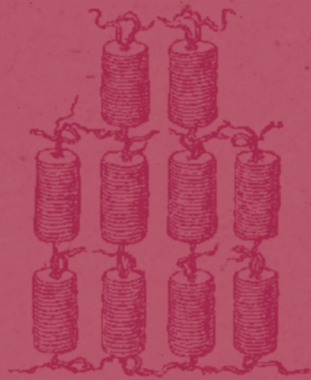




PALGRAVE STUDIES ON CHINESE EDUCATION
IN A GLOBAL PERSPECTIVE

Teaching Chinese Characters in the Digital Age

Insights on Current Trends
and Future Directions



Edited by
Caitríona Osborne
Danping Wang
Qi Zhang

palgrave
macmillan

Palgrave Studies on Chinese Education in a Global Perspective

Series Editors

Fred Dervin
Department of Education
University of Helsinki
Helsinki, Finland

Xiangyun Du
College of Education
Qatar University
Doha, Qatar

The transformation of China into a global superpower is often attributed to the country's robust education system and this series seeks to provide a comprehensive, in-depth understanding of the development of Chinese education on a global scale. The books in this series will analyze and problematize the reforms, innovations and transformations of Chinese education that are often misunderstood or misrepresented beyond its own borders and will examine the changes in Chinese education over the past 30 years and the issues as well as challenges that the future of Chinese education faces.

Caitríona Osborne • Danping Wang
Qi Zhang
Editors

Teaching Chinese Characters in the Digital Age

Insights on Current Trends
and Future Directions

palgrave
macmillan

Editors

Caitriona Osborne
Irish Institute for Chinese Studies
University College Dublin
Belfield, Dublin, Ireland

Danping Wang
School of Cultures, Languages and
Linguistics
University of Auckland
Auckland, New Zealand

Qi Zhang
School of Applied Language and
Intercultural Studies
Dublin City University
Dublin, Ireland

ISSN 2945-6576

ISSN 2945-6584 (electronic)

Palgrave Studies on Chinese Education in a Global Perspective

ISBN 978-3-031-64783-3

ISBN 978-3-031-64784-0 (eBook)

<https://doi.org/10.1007/978-3-031-64784-0>

© The Editor(s) (if applicable) and The Author(s), under exclusive licence to Springer Nature Switzerland AG 2024

This work is subject to copyright. All rights are solely and exclusively licensed by the Publisher, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, reuse of illustrations, recitation, broadcasting, reproduction on microfilms or in any other physical way, and transmission or information storage and retrieval, electronic adaptation, computer software, or by similar or dissimilar methodology now known or hereafter developed.

The use of general descriptive names, registered names, trademarks, service marks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use.

The publisher, the authors and the editors are safe to assume that the advice and information in this book are believed to be true and accurate at the date of publication. Neither the publisher nor the authors or the editors give a warranty, expressed or implied, with respect to the material contained herein or for any errors or omissions that may have been made. The publisher remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

This Palgrave Macmillan imprint is published by the registered company Springer Nature Switzerland AG. The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

If disposing of this product, please recycle the paper.

Acknowledgements

The editors are particularly grateful to two funding bodies that helped get this project off the ground: UCD Global Engagement Seed Fund 2021 and the Chinese Embassy in Ireland. We are indebted to the reviewers for their time in providing invaluable feedback on an early proposal of this edited book and to Palgrave Macmillan (in particular, Cathy Scott, Sasikala Thopu and Pushpalatha Mohan) for their continued support throughout this project. We thank the contributing authors for their dedication in the form of both their chapters herein and their contributions—along with Professor George X. Zhang, Professor Li Quan, Professor Helen Shen, Professor Joel Bellassen and Professor Nathan Hill—to the 2022 online seminar series *Exploring the Present and Future of Teaching Chinese Characters Online* that inspired the creation of this book.

Praise for *Teaching Chinese Characters in the Digital Age*

“A valuable collection of reflections and research on Chinese character teaching during the global pandemic years offers a transformative glimpse into the future of Chinese character education. This groundbreaking work sparks new actions and research, heralding a digital turn in teaching Chinese characters in the new age of technology.”

—*Professor Li Quan, Renmin University*

“The advance of science and technology has brought human society into the digital age. This era has put forward new requirements and standards for all aspects of Chinese language education. In the area of Chinese character instruction, we have observed major changes in teaching philosophy, instructional approaches, and curriculum design. I consider the book *Teaching Chinese Characters in the Digital Age - Insights on Current Trends and Future Directions* a timely and highly welcomed one in the field. It addresses important issues raised in the educational practice concerning how to effectively use digital tools, digital platforms, and digital resources to optimize character recognition and production; how to design multifaceted curricula to fit goals of different Chinese programs and individual needs, and how our instruction can take into consideration learners’ cognitive processing of characters by using appropriate digital tools to maximise their learning outcomes. From both educators and learners’ perspectives, the book also has touched on how to prepare our teachers and students for a smooth transition of Chinese character learning from a traditional paper-pen to a paperless mode – a mainstream mode of classroom learning in the digital age.”

—*Professor Helen H. Shen, The University of Iowa*

“Chinese characters often mean love, or hate, or both for almost all L2 Chinese learners and many who teach Chinese as a foreign language. Not surprisingly, there is a wealth of research and publications on the topic. This book, however, signifies a milestone and is unique in a number of ways.

It focuses on exploring alternative answers to a long debated and sensitive question – the need to learn how to write characters by hand. While learning online and typing characters were initially a necessity forced upon learners and teachers during the pandemic, such practices now also represent a transformative shift in the digital age open to more innovative development.

It is a locally funded project but with international perspectives, the result of a long running project featuring collaboration and exchange both online and offline with the involvement of not only the contributors but also many others over the time of the project, with critical and theoretical reflections on the relevant empirical research and personal experience.

It combines theory with practice and offers helpful insight into the learning and teaching of Chinese characters in universities in the digital age, with emphasis on the development of methodologies and theories for character teaching. The book is, therefore, inspirational for both learners and teachers of Chinese characters, and particularly in higher education.”

—*Professor George X. Zhang, Richmond American University London*

Contents

1 Introduction	1
<i>Caitriona Osborne, Danping Wang, and Qi Zhang</i>	
Theme I Teaching and Learning Chinese Characters Online	21
2 Chinese Character Instruction During Emergency Remote Teaching: A Review Study	23
<i>Linda Lei and Danping Wang</i>	
3 Investigating the Student Perspective on the Present and Future of Teaching Chinese Characters Online	47
<i>Caitriona Osborne</i>	
Theme II Critical Perspectives Regarding Typing Chinese Characters in the CFL Classroom	79
4 The E-writing Approach to L2 Chinese Pedagogy: Educational Imperative and Empirical Evidence	81
<i>Matthew D. Coss</i>	

5 Embodied Learning of Chinese Characters Through Typing and Handwriting in the Multimodal Virtual Space: Implications for a Digital Future	105
<i>Qi Zhang</i>	
Theme III Development of Methodologies and Theories for Character Teaching	133
6 Enhancing Understanding and Engagement with the Chinese Writing System in Second Language Classrooms	135
<i>Andrew Scrimgeour</i>	
7 Visual Skill and Orthographic Decomposition in Character Learning	163
<i>Yi Xu</i>	
8 Psycholinguistic Research Related to Chinese Character Recognition: Implications for CFL Teaching	197
<i>Xi Fan and Ronan Reilly</i>	
Theme IV Reflective Narrative	221
9 Reflections on Learning Chinese Characters	223
<i>Bob Adamson</i>	
Index	239

Notes on Contributors

Bob Adamson specialises in curriculum reform, with particular focus on language policies. He has worked in schools, colleges and universities in China, the UK, France and Australia, and formerly held the UNESCO Chair at the Education University of Hong Kong. He was a member of the People's Education Press and Longman team who wrote the *Junior English for China* and *Senior English for China* textbook series used by over 400 million students. In 2013, he was awarded the title of “Kunlun Expert” by the Qinghai Provincial Government for his work in minority language education in China.

Matthew D. Coss is a PhD candidate in Second Language Studies at Michigan State University and is an experienced teacher of Spanish and Mandarin Chinese as additional languages. His research focuses on the multiple existing and potential interfaces between additional language learning research and practice, with particular focus on (task-based) language teaching and assessment, language programme design and evaluation and language teacher education. He is the co-editor of *Transforming Hanzi Pedagogy in the Digital Age: Theory, Research, and Practice* (电写时代的汉字教学—理论与实践), published by Routledge in 2024.

Xi Fan works as a Psychology Lecturer at Guangzhou Medical University in China. She completed her PhD in Cognitive Science at Maynooth

University. Her research focuses primarily on the cognitive science of reading and visual attention.

Linda Lei recently completed her PhD at the School of Cultures, Languages and Linguistics at the University of Auckland, New Zealand. She has taught Mandarin to students of various age groups and proficiency levels in New Zealand, USA and China. Her research interests are centred on literacy development in Chinese as a foreign language. Her doctoral thesis explores the character learning experiences of beginner learners of Chinese as a foreign language, examining their beliefs about character learning, strategies they employ and their character-related skills.

Caitríona Osborne is an Assistant Professor in the Irish Institute for Chinese Studies at University College Dublin. Dr Osborne collaborates with scholars in Ireland, the UK, and China in various research papers on the topic of teaching and learning Chinese and introduces her students to aspects of these effective teaching approaches in order to assist them in their learning. One such method involves the use of different colours to learn characters which she is also currently examining in further research.

Apart from research into teaching approaches, Dr Osborne has also co-authored papers on the presence of translanguaging in the classroom, the use of machine translation in the classroom, and the effects of extra-curricular language and culture activities on students' formal learning. She currently teaches Chinese as a foreign language to beginner learners, while she also teaches the Chinese teaching methodology modules associated with the Professional Diploma and MA in Teaching Chinese Language and Culture at University College Dublin.

She is the media coordinator of the Irish Association of Applied Linguistics and is the assistant editor of the *Chinese as a Second Language Research* journal.

In 2022, Dr Osborne was awarded a college-level Teaching Excellence Award for her contribution to educational excellence in UCD.

Ronan Reilly is a Professor of Computer Science at Maynooth University. He obtained his primary and PhD degrees in the fields of psychology and computer science at University College Dublin and was a post-doctoral fellow in the Beckman Institute, University of Illinois at Urbana-

Champaign, USA. Professor Reilly's research interests are primarily in the areas of cognitive science and artificial intelligence. Since his PhD, he has been interested in studying language understanding and reading. His background in both psychology and computer science has allowed him to exploit computational modelling as a tool for theory development.

Andrew Scrimgeour is an Adjunct Research Fellow at the University of South Australia. He has been involved in Chinese teaching since the early 1980s and continues to undertake research into literacy development, learner diversity, curriculum design and teacher training for Chinese language learning in schools. He co-authored *Teaching Chinese as a Second Language: The Way of the Learner* with Dr Jane Orton in 2019.

Danping Wang is a Senior Lecturer and programme leader of Chinese at the University of Auckland, New Zealand. She has a strong track record in obtaining and completing major external research funding, including a UGC grant in Hong Kong and the Marsden Fund grant from the Royal Society of New Zealand. She was awarded the Research Excellence Award by the Faculty of Arts in 2020 for her commitment to advancing the theoretical development of multilingualism. In 2023, she was awarded the Dean's Award for Teaching Excellence, being the Overall Winner across all categories by the Faculty of Arts and honoured with the Sustained Excellence Award in Teaching by the University of Auckland for her contribution to transformative and relational teaching approach.

Danping's research focuses on addressing critical issues in foreign language education, particularly in Chinese language teaching. Her research interests include curriculum development, policy analysis, integration of technology and teacher education within the field. She actively contributes as an editorial board member for a number of impactful journals and has edited several special issues in journals such as *Applied Linguistics Review*, *International Journal of Computer-Assisted Language Teaching and Learning*, *Global Chinese* and *International Journal of Chinese Language Teaching*.

Yi Xu, PhD in Second Language Acquisition & Teaching, is a Professor in Chinese Language Acquisition at the University of Pittsburgh. She served as the former President of the Chinese Language Teachers

Association, US, and has published extensively in journals including *Foreign Language Annals*, *The Modern Language Journal*, *System*, *Language Teaching Research*, *Chinese Language Teaching in the World*, etc. She specializes in linguistic perspectives of Chinese as a foreign language, including learners' reading acquisition, character and vocabulary learning and grammatical development. Her recent projects include world language teachers' experiences and perceptions of the impact of remote language teaching.

Qi Zhang is an Assistant Professor in the School of Applied Language and Intercultural Studies at Dublin City University. She received her BA in Chinese Language and Literature at Sun Yat-sen University, PR China, MA in Translation at Durham University and PhD in Linguistics at Newcastle University. She joined Dublin City University in 2011 as the coordinator for Chinese. She is currently a member of CTTS (Centre for Translation and Textual Studies), a committee member of IRAAL (Irish Association of Applied Linguistics) and APTIS (Association of Programmes in Translation and Interpreting UK and Ireland).

She is the external advisor for the Teaching Council for Mandarin Chinese in Ireland. Her teaching ranges from semi-specialised translation to language and cultural studies. She has authored a number of refereed articles and book chapters on Chinese language education, including teaching and learning Chinese as a foreign language, language attitudes, translation pedagogy and Chinese language study among ethnic minorities.

List of Figures

Fig. 3.1	Overview of research process	55
Fig. 3.2	Participant profile (n = 35)	57
Fig. 3.3	Participants' general experience of learning CFL online	58
Fig. 3.4	Participants' experience of learning CFL online in relation to character learning (n = 41)	59
Fig. 3.5	Skills being supported during independent learning time through online resources (n = 34)	60
Fig. 3.6	Items assisting character learning	62
Fig. 3.7	Constraints in the online space when learning Chinese characters	63
Fig. 3.8	Participant ideas on software/technology that could meet their character learning needs (n = 16)	65
Fig. 3.9	Likert-scale questions relating to handwriting Chinese characters (n = 37)	66
Fig. 3.10	Likert-scale questions relating to typing Chinese characters (n = 37)	67
Fig. 3.11	Assessment mode completed online/at-distance (n = 35)	68
Fig. 3.12	Assessment exercises completed online/at-distance (n = 35)	69
Fig. 5.1	Strategies for learning Chinese characters online	113
Fig. 5.2	Learner perceptions of handwriting	116
Fig. 5.3	Learner perceptions of typing	118
Fig. 5.4	Teachers' identification of student needs for character acquisition	120

Fig. 5.5	Teaching style in relation to writing modalities	121
Fig. 5.6	Teaching methods in relation to writing modalities	123
Fig. 5.7	Schematic representation of the multimodal encoding process underlying typing and handwriting. (Adapted from Zhang and Reilly 2015)	124
Fig. 5.8	Dual-modal processing in learning Chinese characters	126
Fig. 7.1	One pair of pattern discrimination and location memory stimuli	169
Fig. 7.2	12 Configurations of compound characters	182
Fig. 9.1	Routes to assist students in comprehending and producing Chinese characters	233
Fig. 9.2	Continua for teacher decision-making	237

List of Tables

Table 2.1	An overview of the reviewed studies (n = 20)	28
Table 5.1	Strengths and limitations of two writing modalities	108
Table 5.2	Overall learner perceptions of handwriting	115
Table 5.3	Overall learner perceptions of typing	118
Table 6.1	Comparison of HSK1 300 characters included in each textbook	150
Table 6.2	families of related components	155
Table 7.1	Correlations between visual skills and participants' gain scores in character learning	171
Table 7.2	Participants' responses to "chunking" survey questions	177
Table 7.3	Participants' chunking performance on different characters and configurations	183
Table 7.4	Participants' error samples in low-accuracy chunking characters	187
Table 8.1	Summary of the impact of orthographic features on Chinese character cognition research	213



1

Introduction

Caitriona Osborne , Danping Wang ,
and Qi Zhang 

Introduction

If you have opened this book, you probably have a hand in Chinese as a foreign language (henceforth CFL) to some capacity, most likely with an invested interest in teaching and learning Chinese characters. You may be

C. Osborne (✉)

Irish Institute for Chinese Studies, University College Dublin,
Belfield, Dublin, Ireland
e-mail: caitriona.osborne@ucd.ie

D. Wang

School of Cultures, Languages and Linguistics, University of Auckland,
Auckland, New Zealand
e-mail: danping.wang@auckland.ac.nz

Q. Zhang

School of Applied Language and Intercultural Studies, Dublin City University,
Dublin, Ireland
e-mail: qi.zhang@dcu.ie

a teacher, or a student, hoping to seek clarity on how characters should be approached in formal learning in the current digital age. Perhaps you are a researcher, looking to gain an overview of the seemingly opposing schools of thought: handwriting versus typing. You might even have a preconceived idea of the place of characters in teaching and learning CFL, and maybe you have come to this book to seek affirmation.

This book is not an attempt to persuade or dissuade you of any approaches mentioned within the chapters. Having gained a general insight into aspects of teaching CFL online in recent years, this book distinctively looks to the future of teaching Chinese characters in the current digital era (Wang and Zhao 2020). The book examines this through cutting-edge research from the perspectives of teaching methodologies, critical issues and the development of theories in collating global studies from leading experts. You will see in the pages that follow an interweaving of approaches and priorities among different authors in in-depth discussions which, it is intended, allow you to consider deeply your own views and habits when it comes to Chinese characters. Through absorbing the knowledge and expertise of the authors within this book and applying it to practice, it is envisioned that the experience of both teaching and learning CFL can be enhanced. Rather than opposing opinions creating noise in the field and exposing the weaknesses of certain approaches, the goal of this book is for researchers and practitioners to instead uncover the strengths of such, thus allowing harmony to exist between dichotomous opinions.

This introduction will frame the rationale for this book and address the latest discussions and trends related to teaching Chinese characters. It will document the three main themes of the book and provide a synopsis of each chapter before commenting on future research trends in the field.

The Road to This Edited Book

The journey to this edited book began with funding received from University College Dublin's Global Engagement Seed Fund and the Chinese Embassy in Ireland to explore the handling of teaching Chinese characters in the CFL university classroom during the current digital era. As this book will detail, the immediate and unprecedented switch to

remote learning as a result of COVID-19 meant that instructors worldwide had to rapidly re-design their courses for an online environment. Transferring Chinese language courses online caused major disruption as instructors tackled the obstacle of teaching Chinese characters while ensuring that students could still fulfil their learning outcomes (e.g. Wang and East 2020; Zhang 2020). Certainly, Chinese characters are a main difficulty for CFL learners, and in the era of remote learning the teaching of such becomes even more complicated when the use of technology is so prevalent. Now that we are no longer in an emergency period of remote teaching, it is time to uncover and share learnings to support practitioners and students. This book will address such through empirical research and documentation of practices and approaches from both researchers and practitioners in the chapters that follow. Despite the long-standing tradition for scholars based in China to publish research on Chinese character teaching in Chinese, this book breaks new ground by featuring research from scholars outside of China. While the aim is to disseminate research and practices, it is also envisioned that this book will inspire future collaborations and research to the field from other researchers and practitioners around the world.

In 2021, Dr Caitríona Osborne received funding from the Global Engagement Seed Fund under the strand of “Building Global Partnerships” and thereby initiated a new research partnership with Dr Danping Wang at the University of Auckland and Dr Qi Zhang from Dublin City University. The expertise of Dr Wang was particularly beneficial as New Zealand has already successfully introduced Chinese to the school curriculum, a task that Ireland is currently in the early stages of. Dr Wang had also recently conducted initial research on the experience of beginner learners of Chinese in the era of emergency remote teaching (ERT), while Dr Zhang had investigated the experience of Chinese language teachers during this time. Dr Osborne is an active researcher in the field of teaching and learning Chinese with a particular focus on Chinese characters and has experience researching innovative methods to improve the learner experience. This international collaboration enabled best practice for teaching CFL in the current digital era to be sought through empirical research.

The funded project examines the handling of teaching Chinese characters in the CFL university classroom during the current digital era and encompasses three perspectives: teaching methods, learning strategies and curriculum design. The data collected for the project involved surveys and follow-up interviews with teachers and students to examine curriculum and assessment adaptations, specifically in relation to teaching characters (see Chaps. 3 and 5 for presentation of these results). The goal of collecting this data was, firstly, to capture the learner and instructor experience, while analysis of such was intended to provide recommendations for online CFL course curricula.

Recognising the value and need for a collaborative approach to this issue, the three project leaders and editors of this book organised a 10-week online seminar series in autumn 2022 to allow findings to be shared from this project while also providing a platform for other specialised researchers in the area to disseminate their own findings. Keynote speakers from Ireland, China, the UK, France, the USA and Australia delivered talks on emerging topics in the field of teaching CFL with a focus on character teaching and learning online. Topics ranged from a history of teaching Chinese characters in Europe, student and teacher perspectives, teaching resources, literacy skills and typing, to name but a few (Eventbrite 2024). This seminar series attracted an audience of over 400 researchers, practitioners and students, and from this the project leaders were compelled to compile this edited book to further contribute to knowledge sharing and collaboration in the field.

The Themes of This Book

This edited book comprises eight further chapters under three distinct themes that reflect areas of cutting-edge research in the field of CFL with a distinct focus on implications for teaching and learning Chinese characters. They are: (I) teaching and learning Chinese characters online, (II) critical perspectives regarding typing Chinese characters in the CFL classroom and (III) development of methodologies and theories for character teaching. The detailed content of the chapters can be found in the following sections, while it is worth noting that as a whole, the book aims to

advance theories in teaching methodologies, clarify terminology within the field of CFL and interrogate policies from both the student and teacher perspectives in relation to teaching Chinese. In short, the book collates global studies from leading experts with the ultimate aim of enhancing the experience of teaching and learning CFL.

Theme I: Teaching and Learning Chinese Characters Online

This first theme has garnered attention in recent years, particularly through the lens of the COVID-19 pandemic. Studies published since the emergence of COVID-19 have shed light on the professional and emotional experiences of teachers and discuss the use of technology after the pandemic (e.g. Wang 2023; Zhang 2022), while the resilience of teachers during this time has been more recently explored (e.g. Lu and Hua 2024). From the learner's perspective, their experience of learning online versus in person has been documented (e.g. Qing and Diamantidaki 2020; Wang et al. 2022), while their emotional well-being has also been reported on (Wang and Jiang 2022). Key findings from these indicate that while technology is not expected to replace teachers, it is envisioned that this will become a key skill in the future. Yet, despite the potential opportunities coming to light in this area, students still report that the online experience is incomparable to face-to-face teaching. Theme I therefore takes a closer look at this topic through a deep dive into the student perspective (in Chap. 3) and the main issues emerging when it comes to the handling of Chinese character instruction from 2020 to 2023 (see Chap. 2).

Of course, attention on teaching and learning Chinese characters existed in the literature prior to the global catalyst of COVID-19, with studies on innovative teaching methods and approaches (e.g. Osborne et al. 2022; Xu and Padilla 2013), theory building (e.g. Guan et al. 2011; Knell and West 2017), learner strategies (e.g. Everson 1998; Shen 2005) and indeed the role of technology (e.g. Allen 2008; Hsiao and Broeder 2014). With our communication habits evolving to utilise technology more, thereby relying on handwriting less, it is easy to see how and why

there exist such staunch advocates of bringing new technology trends to the CFL classroom. For example, as of January 2024, there are over five billion users of social media worldwide, while in China, WeChat (a communications app) sees over one billion monthly active users (Datareportal 2024). In a review of research in the area of technology-assisted teaching and learning of CFL, Lyu and Qi (2020) note that the most common topic emerging was in relation to teacher training, and these studies advocated for a collaborative approach among teachers, policyholders, technology experts and researchers in developing effective teacher training programmes and teaching technology. Lyu and Qi's (2020) review also highlighted numerous studies utilising student feedback to enhance their teaching. In a meta-analysis specifically related to mobile-assisted learning of CFL, three studies documented the affordances of such (Zhou 2020). These included accessibility, authentic materials, access to native speakers and increased motivation among learners (*ibid.*), which also echo Lyu and Qi's (2020) findings. Chapters 4 and 5 in this book delve into two topics on typing Chinese characters in the CFL classroom, with the next section in this chapter providing more background to this theme.

On the other hand, when it comes to handwriting Chinese characters, a solid argument exists that handwriting characters also assists the reading ability of CFL learners (Cao et al. 2013; Chang et al. 2014; Kim et al. 2020; Tan et al. 2005). Differing from an alphabetic language, the formation of Chinese characters can be based on sound, meaning or symbols (see Yin 2016). However, this information is difficult for a learner to access based on a lack of grapheme-phoneme correspondence in Chinese (Chen and Pasquarella 2017). Naturally, as teaching CFL as a discipline stemmed from China in the 1950s (Zhu 2010), teaching and learning Chinese characters worldwide contains elements of memorisation strategies (e.g. Osborne et al. 2018) which are prevalent in the Chinese education system (Xu 2022). This approach has caused a stir in the research with some researchers, critiquing its lack of creativity in the classroom (see Bhattacharya 2022). Despite these debates, handwriting and rote memorisation are seen to be popular among CFL students worldwide, as Chap. 3 will report on.

Summarising the main findings from the literature in recent years, Chap. 2 reviews studies on Chinese character instruction during ERT

published in 2020–2023. Dr Linda Lei and Dr Danping Wang identify six key concepts reported on in the literature and demonstrate the positives and negatives felt by the field collectively. Indeed, the authors acknowledge and address the ongoing dilemma of teaching and learning handwriting Chinese characters in the current digital age. However, rather than dwelling on any negatives, the authors see the opportunity that learning online has brought and encourage instructors to include technology-enhanced learning in their classrooms, thus strengthening the longevity of Chinese-language programmes worldwide.

In Chap. 3, Dr Caitríona Osborne presents the first set of data collected by the funded project mentioned previously. In this chapter, the author documents the student perspective of learning Chinese online with particular reference to the characters. From student questionnaires and interviews gathered from six English-speaking countries worldwide, the chapter provides technological and pedagogical recommendations for current and future online courses stemming directly from the student voice. While it is imperative that research involving practitioners and curriculum developments is carried out, the student voice cannot be ignored. This chapter enables readers to see, verbatim, student opinions on a range of topics in both the online and face-to-face classroom.

It is intended that through these two chapters, practitioners and researchers will be able to future-proof their curricula by considering both the key concepts highlighted by Lei and Wang and the student voice presented by Osborne.

Theme II: Critical Perspectives Regarding Typing Chinese Characters in the CFL Classroom

The second theme of the book details a major topic in teaching and learning CFL online that has been touched on briefly in the previous section. Indeed, typing in CFL teaching and learning certainly sparks heated debates in the sphere with sometimes extreme views being published, such as advocating for eliminating handwriting altogether (e.g. Allen 2008). Previously, there have also been explorations to delay character instruction (e.g. Osborne 2018; Packard 1990) in order to ease students

into their learning; however, this approach was seen to improve students' speaking skills rather than have any effect on long-term character learning. Again, the global catalyst of COVID-19 saw typing being heavily relied on for teaching and assessment in the online space (see Chaps. 2 and 3). Now, after the pandemic, we can begin to uncover the outcomes of such emergency implementation of typing and decipher the possible affordances for future curricula.

Those reading this book who have experience of teaching Chinese characters will be all too familiar with students themselves questioning the need to learn how to write characters by hand. One might explain the benefits of writing on reading (see previous section); however, this explanation may not be satisfactory for some students depending on how (and indeed if) they intend to use the language after completing a given course and more so when the prevalence of technology use is considered. Certainly, if primary communication is through typing/other digital means, then it may make sense that typing is the focus if communication is the goal. Interestingly, research is now emerging that states a typing-only approach may see learners performing as well as those learning only through handwriting where reading comprehension is concerned (Zhang 2021). However, in a review of comparison studies involving handwriting and typing from 2009 to 2019, Lyu et al. (2021) found that the studies demonstrated typing had a greater effect on Chinese learners' phonology recognition and phonology-orthography mapping compared to handwriting, while handwriting showed benefits to orthography recognition and orthography-semantic mapping at character and lexical levels. Interestingly, these studies presented mixed reviews when it came to the effects of typing on writing performance (*ibid.*).

Adding the catalyst of COVID-19 into the mix that saw a mass migration of courses to the online space, research needs to be teased out in this area so that instructors can make informed choices when it comes to introducing typing to their classrooms. The studies reported in the chapters of Theme II shed light on the application of typing Chinese characters to the CFL classroom with the aim of addressing any ambiguities associated with this approach. Chapter 4 goes straight to the source in presenting the innovative e-writing approach. Proposed by Matt Coss, this approach advocates for a focus on typing first before handwriting.