

Introduction:

Language learning and technology

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As Ray Clifford of The Defense Language Institute, put it ‘Computers will not replace teachers. However, teachers who use computers will replace teachers who don’t’ (quoted in Healey, Hegelheimer, Hubbard, Ioannou-Georgiou, Kessler, and Ware 2008: 2). Technology, in some form or another, has been with the language teaching profession for many years, and teachers have succeeded to various degrees in integrating general or specific tools into their pedagogic practices. Technology enhanced practices have revolutionised the ways in which we learn and teach languages. In the space of the last thirty years, the field of language learning and technology research and application has branched out to many areas, for example, interactive and collaborative technologies, corpora and data driven learning, computer gaming, and tailor designed tools, to name but some. However, the rate and extent of technological development over the past ten to fifteen years have been making it increasingly difficult for students, teachers and teacher educators to know what technologies to employ and how best to employ them in a global society of ever new and enhanced modes of communication.

As a result of the expansion and progress in the area, it is timely to bring together experts in a number of key areas of development and change. The aim of this Handbook is to help to open the field to novices, many of whom will be technology users and digitally literate but may not have considered the role that it can play in language learning. When undergraduates or postgraduates begin studying in this area, they are often daunted by what seems like an endless array of choices and applications. An added difficulty comes from the often ephemeral nature of some of the technologies. It can be difficult to tell where it all began, where it is going and what it means. This book provides a guide through the key areas that prospective or practising teachers might need. It is led by fundamental concepts, theories and frameworks from language learning and teaching research rather than by specific technologies so that when the inevitable happens and some of the technologies are replaced over time, professionals will be left with the requisite attributes to continue to make well-informed choices in relation to integration in their future teaching.

Crucially, this volume is written with newcomers in mind. There are some excellent publications whose titles suggest that they are for the uninitiated but many actually assume a certain level of background knowledge of the area. The Handbook is guided by the principle that all chapters will be accessible to an undergraduate student who has a background in the study of language but who has no expertise in language learning and technology. It is in the advanced readership category, the primary intended audience being college and university students at undergraduate level on Applied Language/Linguistics, education and TESOL (Teaching English to Speakers of Other Languages) programmes, and graduates (pre-or post-experience) studying on relevant Masters and doctoral programmes, all of whom may need an

introduction to the topics for both their taught courses and their research. It is also suitable for new professionals and those starting out on a PhD, who wish to use the book for self-study.

The scope of this volume

The integration of technologies into language learning has a long and distinguished history. It has been known under various guises and acronyms, from CBT (computer-based training) to CALL (Computer-Assisted Language Learning), to name but two. In this current volume of the Routledge Handbook series, we aim to explore both established and emerging themes in the related fields of research and practice in six discrete yet interrelated parts.

Part I: Historical and conceptual contexts

The first part in this volume provides an historical overview and a discussion of the main theoretical influences in the field. Chapter 1 offers an introduction to the Handbook, highlighting many of the issues that will be explored in more detail in later chapters. In it, Healey reviews associated terminology and looks at the roles of the teacher, learner, and technology from geographical and temporal perspectives. Chapter 2 by Hubbard and Levy continues the theory coverage in discussing the very concept of theory in CALL, and the huge range of theories that researchers and practitioners have drawn upon. Such is the range, the authors propose the term 'theory ensembles' to illustrate both the more common theoretical foundations - interactionist, socio-cultural and constructivist - and the more pragmatic use of the theories by developers and teachers, before proposing future directions for theory. The final chapter in this section by Blin concludes the conceptual context chapters

by analysing a group of theories, frameworks and models making up an 'ecological toolkit' for technology and second language acquisition research. In addition to the three main theories (dynamic systems, ecological systems and cultural historical activity theory) the theory of affordances is also explored with explanatory examples provided throughout. Blin ends with a short discussion of the challenges of adopting an ecological viewpoint when undertaking CALL research and practice.

Part II: Core issues

In such a wide and diversified field, Part II aims to investigate many of the core issues therein. In Chapter 4, Kessler looks at 'technology standards for language teacher preparation' and the growing expectations for student and in-service language teachers to be adequately proficient in pedagogical and technical knowledge and skills. He also explores established standards and the challenges of developing them in a context where technologies are consistently evolving over relatively short timescales. In the next chapter, Hauck, Galley and Warnecke present the results from their TESOL-Electronic Village Online module *Tutoring with Web 2.0 tools – Designing for Social Presence*, which was created for education professionals from different backgrounds in order to develop effective learner-centred online moderation skills with a specific focus on the role of Social Presence. Their results offer new understandings of the notion of online participation whilst highlighting the importance of factors such as learner identity, creative agency and participatory literacy. Motteram, in Chapter 6, investigates materials development in the digital age, with a practical focus on the range of available software and some advice for teachers wanting to build their own courseware.

The importance of research in language learning and technology is discussed in some detail in Chapter 7. Here, Levy outlines some of the challenges and obstacles facing researchers, both technical and theoretical, as well as appropriate research methodologies from experimental to ethnographic approaches. Literacies, technology and language teaching is the focus of Dudeney and Hockly's Chapter 8. In their highly practical exploration of '21st century skills', they elaborate on traditional understandings of digital literacies to include an awareness of social practices in an expanded taxonomy directly relevant to the classroom. The next chapter provides an overview of the long tradition of evaluation to assess the pedagogical affordances of new technologies. Caws and Heift illustrate the various stages of evaluation through two distinct case studies which reveal three key factors: the evaluation of tools, interactions, and outcomes.

Chapter 10 explores another long and established tradition in the field, that of language testing and technology. It examines the substantial literature and discusses some of the drawbacks and benefits of using computers in language testing. Brown also considers how technology is likely to direct language testing in the future. In Chapter 11, Hayes and Lee look at age and gender issues in technology-mediated learning environments. They suggest that the significance of age and gender is also influenced by individual, situational, social, and cultural variables, and argue for the importance of considering learner identities in a holistic way. Cultural variables are again the focus of a more detailed examination in Chapter 12, where Godwin-Jones outlines an approach where language learning incorporates elements

of the target culture, including aspects of everyday life, behavioural norms, traditions, and values from the outset. The affordances of the Web, online exchanges and computer-mediated communication to gain insights into other cultures and develop intercultural competence are identified.

In the midst of all of the discussions on technology integration, Lee and Egbert, in Chapter 13, remind us that ‘there are many ways in which a language learning context may be technology limited, and there are many causes for these limitations’. They suggest the use of the term ‘technology-varied contexts’ as being a more accurate reflection of the reality in some countries, where, nonetheless, they exemplify effective ways in which technology can be integrated in locally-appropriate ways. Kern and Malinowski address the related theme of the limitations and boundaries of technology-enhanced teaching in Chapter 14. They argue that while technology can remove many limitations and boundaries, it can produce others and exemplify this through two vignette accounts. Teacher education contexts have been recognised as strong platforms for the promotion of change in the language classroom. In Chapter 15, Hanson-Smith presents an overview of some less than satisfactory accounts of practices in relation to the integration of technology-focused pedagogy and methodology into language teacher education programmes. She then provides a range of approaches, tools and online resources that can be used to enhance teachers’ continuous professional development. Finally, the central issue of sustainability in a rapidly changing and uncertain knowledge society is the focus of the Blin, Jalkanen and Taalas chapter. They discuss the ‘institutional model’ and the ‘CALL ecosystem model’ as appropriate ways of integrating sustainability in CALL design and development.

Part III: Interactive and collaborative technologies for language learning

Interactivity has been enhanced in unprecedented ways in online environments in the last decade and is therefore the underlying theme of the seven chapters in Part III, which begins with a discussion of telecollaboration in Chapter 17. Helm and Guth suggest that this involves going beyond mere language-based exchanges to include a strong intercultural communicative experience, as they present several models of telecollaboration. Practical considerations for implementing this approach are presented, as well as the many associated challenges around sustainability in higher education contexts. Social networking is the anchor for Chapter 18 in which Lomicka and Lord illustrate ways in which social community practices (social networks, media sharing, blogging etc) can be brought into the classroom in effective ways. Grosbois probes the potential of computer supported collaborative writing (CSCW) for language learning in the next chapter. Collectivity and individuality as dynamics in co-writing are examined, as well as the evolving nature of writing in a technologically rich environment. Chapter 20 sees Cutrim Schmid overview interactive whiteboards and their role as CALL enablers amidst some unease in relation to their inherent tendencies to coax towards teacher-centred pedagogies and cognitive overload. She draws on practice-informed accounts of how IWBs might be used with other interactive systems in congruence with contemporary language teaching methodologies.

The penetration and potential of mobile devices forms the basis of the discussion in Chapter 21 in which Stockwell examines ways that they might be used in their own right rather than

in ways which try to replicate computer-based activities. He takes the reader from a theoretical to a practical account of implementation, peppered with a discussion of key considerations. The following chapter enters the arena of virtual worlds and language learning. Here, Peterson critically traces the research which provides an account of the major studies in the field, revealing some positive findings but also a number of restrictions and difficulties. Online and blended language learning courses are investigated by Sharma and Westbrook in Chapter 23 and are exemplified through case study accounts, unearthing a number of associated practicalities.

Part IV: Corpora and data-driven learning

Some practitioners and researchers in the broad field of language learning and technology question the level of successful integration of corpus-based approaches in language learning classrooms. While it is difficult to find relative published accounts to suggest that this is actually the case, even if it is, the profound influence that corpus linguistics has had in indirect ways on materials development and on-line reference tools makes it impossible to exclude in a volume such as this. Part IV begins with a pedagogic focus on Johns' data-driven learning approach as recounted by Warren in Chapter 24. This is followed by dual accounts of the learning potentials of both spoken and written corpora in the next two chapters. Caines, McCarthy and O'Keeffe highlight the importance of spoken language corpora to a fuller understanding of everyday casual conversation and other spoken genres, and go on to describe the relevance of large sampled corpora and smaller specialised corpora. Their chapter 'reviews key findings from research into spoken corpora and current pedagogical applications and discusses how spoken-corpus-informed pedagogy might be

expanded and brought further into the domains of conventional classrooms and blended and online learning'. Chapter 26 has a strong emphasis on how learners can benefit from corpus data to improve their writing skills, particularly academic writing. The notion of a pedagogic corpus is introduced and some potential uses are explored by Chambers, who expands the discussion to languages other than English.

In Chapter 27, Meunier examines the growing range and applications of learner corpora, which include grammar books, learners' dictionaries and writing aids, automatic assessment, annotation and rating, and pre- and in-service teacher training for non-native teachers. Murphy and Riordan provide a very useful guide to the numerous types of corpora that are now available, how they might be usefully categorised and the ways in which they can be used for pedagogic purposes. Chapter 28 is therefore a good starting reference point for those new to the world of corpus databases and how they might be manipulated by the language teaching profession. The final chapter in Part IV, authored by Reppen, provides guidelines for those who may wish to design and build their own corpora, individually or in teams. Key considerations for corpus construction are presented for those interested in this endeavour for research or teaching purposes.

Part V: Gaming and language learning

Games-Based Language Learning (GBLL) represents a strong and emerging area of research and is explored in the three chapters contained in Part V. The first, by Reinhardt and Thorne,

echoes metaphors made in earlier chapters (tool and tutor; ecology) as a backdrop to their proposed metaphor of ‘game as method’, which they present and critically evaluate. This new metaphor illustrates several alignments between game design and L2 activity design including goal-orientation, interaction or interactivity, feedback, context, and motivation. Chapter 31 sees Cornillie and Desmet tracing the potential of mini-games for language learning purposes. This contribution introduces the concept, and discusses design and evaluation within an architecture of human cognition known as Skill Acquisition Theory. The final chapter in this part concentrates on younger game players, with a focus on learning English through playing digital games in- and out-of-school. Sundqvist devotes a section to various games genres and also addresses the relevant question of gender.

Part VI: Purpose designed language learning resources

This part of the Handbook looks more specifically at the CALL tools and resources which have been developed to enhance and promote language learning, rather than those which have been repurposed with this goal in mind. Chapter 33 opens Part VI with a focus on how technology can support lexico-grammatical acquisition. Li takes a principled approach to overviewing the benefits, applications and key research perspectives in the area. Moving to a skills-based perspective, Liou focusses on reading and writing in Chapter 34, which illustrates the potentials of tools such as e-books, weblogs, wikis, Google Docs, corpus software, mobile devices, and automatic essay graders. Challenges associated with L2 acquisition factors like interaction, feedback, and group dynamics in the L2 reading and writing processes, as well as technological design factors are also debated. Listening and speaking skills are central in Chapter 35 by Clancy and Murray. They set their chapter against

a backdrop of a number of key historical and social circumstances including digital acoustics and the long-term use of audio in language pedagogy. They take an integrated approach to oral/aural skills outlining resources that are authentic and sociolinguistically relevant.

Guichon and Cohen consider the issues pertaining to multimodality, including the distinction between mode, modality and channel. They explore the potential of multimodality for second language comprehension and interaction and highlight the issue of cognitive load. Chapter 36 finishes with a look at multimodality from learners' and teachers' perspectives. The coverage of intelligent CALL (iCALL) by Tschichold and Schulze in Chapter 37 encompasses a wide ranging discussion of themes such as automatic evaluation and assessment, corrective feedback in Tutorial CALL, computational parsers and grammars, and lexical glosses and electronic dictionaries. The final chapter in this part, and indeed in the Handbook, traces the development and use of translation games. Bouillon, Cervini and Rayner organise their chapter around a case-study using CALL-SLT, a multilingual web-enabled spoken translation game system under development at Geneva University since 2009. They critically evaluate the system in terms of its application and effectiveness to assist students acquiring productive language skills.

