L2 Writing Assessment

L2 Writing Assessment:

The Neglected Skill of Spelling

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Cambridge
Scholars
Publishing

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This book first published 2020

Cambridge Scholars Publishing

Lady Stephenson Library, Newcastle upon Tyne, NE6 2PA, UK

British Library Cataloguing in Publication Data
A catalogue record for this book is available from the British Library

ISBN (10): 1-5275-4090-1
ISBN (13): 978-1-5275-4090-3

To my teachers,
to my students,
to my family

Who dares to teach must never cease to learn
—John Cotton Dana

TABLE OF CONTENTS

LIST OF ILLUSTRATIONS

LIST OF TABLES

PREFACE

Research on literacy development mainly focuses on how children learn to read[1]. Nonetheless, the skill of writing should also be stressed, given its importance on social media like Facebook, Instagram and Twitter, as well as through texting in modern society. One of the skills involved in writing is spelling, which refers to the ability to spell individual words. Spelling is a tool for writing and generally practical and effective written communication and it is a skill that can support students when they read and/or write[2]. Despite the extensive use of writing in modern society, though, non-conforming spellings may still be widely used in online text. Examples involve non-standard forms of written communication in formal situations. A brief review reveals four types of such spellings, including the use of acronyms such as "lol" (laugh out loud), abbreviations as in "gr8" (great), purposeful phonetic spellings such as "u" (you) and spelling errors as in "chor" (chore)[3]. Even though these may be evident in online text, readers may be quite negative towards spelling errors and the overall literacy ability of the writer. This indicates the need for enhanced literacy skills in an "information society" in order for individuals to "find, select, interpret, analyze, and produce information"[4].

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[1] Megan Keilty and Gina Harrison, "Linguistic and Literacy Predictors of Early Spelling in First and Second Language Learners", *The Canadian Journal of Applied Linguistics* 18, no. 1 (2015): 87-106; Rebecca Treiman and Brett Kessler, *How Children Learn to Write Words* (New York. NY: Oxford University Press, 2014); Malatesha Joshi, Rebecca Treiman, Susanne Carreker and Louisa Moats, "The Real Magic of Spelling: Improving Reading and Writing", *American Educator* 9 (2008-2009, Winter): 6-43.

[2] Annika Genlott and Ake Grönlund, "Improving Literacy Skills through Learning Reading by Writing: the iWTR Method Presented and Tested", *Computers & Education* 67 (2013): 98–104.

[3] Kirsty Young, "Developmental Stage Theory of Spelling: Analysis of Consistency across Four Spelling-Related Activities", *Australian Journal of Language and Literacy* 30, no. 3 (2007): 203–220.

[4] Genlott and Grönlund, 2013.

In the educational setting, research suggests that both parents and teachers in particular value the importance of spelling accuracy [5]. According to Bean and Bouffler [6], "standard spelling has assumed importance beyond the function it plays in written language. It has become the 'ticket' to the literacy club – the heir to the traditions and scholarly world of print" (p. 67). Therefore, the skills of reading, writing, and spelling seem to be interrelated while improving spelling leads to mastery in learning to read and write[7]. The opposite view, however, suggests that overemphasising on spelling may hinder students' ability to write, since more importance may be given to accuracy (i.e., spelling accuracy) rather than fluency (i.e., content or topical knowledge)[8].

Spelling is an essential component of the elementary school curriculum, which in the past was taught in isolation. Even now, educators teach spelling as an isolated subject rather than trying to integrate it across the curriculum. Spelling instruction in most cases, however, involves testing rather than teaching. Even if spelling is rarely taught in school, it is repeatedly tested, although students are not taught how to go about learning to spell. This situation is observable in both the L1 (first language) and L2 (second language) settings but is more perceptible in the latter. Spelling tests normally involve dictating isolated words, even if these do not help to create expert spellers or writers but promote rote memorisation. Nonetheless, spelling is a problem-solving activity involving a cognitive process and not merely a mechanical process involving memory. Spelling is a developmental process with specific

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[5] Kelly Chandler and The Mapleton Teacher-Research Group, "Squaring up to Spelling: a Teacher-
Research Group Surveys Parents", *Language Arts* 77, no. 3 (2000): 224–231.

[6] Wendy Bean and Chrystine Bouffler, *Spell by Writing* (Sydney: Primary English Teaching Association, 1987).

[7] Joshi, Treiman, Carreker and Moats, 2008.

[8] Elena Kkese, "Assessing L2 Writing in the Absence of Scoring Procedures: Construction of Rating Scales in a Cypriot-Greek EFL In-Class Context", *Journal of English Education* 3, no. 2 (2018): 46-56; Elena Kkese, "Constructing Rating Scales for ESL Composing", in *Research on EFL in Cyprus,* ed. Dina Tsagari (Nicosia: University of Nicosia Press, 2012), 282-318; Elena Kkese, "Issues in L2 Acquisition of Spelling: when Spelling Tests are Simply not Enough", in *Research on English as a Foreign Language in Cyprus,* ed. Pavlos Pavlou (Nicosia: University of Nicosia Press, 2010), 223-257; Laura Huxford, Rosaleen McGonagle and Sue Warren, "Which words? W6-Year-Old Children Use in their Writing", *Reading* 31, no. 3 (1997): 16–21.

stages[9] rather than a measure of intelligence. This led educators to start focusing on children who were actively involved with how words are spelled while using a number of strategies for spelling words as they wrote[10]. Through writing, students can improve their spelling, which would not be possible if they never wrote, correctly transferring the words of the spelling tests to their writing.

Placing spelling in the context of writing is, thus, of crucial importance since if spelling instruction is removed from the writing context, spelling becomes difficult. Even though spelling is only a small piece in the writing process, it serves as a tool for writing that allows

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[9] Linnea Ehri, "Learning to Read and Learning to Spell: Two Sides of a Coin", *Topics in Language Disorders* 20 (2000): 19–36; Linnea Ehri, "Review and Commentary: Stages of Spelling Development". in *Development of Orthographic Knowledge and the Foundations of Literacy: A Memorial Festschrift for Edmund H. Henderson,* ed. Shane Templeton and Donald Bear (Hillsdale, NJ: Erlbaum, 1992), 307-322; Nick Ellis, "Interactions in the Development of Reading and Spelling: Stages, Strategies, and Exchange of Knowledge", in *Learning to Spell: Research, Theory, and Practice Across Languages*, ed. Charles Perfetti, Laurence Rieben and Michel Fayol (Hillsdale, NJ: Lawrence Erlbaum Associates, 1997), 271-294; Nick Ellis, "Longitudinal Studies of Spelling Acquisition", in *Handbook of Spelling: Theory, Process and Intervention,* ed. Gordon Brown and Nick Ellis (Chichester: John Wiley & Sons Ltd, 1994), 155-178; Terezinha Nunes, Peter Bryant and Miriam Bindman, "Morphological Spelling Strategies: Developmental Stages and Processes", *Journal of Developmental Psychology* 33 (1997): 637-649; William Barnes, "The Developmental Acquisition of Silent Letters in Orthographic Images", in *The Development of Orthographic Knowledge and the Foundations of Literacy*, ed. Shane Templeton and Donald Bear (Hillsdale, NJ: Lawrence Erlbaum Associates, 1992), 191-212; Carol Beers and James Beers, "Children's Spelling of English Inflectional Morphology", in *The Development of Orthographic Knowledge and the Foundations of Literacy*, ed. Shane Templeton and Donald Bear (Hillsdale, NJ: Lawrence Erlbaum Associates, 1992), 231-251; Robert Schlagal, "Patterns of Orthographic Development into the Intermediate Grades", in *Development of Orthographic Knowledge and the Foundations of Literacy: a Memorial Festschrift for Edmund H. Henderson,* ed. Shane Templeton and Donald Bear (Hillsdale, NJ, US: Lawrence Erlbaum Associates, Inc., 1992), 31-52; Eli Henderson, *Teaching Spelling* (Boston: Houghton Mifflin, 1985); Eli Henderson, "Developmental Concepts of Word", in *Developmental and Cognitive Aspects of Learning to Spell: a Reflection of Word Knowledge*, ed. Eli Henderson and James Beers (Newark, DE: International Reading Association, 1980), 1-11; Richard Gentry, "An Analysis of Developmental Spelling in GNYS AT WRK", *The Reading Teacher* 36 (1982): 192-200; Richard Gentry, "Early Spelling Strategies", *The Elementary School Journal* 79 (1978): 88– 92.

[10] Lester Laminack and Katie Wood, "Spelling in Use: Looking Closely at Spelling in Whole Language Classrooms", *ERIC Document* no. ED 397 400 (1996): 1-138.

effective communication between the reader and the writer to take place. Likewise, assessment of spelling in use is of equal importance since it forms the means for dealing conscientiously with spelling instruction in such a programme. By regularly studying and assessing students' spelling in use and analysing their errors, teachers can use the findings to plan proper instruction, either whole-class or individual, addressing the specific needs of their students.

The process of teaching students to spell should, therefore, start receiving more attention from educators and the literary curriculum. Whereas there is a plethora of approaches available for teaching spelling in both the L1 and L2 settings, only a few are actually used in the classroom context while there is not a "right" way to teach spelling. Thus, a whole language approach is preferred, one that combines direct instruction of the principles of English orthography with authentic tasks in a balanced way. Purposeful reading and writing activities, a print-rich environment, mini pull-out lessons on certain aspects of spelling, and instructing students about effective spelling strategies can facilitate spelling acquisition. The extent, though, to which educators can teach English spelling is confined by their understanding of orthography. Teachers who believe that the spelling system is highly irregular will end up teaching it as such, focusing on isolated words while adding a few partial-spelling rules. According to Chomsky and Halle[11], though, English orthography "comes remarkably close to being an optimal orthographic system for English" (p. 49). When the morphophonemic nature of the system is taken into account, orthography seems like a quite regular system with the only irregularity being manifested in a small number of words. When teachers are aware of this, they can introduce the systematicity of English to students as they learn to read and write new words.

Spelling instruction and assessment of spelling in use is, as a result, addressed and analysed in an L2 setting. The analysis serves a twofold purpose, firstly aiming at documenting the targeted L2 students' problem of applying spelling skills to their written work (poor spelling transfer). Secondly, it tries to define what constitutes effective communication. An insight into the overall language ability and the importance of spelling in relation to the writing fluency is in this way enabled, since both ideas and language are important for written communication. This comes in contrast with the past few years, in which the emphasis was only on personal or creative writing and, thus, on content.

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[11] Noam Chomsky and Morris Halle, *The Sound Pattern of English* (NY: Harper & Row, 1968).

LIST OF ABBREVIATIONS

ADHD	Attention Deficit Hyperactivity Disorder
APD	Auditory Processing Disorder
CA	Chronological Age-matched group
CALL	Computer-Assisted Language Learning
CG	Cypriot-Greek
CLIL	Content and Language Integrated Learning
CV	Consonant-Vowel
CVC	Consonant-Vowel-Consonant
ELL	Early Language Learning
EFL	English as a Foreign Language
ESL	English as a Second Language
FL	Foreign Language
ICT	Information and Communication Technologies
LLD	Language Learning Disabilities
MALL	Mobile-Assisted Language Learning
NAEP	National Assessment of Educational Progress
POMAS	Phonological, Orthographic and Morphological Assessment of Spelling
PIRLS	Progress in International Reading Literacy Study
SMG	Standard Modern Greek
L1	First Language
L2	Second Language
ME	Middle English
NS	Native Speaker
OE	Old English
SL	Second Language
SA	Spelling Age group

CHAPTER ONE

INVESTIGATING ENGLISH SPELLING

Linguistics of Spelling

Writing Systems

Writing refers to the representation of language by graphic signs or symbols and it is a development that has taken place within the past 5000 years in only some parts of the world. Before this convention, communication was achieved via the direct representation of objects, known as picture writing or pictograms, and these were the precursors of the early writing systems[1]. Pictograms are still used nowadays (i.e., signs indicating roadside services, information in parks etc.) but they are not considered a writing system since they do not correspond to linguistic elements (i.e., segments, syllables, morphemes, or words). Besides, more than one interpretation may be possible since pictograms are not related to sequencing rules analogous to syntactic rules.

As to written language, this does not come naturally to humans so it must be taught and learned through deliberate effort, since writing employs different symbols and techniques that may indicate an arbitrary link between grapheme and phoneme. Written language can be grouped into either logographic or phonographic writing depending on the technique of linguistic representation being used[2]. Nonetheless, no language appears to employ exclusively one system (i.e., symbols for numerals).

In logographic (ideographic or morphemographic) writing, symbols represent morphemes or whole words because the word "logographic" originates from the Greek word lógos (word). Logographic writing is the oldest type of actual writing; Ancient Mesopotamian cuneiform inscriptions, Egyptian hieroglyphics, and primordial Chinese characters

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[1] William O' Grady, Michael Dobrovolsky and Mark Aronoff, *Contemporary Linguistics: An Introduction* (New York: St. Martins, 1987).
[2] Ibid.

are examples of this type of writing[3]. This system is only currently in use by speakers of Mandarin and Cantonese. These languages are isolating languages in terms of their writing system, in which one symbol usually represents one word. However, this implies that Chinese readers have to learn thousands of characters while literacy at the most basic level requires knowledge of about 500 characters. Therefore, in China, literacy is "measured by the number of symbols recognized" while "[a]ccording to 2000 census data, 86.992 million adults in China were illiterate, 20.55 million of whom were between the ages of 15 and 50"[4]. Nonetheless, even in these languages, there is some connection between phonetics and graphics as well as morphemes and syllables. Additionally, all writing systems contain some logographic symbols (e.g., symbols for numerals, conventional abbreviations *$, &, %,* @) that can be understood by all people independently of language.

In phonographic (syllabic or alphabetic) writing, symbols represent syllables or segments, given that the word "phonographic" originates from the Greek word phōnē (sound), and a set of syllabic symbols is called a syllabary. This type of writing includes languages with simple CV or CVC syllabic structures (consonant-vowel or consonant-vowel-consonant). Japanese and Cree have syllabic writing systems while Cypriot also had a syllabic writing system. Nonetheless, pure syllabaries possibly do not exist. Alphabetic writing (orthography), on the other hand, represents consonant and vowel segments without usually paying attention to nonphonetic phenomena. Even though alphabetic orthographies adhere to the ideal principle of one-to-one correspondence between grapheme and phoneme, the majority of languages deviate from this principle to varying degrees[5]. These differences in orthographic depth result in some languages having a transparent or shallow orthography, in which the pronunciation can be predicted from spelling (i.e., Italian, Serbo-Croatian etc.). However, other languages have an opaque or deep orthography, in which grapheme-phoneme correspondences are less explicit or even inconsistent (i.e., English).

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[3] Ibid, 554.

[4] Heidi Ross, "China Country Study". *Paper commissioned for the EFA Global Monitoring Report 2006, Literacy for Life* (2005): 3.

[5] Susanne Borgwaldt, Frauke Hellwig and Annette De Groot, "Onset Entropy Matters – Letter-to-Phoneme Mappings in Seven Languages", *Reading and Writing* 18, 2005.

English Orthography

While the writing system employed in English is alphabetic, containing much phonetic information, its graphic form contains elements that are not directly connected to their "phonological value"[6]. This complexity (Table 1-1) is partly due to the economy of the orthography that employs twenty-six graphemes to represent approximately forty-four phonemes. It is also partly due to numerous historical influences as the grapheme-phoneme relationship in English orthography has not always been so indirect. During the Old English (OE) period (450-1150), the spelling system offered a regular set of direct grapheme-phoneme correspondences. The system of that period had four additional graphemes that have become obsolete in the present alphabet, namely *ð* (eth), *þ* (thorn), *æ* (ash) and *p* (wynn) but it lacked *j, v,* and *w*.

Table 1-1: Problems with sound-symbol correspondences in English orthography[7]

Problem	***Examples***
Some graphemes do not represent any segments in a particular word	though, sign, give, palm
A group of graphemes can be used to represent a single segment	think /θ/, ship /ʃ/, philosophy /f/
A single grapheme can represent a group of segments	saxophone /ks/, exile /gz/
The same grapheme can represent different segments in different words	o in rot /ɒ/, bone /əʊ/, son /ʌ/, one /wʌ/
The same segment can be represented by different graphemes in different words	/u:/ in rude, loop, soup, new, sue, to, two

The orthography of the language was notably disturbed in the Middle English (ME) period (1150-1500) because of the Great Vowel Shift (Fig. 1-1). This affected the whole vowel system in a kind of chain reaction, in which the low vowels were moved to a higher position. Even though this resulted in changes in pronunciation, the orthography did not

[6] Martha Pennington, *Phonology in English Language Teaching* (Addison Wesley Longman Limited, 1996), 187.
[7] O' Grady, Dobrovolsky and Aronoff, 577.

change. Consequently, the shift affected the OE orthography that continued to use the same grapheme for long and short vowels. Hence, the grapheme *i* used to represent both /i:/ and /ɪ/ but at that time it also used to represent the diphthong /aɪ/ as *hide-hid, write-written, ride-ridden,* and *wide-width* indicate.

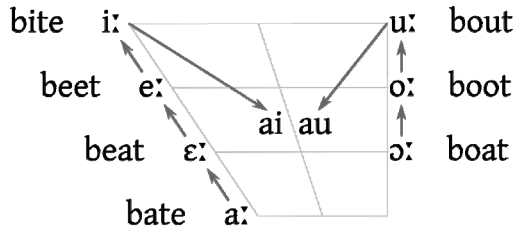

Fig. 1-1: The Great Vowel Shift[8]

The Norman Conquest (1066) further affected orthography since English was no longer used in official documents. This led to the development of regional orthographies, while scribes introduced several conventions from French and Latin into English, since they received their training in these languages. This is indicated by the use of:

1) *ch* rather than *c* for /ʧ/ (cheese, chin)
2) *th* rather than /þ/ (thorn) and /ð/ (eth) for /θ/ and /ð/ (thin, this)
3) *c* rather than *s* for /s/ (grace, mice, ice).

Spelling words in such a way that reflected their etymological origin toward the end of the 15th century was another tendency that was observed. Examples of this are the words *debt, doubt, receipt*, and *salmon*, formerly spelled as *dette, doute, receite*, and *samon*, which were given a silent consonant to resemble the Latin words they descended from.

The many lexical importations constitute another influence on English during the OE period as well as in the late OE and early ME periods. A number of English words beginning with *sk, sc*, and *sh* indicate Scandinavian influence on OE. The French spelling *qu* (*queen, quick*) and the non-original *s* added to the word *island* in the ME period, by analogy

[8] Albert Croll Baugh and Thomas Cable, *A History of the English Language* (Prentice Hall, 2002), 238.

to the French word *isle*, indicate the French influence. In addition, Caxton, who introduced the printing process to England, was also a source of influence on the language, since he lived in Holland for years, even though he was a native English speaker. Caxton and his printers were responsible for introducing *gh* into many English words originally spelled with *g*. Several of these spellings still survive (i.e., ghost, ghastly) while others do not (i.e., girl, goose), indicating the possible confusion of English and Dutch orthographic patterns.

Consequently, by the 1500s, the orthography of English was highly irregular and idiosyncratic, since a word could be spelled differently, such as the word *pity* (i.e., *pity, pyty, pitie, pitie, pittie,* or *pyttye*). The printing process and the availability of books brought to light the need to reform and regularise orthography. In the late 1500s and early 1600s, many spelling rules were formulated and published, most notably by Mulcaster and Coote, and these rules were adopted by printers and literate English speakers. The result was that orthography was more-or-less determined.

These historical factors have created a number of present-day classes of lexical items. Their formation did not happen concurrently but over time and because of the influences of different periods and regions (i.e., British/American English). These categories include:

1) the class containing Latin and Greek spellings (Latin: *datum/data, quantum/quanta, alumnus/alumni,* Greek: *criterion/criteria, phenomenon/ phenomena, schema/schemata*),
2) the class containing archaic spellings (*programme, racquet, shoppe*),
3) the class containing silent letters (*gh* in *night, light, right*, *p* in *ptomaine, psychology, pneumonia, e* in *mate, name, mute*),
4) the class of homographs, which are words pronounced and spelled identically but differ in meaning (*see* "view with eyes"/"a bishop's territory", *set* "put down"/"group of matching items", *neat* "tidy"/"domestic bovine"),
5) the class of homophones or homonyms, which are words with the same pronunciation but of different spelling and meaning (*write, right, wright, rite,* or *wear, where, ware, where're, weir,* or *there, their, they're*),
6) the class of heterographs, which are words that have the same pronunciation and meaning but differ in spelling (*adviser/advisor*, *theater/theatre,* or *civilization/civilisation, realization/realisation*, or *dialog/dialogue, catalog/catalogue*),

7) the class of heteronyms, which have the same spelling but different meaning and pronunciation (*desert* "abandon"/"expanse of arid land", *supply* "provide"/"limberly", *refuse* "deny"/"garbage or trash").

Additionally, a few regularities of orthography have been formulated into rules that NSs (native speakers) often learn during school age[9]. Even though these rules are very specific and have several exceptions, they can be helpful in learning the spelling patterns of small sets of words. Instructing students to learn any regularities of the system can help them with writing and grapheme-phoneme correspondences.

1) One of the most famous rules proposed by Mulcaster involves a "silent e" at the end of words indicating a preceding long vowel (diphthong or tense) as in *here, hope,* and *rate*. If a *silent e* is not present, then the vowel is short (monophthong or lax) as in *her, hop,* and *rat*.
2) Another rule is the 'i before e' rule that can be summarised as "i before e except after c or when sounded like /eɪ/ as in neighbour and weigh" and accounts for the words spelled as *ie* and as *ei*. Consequently, *bel<u>ie</u>ve* and *rel<u>ie</u>ve* differ from *perc<u>ei</u>ve, conc<u>ei</u>ve,* and *rec<u>ei</u>ve.*
3) The "double the consonant" rule states that a final consonant in an accented syllable (monosyllabic or polysyllabic word with the accent on the last syllable) will be doubled to maintain the short vowel when followed by a syllable beginning with a vowel. In all other cases, the vowel is pronounced as long (supper /ʌ/ vs. super /u:/, latter /æ/ vs. later /eɪ/, hopping /ɒ/ vs. hoping /əʊ/).
4) Finally, the "keep the e" rule states that the final *e* remains, to maintain a soft sound (fricative or affricate) in words ending in *ce/ge* except when *i* follows (*peace+able→peaceable, manage+able→manageable* but *rate+able→ratable, ice+ing→icing*).

Regular/Irregular Debate

The Irregular View: Considering orthography as an extremely complicated and inconsistent system has led to the creation of several reform proposals. Benjamin Franklin, George Bernard Shaw, and Noah Webster were a few

[9] Pennington, *Phonology in English Language Teaching.*

of the people who favoured reform and in fact made proposals for making the grapheme-phoneme correspondences more consistent. This irregularity of orthography manifests itself in "The Chaos" (see Appendix A p. 110), which lists 800 of the most important spelling inconsistencies. Nonetheless, such reforms are unlikely to occur, since they would require a long and difficult period of transition, while a second factor relates to the dialectal variation found within English. Establishing an orthography based on the principle of "one segment, one symbol" would result in serious regional differences in orthography. Even though some variability in orthography is endured in speech communities, a standardised writing system permits speakers from different speech communities to communicate efficiently in written form. Additionally, the written language of one generation can effortlessly be transmitted to the next. "Conventional English orthography is a reasonably adequate system of representation for both British and American English, and the vast range of English dialects that exist within each country and around the world"[10].

The Regular View: When the orthographic system is seen as purely phonemic, it looks increasingly irregular. Nonetheless, English orthography is much more than pure phonemic transcription. In orthography, there can be predictable grapheme-phoneme relations, which may vary while some regularities may not be tied to phonology. When the system is seen in its full complexity, it seems like a quite regular system. Orthography may represent phonetic contrasts in certain cases, while in other cases it may indicate derivational relationships among words. This is signified with a number of words (i.e., *music-musician, sign-signature, nation/national/nationalise*), which if they were spelled phonetically, the relationship between them would have been difficult to perceive because the root is pronounced differently. Thus, orthography may ignore pronunciation so that a morpheme can have the same or a similar spelling in different words, with the intention that meaning and grammatical relations will be preserved. Consequently, orthography combines aspects of morphology and phonology in a system often referred to as morphophonemic.

The usefulness of orthographic conventions, thus, becomes explicit[11]:

1) when *c* can stand for both /k/ in *electric* or /s/ in *electricity,*
2) when *t* can represent /t/ in *react* or /ʃ/ in *reaction*,

[10] Carol Chomsky, 1970 in Pennington, 186.
[11] O' Grady, Dobrovolsky and Aronoff*, Contemporary Linguistics: An Introduction*.

3) A further example of morphological influence involves words that end in double *ss* (*mess, kiss, gloss*) when preceded by a lax vowel, or words in which *s* is followed by *e* (*house, lapse, dense*). This indicates the orthographic rule that reserves word-final *s* for inflectional suffixes (*plural or 3rd person singular*),
4) Another rule prohibits "final ll" in polysyllabic words (i.e., *plentiful, excel, repel*) but not in the morphological patterns of compounds (i.e., *baseball, landfill, spoonbill*) and derivations consisting of a prefix and its base (i.e., *unwell, recall, resell*).
5) A further morphological rule converts post-consonant *y* to *i* in front of a suffix not beginning with *i* (i.e., carry→*carried, marry→marriage, beauty→beautiful, merry→merrily*). Nonetheless, when *e* precedes *y* as in *honey+ed,* it becomes *honeyed.*

English orthography, therefore, is a regular system, especially when morphology is taken into account. As a result, "no English word is ever spelled in such a way that it gives no information about pronunciation"[12]. The orthographic system presents only minor difficulties since most of its irregularity manifests itself in high-frequency words (i.e., *of, to, have, do, done, was,* etc.). These are easily mastered, learned either holistically as sight vocabulary or by rote, since they are encountered from the early stages of acquisition (see Appendix B p. 113).

Spelling in the information society

Spelling seems to have a positive effect on both reading and writing[13]. It functions as an indicator of a person's level of education and intelligence[14], despite the easy access to spell-checker software on computers and smartphones in the contemporary information society. The latter refers to

[12] David Stubbs, 1980 in Pennington, 203.
[13] Kristin Sayeski, "Effective Spelling Instruction for Students with Learning Disabilities", *Intervention in School and Clinic* 47 (2011): 75-81; Saskia Kohnen, Lyndsey Nickels and Max Coltheart, "Skill Generalisation in Teaching Spelling to Children with Learning Difficulties", *Australian Journal of Learning Difficulties* 15 (2010): 115-129; Jeanne Wanzek, Sharon Vaughn, Jade Wexler, Elizabeth Swanson, Meghan Edmonds and Ae-Hwa Kim, "A Synthesis of Spelling and Reading Interventions and their Effects on the Spelling Outcomes of Students with LD", *Journal of Learning Disabilities* 39 (2006): 528-543.
[14] Sharon Vaughn and Candace Bos, *Strategies for Teaching Students with Learning and Behaviour Problems (*Upper Saddle River, NJ, Pearson, 2009).

the rise of information activities due to the Internet and other information and communication technologies (ICT) related activities[15].

Given this situation, enhanced literacy skills, in which spelling is considered the highest regarded skill, are needed in order for individuals to "find, select, interpret, analyze, and produce information"[16]. Specifically, the Progress in International Reading Literacy Study (PIRLS) benchmark consists of four levels[17] while according to the information society, individuals should acquire skills toward the high end of the scale. The first level, referred to as "low", involves individuals locating and retrieving information. The second level is "intermediate", in which they can make straightforward references. The third level is "high", where individuals make inferences and interpretations with text-based support. Finally, the fourth level, labelled as "advanced", requires the integration of ideas and information across texts to offer reasons and explanations. Nonetheless, in the benchmark, the highest performing countries obtained just over 60% in the high category but only 20% in the advanced category. This need for advanced literacy skills has further been supported by the fact that if students lag behind in terms of the development of literacy skills in childhood, then they will face significant difficulties as texts get longer and more complicated[18].

With reference to the use of technology in the classroom context, computers have been used for the purpose of teaching and learning. More specifically, Computer-Assisted Language Learning (CALL) involves "the search for and study of applications of the computer in language teaching and learning"[19]. Materials may include a variety of options, while some examples include CD-ROMs, word processors, presentation software, online dictionaries, blogs, online chat areas, and/or emails. CALL manages to engage students in a meaning-focused, communicative learning environment in which they can interact with both the programme and the

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[15] Annika Genlott and Ake Grönlund, "Improving Literacy Skills through Learning Reading by Writing: the iWTR Method Presented and Tested", *Computers & Education* 67 (2013): 98–104.
[16] Ibid, 98.
[17] Ina Mullis, Michael Martin, Pierre Foy and Kathleen Drucker, *PIRLS 2011 International Results in Reading* (Chestnut Hill, MA: TIMS & PIRLS International Study Center, Boston College, 2012).
[18] Eva Myrberg, "The Effect of Formal Teacher Education on Reading Achievement of 3rd-Grade Students in Public and Independent Schools in Sweden", *Educational Studies* 33, no. 2 (2007): 145–162.
[19] Mike Levy, *Computer-Assisted Language Learning: Context and Conceptualization* (Oxford: Clarendon Press, 1997), 1.

other students through multimedia applications[20]. Concerning the activities and content, these are adjusted to the students' learning styles[21] while there is "enough data in CALL to suggest positive effects on spelling, reading, and writing"[22]. In particular, spell-checkers allow students to check spelling and they help them remember the correct spelling, which will result in a positive effect on their writing and reading.

Mobile-Assisted Language Learning (MALL) could also be used to support the learning process[23]. This refers to mobile technologies that offer autonomous learning opportunities and access to learning materials[24]. MALL programmes provide support in the areas of listening, reading, speaking, writing, grammar, vocabulary, and spelling[25]. Concerning spelling, the use of spell-checkers or applications such as Zite can facilitate spelling. Using an application for 10-15 minutes a day can significantly improve students' spelling[26]. MALL seems to reinforce language learning and instruction outside the classroom and it offers opportunities for more exposure to an L2 (second language). According to Bialystok and Hakuta[27], in order for fluency to be achieved, approximately 700 to 1320 hours of instruction are needed, which is not feasible in educational institutions. Therefore, MALL seems to compensate for the lack of instruction time.

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[20] Uschi Felix, "The Unreasonable Effectiveness of CALL: What have we Learned in Two Decades of Research?", *ReCALL* 20, no. 2 (2008): 141–161.
[21] Rebecca Oxford, *Language Learning Strategies: what Every Teacher should Know* (New York: Newbury House Publishers, 1990).
[22]Uschi Felix, "The Unreasonable Effectiveness of CALL: What have we Learned in Two Decades of Research?", *ReCALL* 20, no. 2 (2008), 156.
[23] Jason Byrne and Robert Diem, "Profiling Mobile English Language Learners", *The Jalt Call Journal* 10, no. 1 (2014): 3–19.
[24] Hayo Reinders and Cynthia White, "Special Issue Commentary: Learner Autonomy and New Learning Environments", *Language Learning and Technology* 15, no. 3 (2011): 1–3.
[25] Emily Mindog, "Apps and EFL: A Case Study on the Use of Smartphone Apps to Learn English by Four Japanese University Students", *The Jalt Call Journal* 12, no. 1 (2016): 3–22.
[26] Ibid.
[27] Ellen Bialystok and Kenji Hakuta, *In Other Words* (New York: Basic Books, 1994).

Acquisition of spelling

Spelling acquisition in L1

The fact that English orthography is not a "uniform system of rules but rather a great complex of context-dependent rules – some of which are strictly phonological and others of which involve morphology"[28] can account for the difficulty that many individuals face when spelling. These concerns have initiated interest in, and research into, spelling acquisition in L1 (first language) indicating that the beginnings of spelling in the mother tongue appear when children first attempt to write for themselves. "Learning to write and spell begins early, and it is the result of acquiring knowledge of the phonological and orthographic rules of written language"[29]. During these attempts, children start incorporating phonology into their spellings, writing words based on how they sound (i.e., *bonn* for *balloon*) rather than depending on memorised words. This invented or approximated spelling is the result of children's invention "from their untutored assumptions about the way spelling works"[30] and usually occurs by the age of five or six[31]. Nonetheless, many children do not try to write until they enter school and usually this involves writing only memorised words. Invented or approximated spellings have been the focus of many L1 studies, as is the case for native speakers of American English[32].

Children should be encouraged to use invented spelling since "today, the encouragement of invented spelling for young developing writers is considered a good practice"[33] through which children try to find patterns and order in the spelling system. In this way, the task of spelling is not just a frustrating task of rote memorisation for learners but it can "[...] lead to a control over writing that frees the child to write the message

[28] Pennington, 204.
[29] Kristen Ritchey, "The Building Blocks of Writing: Learning to Write Letters and Spell Words", *Reading and Writing* 21 (2008): 44.
[30] Charles Temple, Ruth Nathan, Hobart Temple Hobart and Nancy Burris, *The Beginnings of Writing* (London: Allyn and Bacon, 1993), 79.
[31] Rebecca Treiman, "Learning to Spell Words: Findings, Theories, and Issues", *Scientific Studies of Reading* 21 (2017): 265–276.
[32] Charles Read and Rebecca Treiman, "Children's Invented Spelling: What we have Learned in Forty Years", in *Rich Languages from Poor Inputs,* ed. Massimmo Piattelli-Palmarini and Robert Berwick (New York, NY: Oxford University Press, 2013), 197–211.
[33] Richard Gentry, "A Retrospective on Invented Spelling and a Look Forward", *The Reading Teacher* 54, no. 3 (2000): 318.

he wants to write"[34]. Through invented spelling, children's uneven approximations of adult spellings can be improved, and with good teaching these can develop into conventional spellings. Therefore, by looking into the nature of children's writing and spelling abilities, researchers have concluded that young writers move through a series of evidently recognisable stages, that are analogous to earlier language developments, in order to become competent spellers. These stages reflect children's existing knowledge about speech sounds and the strategies they use when spelling, suggesting that the acquisition of spelling skills is a developmental process[35]. During this process, children learn not to depend on sound spelling as extensively as in the beginning when constructing words orally and aurally, but to employ a visual approach through which they can write more fluently and visually check their writing.

Perspectives on spelling development

Gentry[36] proposed five stages of spelling development that resulted from examining young learners' spelling (Table 1-2). This examination indicated that children's errors change over time in a systematic mode. Nonetheless, Gentry suggested that children gradually progress from one stage to another, while they may use spellings from more than one stage in one piece of writing. This is because the growth in spelling is one in which "children draw increasingly from alternative strategies –phonological, visual, and morphological. Development proceeds from simple to more complex, from concrete to more abstract form, towards differentiation and integration"[37]. Even though other models of developmental stages have also been proposed[38] and numerous aspects of Gentry's model have been

[34] Marie Clay, 1987 in John Smith and Elley Warwick, *How Children Learn to Write* (Paul Chapman Publishing Ltd, 1998), 104.
[35] Ali Hashemi and Omid Ghalkhani, "The Impact of Different Teaching Strategies on Teaching Spelling to Kindergarten Children", *Journal of Language Teaching and Research* 7, no. 4 (2016): 730-737; Lori Helman, "Building on the Sound System of Spanish: Insights from the Alphabetic Spellings of English Language Learners", *The Reading Teacher* 57, no. 5 (2004): 452–460.
[36] Gentry, 2000; Richard Gentry, "An Analysis of Developmental Spelling in GNYS AT WRK", *The Reading Teacher* 36 (1982): 192-200.
[37] Smith and Warwick, 106.
[38] Linnea Ehri, "Review and Commentary: Stages of Spelling Development", in *Development of Orthographic Knowledge and the Foundations of Literacy: A Memorial Festschrift for Edmund H. Henderson,* ed. Shane Templeton, and Donald Bear (Hillsdale, NJ: Erlbaum, 1992), 307- 332; Shane Templeton, "Teaching and Learning the English Spelling System: Reconceptualizing Method

criticised, his model is largely implemented. Additionally, proper spelling activities devised for the classroom setting have been developed, addressing each of the five stages.

Based on this model, the first stage of spelling development is the pre-phonemic or pre-literate stage[39], in which writing may involve scribbles or pretend writing. Even though children display some alphabetic knowledge by writing letters that correspond to messages, they lack grapheme-phoneme knowledge. Therefore, spelling is merely an accidental stringing together of graphemes that children can produce, rather than productions reflecting the phonemes in words. In addition, children may not be aware that spelling goes from left to right, while they may use numbers or letters found in their names while writing. Merging upper and lower case letters is also observed, even though children usually use upper case letters. Finally, children at this stage write purposefully and can give details about what they want to write. Nonetheless, the result may be incomprehensible and may not communicate language because of a lack of application of correspondences (i.e., TX=This is my house, bBp=monster, #PaH=giant). Children at this stage are usually three to five years old.

The next stage is the semi-phonemic stage in which children start to understand the sound relationship of letters. Words may be represented with one to three letters (i.e., R=are, U=you, DG=dog) and children start to master the left-to-right directionality of letters and indicate an understanding of the alphabet and word formation. Nonetheless, they may or may not understand or use word segmentation. Children at this stage are usually between five and six years old.

The third stage is the phonetic stage in which children represent, in spelling, all the surface sound features of a word being spelled. Particular spelling systems for some features of the phonetic form (i.e., *-ed* endings, long/short vowels) are developed while children assign letters based only on sounds (i.e., smtis=Smarties, ate=eighty, baf=bath). Nonetheless, they are usually aware of word segmentation and spatial orientation. Children at this stage are typically six to seven years old.

At the transitional stage, children adhere to the critical orthographic conventions. They use vowels in every syllable and represent nasals before consonants. Children develop visual and formation strategies through increased experiences of reading and awareness of correct models

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and Purpose", *The Elementary School Journal* 92 (1991): 185- 201; Eli Henderson, *Learning to Read and Spell: The Child's Knowledge of Words (*Dekalb: Northern Illinois University Press, 1981); Charles Read, "Preschool Children's Knowledge of English Phonology", *Harvard Educational Review* 41 (1971): 1-34.

[39] Hashemi and Ghalkhani, 2016; Gentry, 2000; Gentry, 1982.

of print (i.e., eightee= 80, monstur=monster, coloer=colour) and stop relying only on phonic strategies. Because of the development of the visual strategy, though, children may reverse certain letters (i.e., HUOSE=HOUSE). Nonetheless, they use correctly spelled words that have been learned to a larger extent. This stage starts approximately at around seven to nine years old.

The last stage is the stage in which correct spellings are produced almost all the time, and children use a combination of strategies to produce correct spellings of both short and multisyllabic words. At this stage, children have essential knowledge of English orthography, its basic rules, and word structure (i.e., people, monstrus=monstrous, hiked). They can discriminate homonyms and use silent and double consonants correctly, as well as alternative spellings and visual strategies when a word is misspelled. Latin-spelling words and other morphological structures are also used at this stage. Children normally have a large vocabulary of learned words and continue mastering unusual patterns and irregular spellings such as *ei* and *ie*. They are typically from ten to eleven years old at this stage.

Table 1-2: Chart on Gentry's spelling stages[40]

Stage	Three words	Basic characteristics
Pre-phonemic (pre-communication spelling)	1. AMI 2. 8EMAP 3. MENENA	Spellings look like random sequences of letters. No letter-sound correspondence is in evidence.
Semiphonetic spelling	1. MTR 2. E 3. UID	The speller represents a partial mapping of letter-sound correspondence in words. Spellings are often abbreviated. Some phonetic segmentation is in evidence.
Phonetic spelling	1. MOSTR 2. EGL 3. UNIDID	The entire surface sound structure of the word is represented phonetically. Spellers spell what they hear.

[40] Richard Gentry, "Developmental Spelling and the Speech-Language Pathologist", *National Student Speech Language Hearing Association* (1988): 50-60.