.g., Curata **www.curata.com**, Feedly **www.feedly.com**, LiveBinders **www.livebinders.com**, Mendeley **www.mendeley.com**); microblog-cum-social-networking sites (e.g., Facebook **www.facebook.com**, Flickr **www.flickr.com**, Instagram **www.instagram.com**, LinkedIn **www.linkedin.com**, Twitter **www.twitter.com**); news networking sites (e.g., Reddit **www.reddit.com**, Digg **www.digg**); virtual game-worlds (e.g., SocioTown **www.sociotown.com**); and virtual social worlds (e.g., Second Life **www.secondlife.com**).

Third party tracking and customer intelligence

Users, or "customers", can access most social media and online services free, or inexpensively for a fee or donation, but they come with potential hidden—or not so hidden—costs in the forms of privacy violations, intrusive phone calls, annoying junk email, unwelcome attempts at manipulation or scams (internet fraud), ad hominem attack, threats, trolling and harassment. If an online service or platform comes to a user at no monetary cost, as do Academia **www.academia.edu**, browsers, e-Bay, Facebook, Facetime, Flickr, Gmail, Hotmail, Instagram, LinkedIn, ORCiD **www.orcid.org**, Pinterest, ResearchGate **www.researchgate.net**, search engines (e.g., Ask, Bing, Ecosia, Google, Yahoo search), Skype **https://web.skype.com**, Twitter **https://twitter.com**, WhatsApp **www.whatsapp.com**, and YouTube, or minimal cost (e.g., Office 365, for cents per day), the user is the (often unwitting) product, and not the customer. Users visit, engage in, and talk about the service, and are tracked by a third party that "shares" (sells) their details, purposefully, as desirable commodities.

Customer intelligence is the process of gathering and analysing information about customers; their identifying and demographic data (age, education, gender, income, marital status, occupation, politics, real name, religion), and social profiles, and their preferences and activities. The third party's aim is to build deeper and more effective customer relationships, improve strategic decision-making, and to strengthen targeted marketing, tailored advertising, and curated "offers". Intelligence gathering can be around a customer's behavior: in-store, during call center and help-desk conversations, telephone surveys, and in browser and click contexts. It includes the person's *buying patterns*, in areas as diverse as, Amazon, App Store and eBay buys, conference registrations and accommodation, insurance, and travel; the financial institutions, credit, debit, store and loyalty cards used for purchases, subscriptions and donations; and PayPal activity. Customer intelligence also includes explicit and implicit feedback a person gives online such as "likes", emoji, re-tweets, "reactions", "lists", and customer reviews and ratings (e.g., assigning a seller stars following an eBay transaction, or rating a hotel or restaurant in TripAdvisor); their alignment with personal (e.g., budget trackers, Fitbit, MyFitnessPal), professional, political and social justice issues (e.g., signing, commenting and passing along online petitions, and supporting individuals, charities, and "causes" (e.g., in Avaaz **https://secure.avaaz.org**, Change **www.change.org**, or SumOfUs **www.**

sumofus.org). Third party tracking can be blocked by going to: **https://eff.org/https-everywhere** or, **https://disconnect.me**, or, **https://www.ghostery.com**, and following a few simple prompts.

Professional association internet resources

Six associations to date, the American Speech-Language-Hearing Association (ASHA **www.asha.org**), the Irish Association of Speech & Language Therapists (IASLT **www.iaslt.com**), the New Zealand Speech-language Therapists' Association (NZSTA **www.speechtherapy.org.nz**), the Royal College of Speech & Language Therapists (RCSLT **www.rcslt.org**), Speech-Language & Audiology Canada—Orthophonie et Audiologie Canada (SAC-OAC **www.sac-oac.ca**), and Speech Pathology Australia (SPA **www.speechpathologyaustralia.org.au**), have a mutual recognition agreement (MRA), whereby, with well-defined provisos, speech-language professionals who are full members or their national associations have largely equivalent credentials, codes of ethics, and stated commitments to CPD and evidence-based practice (EBP). All six have websites and social media accounts. Alongside Codes of Ethics, policy documents and evidence-based position statements that guide members and remind them of workplace responsibilities and best practice, they develop, and distribute via the internet, resources consistent with the MRA.

The associations employ staff to offer training, and help members and the public when ethical issues arise – including facilitating conciliation at a "non-official" level. Like Speech Pathology Australia, ASHA launched its original website in 1997, a year after the RCSLT. ASHA was the first MRA signatory to embrace Web 2.0 with a blog, RSS feeds, informational podcasts, and Evidence Based Practice (e.g., *Evidence Maps*), and Ethics Resources. The RCSLT site holds an interactive Evidence-Based Clinical Decision-Making Tool, *Communicating Quality Live*, and free member-access to over 1,800 peer-reviewed journals. SPA offers open access to the 2015 Ethics supplement to the *Journal of Clinical Practice in Speech-Language Pathology*, and a self-guided-learning *Ethics Education Package*, and templates for considering ethical dilemmas using a Principles-Based Reasoning Decision Making Protocol, a Casuistry Approach, an Ethics of Care Approach, and a Narrative Approach.

Accessing information sources

Research into the approaches that clinical allied health professionals (AHPs) take to accessing evidence shows that the most frequently consulted information-sources are colleagues within the same profession (84%), search engines (83%), "clinical experience" (79%), emailed evidence summaries (25%), and net forums (18%). AHPs cite time and workload as obstacles to E^3BP, with barriers to *implementing* evidence reported less often than barriers to *finding* it.

E^3BP and information literacy

EBP is a cornerstone of all ethics-driven medical and allied health professions. It implies dynamic three-way input from the client or the client's primary caregiver (usually parents in the case of children), the clinician, and the published and peer-reviewed evidence, so that it is often referred to as E^3BP. For E^3BP to occur, clinicians must be abreast of current publications, to be well-informed and able to inform clients well. This necessitates having, and taking, the time to read and integrate relevant literature into practice. Despite scientific training, insufficient time and inadequate research literacy make it difficult for some readers to detect which research is methodologically robust with clinical applicability for them, and can add to their struggle to understand the language of, and statistics in, research articles. Faced with such barriers, well-intentioned clinicians may retrieve online synopses of research studies, which are sometimes written by ostensibly authoritative "experts", who have vested but undeclared interests in omitting adverse studies, "buffing" modest findings, and amplifying positive conclusions.

When work and time pressures impel health professionals to turn to the internet for quick, reader-friendly, answers, they need enough information literacy to detect trustworthy content and to spot distorted, erroneous or spurious claims, self-serving agendas, and pseudoscience. Information literacy is fundamental to lifelong learning, across disciplines, learning situations, and levels of education. An information-literate individual can **establish the amount** of information needed; **retrieve** it effectively and efficiently, **use** it ethically and legally; **evaluate** the information and its sources critically, in terms of its **authority**, **quality**, **usability and accessibility**, and **design**, considering its **purpose** and **scope**, and the intended **audience** (which should be stated); **incorporate** selected information into their knowledge base; **apply** the information effectively to achieve a stated goal; and **understand** the economic, statutory, socio-cultural, and ethical issues around using the information.

Apps and web-based intervention software

The ethical requirement to provide accurate information means that consumers of AUD/SLP/SLT services, or their caregivers, should know that there are four overlapping types of AUD/SLP/SLT app and web-based intervention software tools. Namely, those that are **purpose-designed** to treat, or assist in treating, voice, speech, language (including literacy and pragmatics), hearing or swallowing disorders, few of which are stand-alone, evidence-based intervention tools; **repurposed** and not originally meant for AUD/SLP/SLT intervention; **motivational** offering rewards, incentives or fun in the process of intervention; and **trackers** designed to record intervention data. When app- or web-based activities are introduced, consumers and caregivers need to know *why*, and the *client outcomes* the clinician hopes to achieve, while the clinician needs a transparent means of not only tracking, but also measuring and demonstrating outcomes attributable to using the activity.

Blogs, social media, websites and search tools

In the Web 1:0 and early in the Web 2.0 eras, customary practice was for "professional" websites to house curated, and sometimes annotated, lists of links to other websites, with website owners "link building", for search engine optimization (to attract more site visitors), creating "web farms", "link exchanges" or "reciprocal links"—which were essentially "you link to my website, and I'll link to yours" arrangements. Deep linking (to subpages) was discouraged, and linking home-page-to-home page preferred. With the growth of user sophistication and mobile

computing, the availability of WiFi and smart devices, the gradual advent of Web 3.0 with the expansion of social media, and the capacity for search engines to support increasingly focused and relevant searches, lists of links are thought by many to be passé. No longer do professional users rely exclusively on a links list on a "favorited" or "bookmarked" discipline-specific website. Instead, they consult scientific databases, or Wikipedia (where accuracy of CSD content is poor (with exceptions, e.g., **https://en.wikipedia.org/wiki/Facilitated_communication**), or *ask someone* openly in social media, or via direct message. They refer to specialist **blogs**, for example, the respective works of Professors Dorothy Bishop: BishopBlog (developmental language disorder; neuroscience; research methods), Sharynne McLeod: *Speaking my languages* (multilingual children's speech), Susan Rvachew: *Developmental Phonological Disorders* (children's speech), and Pamela Snow: *The Snow Report* (language impairment and vulnerable young people; literacy); follow relevant Twitter handles, Facebook groups, and other **social media**; visit **websites** selectively; and use **search tools** specific to their needs.

The once vibrant, evidence-focused Yahoo! Groups (email discussion lists), such as *phonologicaltherapy*, and many Listservs and other electronic mailing lists (e.g., *ApraxiaKIDS*, *easyspeak*) have dwindled, eclipsed by Facebook Groups, few of which emphasize evidence (an exception is *SLPs for Evidence Based Practice*, initiated by Tatyana Elleseff). Increasingly popular with clinicians and academics and publishers, Twitter is probably the most reliable source of AUD/SLP/SLT evidence, collegial networking and professional support, and up-to-date, accurate information-exchange, with the Rotational Curation handle @WeSpeechies (hashtag #WeSpeechies), catering to the range of communication and swallowing topics, alongside handles and hashtags with a more specialized focus. Among them are the MRA associations' Twitter handles: @ASHAweb, @IASLT, @NZSTA, @RCSLT, @SAC_OAC, and @SpeechPathAus, promoting members' interests; scientific databases: @speechBITE, @cochranecollab, @CochraneLibrary, @PubMedHealth; journals: @AACjourn, @ASHAjournals, @IJLCD, @IJSLP, @JMedInternetRes, and @SIGPerspectives alerting followers to new research articles and resources; publishers' handles: @PLOSONE, @SAGE_EdResearch, @thePeerJ; handles representing "causes" and campaigns: @Afasic, @Apraxia_KIDS, @GivingVoiceUK, @IcommunicationP, @NAPLIC, @RALLIcam; and special interest handles: @CDCgov, @ESRC, @PhoneticsWeekly, @RareDiseases (National Organization for Rare Disorders), @thetheseiswhisperer, and @Write4Research. Most of the handles listed here have URLs ("web addresses") linking to their websites in their Twitter bios. Professionals with research and other interests can follow conference (e.g., #SPAconf) and other relevant hashtags, e.g., #AUDpeeps (Audiology), #AUGcomm (Augmentative and Alternative Communication), #DevLangDis (Developmental Language Disorder), #SLPeeps (SLPs/SLTs), #SLP2B and #SLT2B (students), and "obvious" ones such as #ADHD, #apraxia, #aphasia, #autism, #dysphagia, #E3BP, #EBP, #ethics, #phonetics, #slPhd (see: **www.symplur.com/healthcare-hashtags** for more).

Professionals without institutional or association access to pay walled journal sites (e.g., via a university electronic database) can request "reprints" from the correspondence author by email, or via @academia, @ORCID_org, or @ ResearchGate. Other useful resources include the Wayback Machine **http://archive.org/web** (@internetarchive) to seek and explore almost 280 billion pages from sites that have been "taken down" (e.g., **http://web.archive.org/web/20110105093901/http://phonetic-blog.blogspot.com/2009_03_01_archive.html**) and this author's links page at **www.speech-language-therapy.com**

Note[1]

"Internet Resources", by Caroline Bowen, in *The SAGE Encyclopedia of Human Communication Sciences and disorders* by J. S. Damico & M. J. Ball, in press, Thousand Oaks, CA: Sage. Copyright © 2017 by Sage Publishing. Reprinted with permission.

Further readings

Bowen, C. (2012). Webwords 44: Life online. *Journal of Clinical Practice in Speech-Language Pathology*, *14*(3), 149–152. Retrieved from www.speech-language-therapy.com/pdf/acq/webwords44.pdf

Bowen, C. (2015). Webwords 51: Taking Twitter for a twirl in the diverse world of rotational curation. *Journal of Clinical Practice in Speech-Language Pathology*, *17*(1), 51–53. Retrieved from www.speech-language-therapy.com/images/webwords51.pdf

Bowen, C., & Snow, P. C. (2017). *Making sense of interventions for children with developmental disorders* (pp. 292–298; 303–333). Guildford, UK: J&R Press. Hashtag #TxChoices

Webwords 58 is at www.speech-language-therapy.com with live links to featured and additional resources.