

# FOREIGN LANGUAGE LEARNERS' SPELLING AND PROOFREADING STRATEGIES

CARL JAMES

*University of Wales, Bangor*

KERSTIN KLEIN

*Friedrich Schiller University, Jena*

## *0. Introduction*

The purported deterioration in standards of spelling is a highly polemic issue in English mother tongue (MT) teaching, and intermittently researchers embarrass teachers, governments and pupils with reports of low levels of achievement among school leavers (Molitor 1984). By contrast, and with some exceptions (Ziahosseiny & Oller 1970, Ibrahim 1978, Bebout 1985) the spelling achievements of second language (SL) learners and users of English have not been so widely studied or reported. Yet it is essential for such learners to spell English correctly, even in these days of wordprocessors with spelling checkers. While a clearer specification of how closely native speaker norms need to be adhered to in contexts where English is used as an International Language (Smith 1987) has nurtured a welcome increase in tolerance toward approximations to these norms in grammar and pronunciation (provided communication is unimpaired) the same does not apply to spelling: spelling is uncompromisingly right or wrong. And poor spellers are usually assumed to be poorly educated or rebellious, even when they are manifestly well-educated non-native speakers of English. One purpose of this paper is to describe the spelling strategies of one such group: German learners of English as a foreign language (GLEFLs).

Ibrahim (1978) showed that spelling errors of foreign learners are often identical to those of English native speakers. Despite the fact that German and English are cognate languages and use roughly the same alphabet there are many differences between their phono-graphic systems. According to Odlin (1989:126) a "similarity in writing systems doubtlessly can reduce the amount of time needed to learn to encode and decode written symbols in a second language." Problems occur as soon as spellings do not completely overlap. Eisterhold (1990:94) stated that

“the question of how one learns to write (and/or read) in a second language, however, is not answered by explaining that learners simply map ..... L1 literacy skills onto a developing or developed second language system.” But due to the characteristics of English spelling the influence of the native language is not the sole error source in the English spelling of foreign learners.

The spelling system is directly related to the phonemic system of a language. Graphemes manifest in writing what phonemes do in speaking: they constitute the smallest distinctive linguistic constituents of word formation. On the premise that phonemics is always related to graphemics in both English and German, some areas of difficulty for German learners of English can be predicted from a contrastive analysis of the two languages. German lacks a number of English sounds completely (such as /p/, /θ/, /eɪ/, /w/, /û/ or the dark /ɪ/). Others are pronounced similarly but not identically. English has a different phoneme-grapheme correspondence (PGC) from German. Sounds that are similar sounds in the two languages can be represented by different graphemes or grapheme clusters (cf. /i:/ by English ⟨ee⟩, ⟨ea⟩, ⟨ie⟩, ⟨e⟩ but by German ⟨i⟩, ⟨ie⟩, ⟨ieh⟩).

Since spelling is a subskill of writing, and since writing is closely associated with reading, it is inevitable that spelling too should become associated with reading. In pedagogical circles the question of whether reading should precede writing or vice versa or whether both should be developed in tandem has been under discussion for a long time. In this paper we are associating spelling with reading in a special sense, via the concept of proofreading. This is so to speak the acid cognitive test of a writer's spelling competence, reflecting their knowledge of the spelling system directly and undiminished by competing claims made upon their attention by communication or processing requirements. As we shall argue, proofreading is a kind of second monitoring. The second purpose of this paper is therefore to describe GLEFLs' recourse to this second monitor: proofreading

### 1. Spelling strategies

Three principal spelling strategies of mature spellers have been reported in the literature: spelling via i) the phonemic route, and ii) the visual route, and iii) metalinguistic knowledge. The novice speller has to acquire all three.

#### 1.1. The phonemic route to spelling – sounding out

Many spellers sound out the words they spell, i.e. they rely on their ear when spelling. This widespread strategy can be observed especially in young children's spelling. Frith (1980) identified three stages for spelling: i) phonemic segmentation, ii) relating sounds to letters, i.e. relating phonemes to graphemes, and iii) selecting the appropriate grapheme, in case of ambiguity, according to the spelling convention of the (English) language. Problems in encoding spoken words into their correct graphemic representation are encountered at all three stages. The discovery of the systematic letter-sound relations is (cf. stage 2), according to Henerson & Templeton (1986), the basis for any kind of development in spelling ability. Evi-

dence for the importance of this strategy also comes from error analyses of spelling. Various studies (e.g. Downing et al. 1984) report 'reasonable' phonetic variation for the correct version of a word, i.e. spellers substitute certain graphemes with other graphemes which have the same sound value in different words. This is the problem of homophones such as ⟨there⟩ and ⟨their⟩, and can equally apply to phonetically ambiguous segments of words, e.g. there is no phonetically compelling reason for the spelling of ⟨toothache⟩, which could be spelled phonetically equally correctly as \*⟨toothake⟩. Such an error would prove that the speller has used a phonemic route. In their skill development poor spellers do not progress beyond this stage and rarely use other strategies (cf. Perin 1983). Although sounding out is the first strategy acquired and is a necessary skill, it is not a sufficient basis for spelling all English words.

The asymmetry existing between phonemes and graphemes prevents us from relying exclusively on phonemic routes in spelling. Only regular words, i.e. words having a 1:1 PGC, can be spelled correctly utilising only phonemic access. But even here the speller has to be able to segment words into their proper phonological units.

#### 1.2. The visual route to spelling

Barron (1980), Englert et al. (1985), Logan et al. (1989) Olson et al. (1989), Roberts (1983), Waters et al. (1988) report that in addition to the phonemic route, good spellers apply visual memory strategies and follow the visual route to spelling rather than relying exclusively on the phonemic. They retrieve the necessary information as a whole, using the visual imagery of the word, which is stored in memory. Familiar and high-frequency words are retrieved as wholes and a great deal of spelling is done via analogy. The importance of the visual strategy is underlined by its close connection to the reading process. Good readers have a good visual memory, and so are more successful in retrieving the information necessary for spelling. Analogy plays an important role in the visual strategy, as it does in the phonemic.

#### 1.3. Using metalinguistic knowledge

The use of metalinguistic knowledge (James & Garrett 1991) is the third important spelling strategy. It involves recourse to knowledge about the language and its regularities or irregularities. A lot of linguistic information is conveyed by modern English spelling, leading Chomsky and Halle (1962) to define English as a “morphematic” language, in contrast to phonematic languages. For instance, accessing etymological information, which is transmitted through English spelling, can help in making decisions on the spelling of words derived from the same root, e.g. ⟨sign⟩, ⟨signal⟩, ⟨signature⟩, where the grapheme cluster ⟨gn⟩ allows of two different phonemic realisations: /n/ vs /g-n/.

A cognitive approach to a spelling problem requires the learner to gain metalinguistic knowledge, a fact which should also be reflected in the teaching of spelling.

Children need to become aware of the significant regularities and the conventional irregularities, and should be taught them explicitly. Amoroso (1985) reports the much higher linguistic awareness of good readers and spellers. He suggests that the spelling of good readers is rule-governed and relies on cognitive decisions about the language while that of poor readers and spellers shows less awareness of orthographic patterns.

In conclusion, different strategies are applied in spelling English words. Various degrees of difficulty require different approaches to spelling. Good spellers always rely on more than just the most frequently used (phonemic) route. They also utilise both visual imagery of the words, and metalinguistic knowledge.

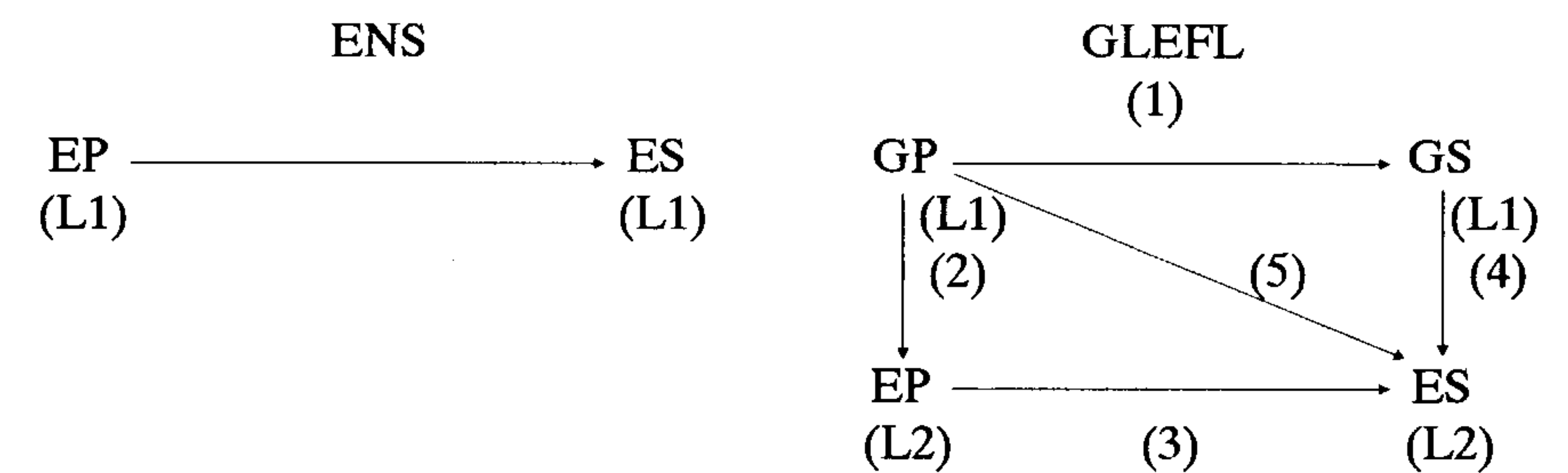
## 2. Spelling strategies of German learners of English

Does the fact that English and German are cognate languages more facilitate or more interfere with the GLEFL's ability to spell correctly in English? For example, it is common in German to suffix the stems of English loanwords with ⟨-s⟩ to mark the plural: *Details, Streiks, Kartons, Waggonen* etc. (Durrell 1991:15). So in German spelling ⟨*Hobbys*⟩ is correct, but this convention applied when spelling the English cognate yields the erroneous ⟨*\*hobbys*⟩. Historically, English spelling fossilised at an early stage. Old spellings like ⟨*night*⟩ or ⟨*name*⟩ survived the changes in pronunciation. German spelling by contrast was fixed later and reflects the pronunciation more consistently. This may lead to Germans developing and deploying different strategies in spelling German words from those used by ENSs in spelling English. Germans have discovered that in spelling German they can rely more on strategies like "sounding out". In addition, German has spelling conventions that differ from English. The application of these spelling conventions can cause interference when used for spelling English words. The fact that these deviances occur constitutes evidence that learners do transfer spelling conventions from their mother tongue. Perhaps they also transfer strategies like "sounding-out" from L1 to L2 spelling, which is feasible as a strategy transfer, but precipitates errors because of the different underlying PGCs to which it is applied.

For the German learner the crucial challenge is that two different languages are involved. Given the two routes – aural and visual – he has at his disposal four options for representing a word: L1 phonology, L2 phonology, L1 graphology and L2 graphology. All four of these different resources may influence his L2 spelling, either separately or in combination. If L1 pronunciation influences L1 spelling and L2 pronunciation<sup>1</sup>, and L2 pronunciation affects L2 spelling, then L1 phonology may be said to affect L2 spelling indirectly via L2 phonology or directly. Figure 1 below, is a partial model of the strategies available to the GLEFL.

Findings that confirm this paradigm have been reported by Bebout (1985) and Cronwell (1972), both of whom underline the role of L1 phonology in L2 spelling.

<sup>1</sup> Of course, the GLEFL seldom acquires fully native L2 pronunciation, but an interlanguage pronunciation instead.



### LEGEND:

- (1) GP influences GS, and independently EP influences ES (similar for both ENS and GLEFL). Typically, intralingual errors occur: e.g. \*⟨referring⟩.
- (2) L1 pronunciation influences L2 pronunciation directly, 'foreign accent' results, only made by GLEFL, the target form /w/ will be substituted by German /v/, e.g. \*⟨vɔʃiz/ cf. G: /vɛʃ/ for target /wɔʃiz/ (⟨washes⟩).
- (3) L2 spelling influenced directly through (2) and (1), e.g. GP /fatə/ ⇒ EP \*⟨fatə/ ⇒ ES \*⟨fater⟩.
- (4) L1 spelling influences L2 spelling directly, e.g. GS ⟨Haus⟩ ⇒ ES \*⟨haus, Hause⟩.
- (5) L1 pronunciation influences L2 spelling directly, e.g. GP /hant/ ⇒ ES \*⟨hant⟩.

FIGURE 1: L1 and L2 influence on L2 spelling

L1 phonology interferes with L2 spelling via two routes: directly, and indirectly through L2 phonology. Debate on which is the more influential is somewhat speculative. All this provides evidence for another difference between ENSs and GLEFLs. For the native speaker there is only one factor related to spelling at this level, namely the pronunciation. For the GLEFL there are three factors: L1 phonology, L1 spelling and L2 phonology.

## 3. Monitoring spelling

### 3.1. On-line monitoring

Spelling, like other language operations, is also accessible and responsive to a control or monitor function. Krashen (1981, 1982) defends the Monitor Model, while some dissent is found in Gregg (1984) and McLaughlin (1978).

The main problems the speller faces are: which criteria to invoke for monitoring; what and when to monitor; and to decide how efficient his monitoring is. These are different tasks from monitoring proper, which leads to the curious phenomenon whereby the monitor has to create its own checking criteria, or its own "monitor", in order to monitor correctly! One function of the control processes in general is to create effective instructions for adjustment. The learner must know what he should match his spelling against, either internal intentions or knowledge, or external expectations of appropriacy. The process itself involves a "perceptual loop", as Levelt (1983:50) calls it, i.e. the self-produced language is perceived, parsed and checked internally for intended linguistic correctness. If the speller checks his output only against the same "internal" criteria, e.g. "sounding out" or

“visual imagery” he used to produce this spelling originally, then the effect of monitoring may be negligible.

There would appear to exist no fewer than three monitoring operations relevant to spelling. First there is that monitoring undertaken simultaneously with scripting: we shall call this *on-line monitoring*. This can be carried out in a number of different ways according to the different spelling strategies used, the visual, phonemic and metalinguistic. Next comes the monitoring that is activated as soon as the word has taken form on the page (or screen): this we shall call *output monitoring*. The writer will then complete the text and may then proceed to the third monitoring, *proofreading*. As the label implies, reading is now the main operation used in checking the output. In addition, monitoring involves two cognitively distinct and essentially sequenced processes: first detecting misspellings and then correcting them. Learners have to master both, but the latter seems to be easier than the former, because once the deviance is identified, its repair is not far off. This third (proofreading) operation will now be the focus of our attention.

### 3.2. Proofreading

Proofreading requires closely analytic reading with focus on both form and meaning (since otherwise one would not be able to distinguish between homophones or similar words with different meanings, e.g. ⟨no⟩ and ⟨know⟩, or ⟨had⟩ and ⟨hat⟩)<sup>2</sup>. In this case the purpose of reading is not so much to understand the text – since the reader and the writer are the same person anyway – but to carefully decode graphological representations by reference to consistencies in meaning and map them against the language norm.

Word recognition is closely related to spelling. The problem is what strategies a skilled reader uses to convert the written word into its phonological representation and/or its lexical meaning. Two strategies in particular have been reported by various psycholinguists: (i) “reading by ear” and (ii) “reading by eye”. (cf. Ellis 1984, Ellis 1985, Foss & Hakes 1978, Henderson 1982).

Let us first consider the “reading by ear” strategy. The route from letter to sound relies on the PGC (or GPC) of words. According to Henderson (1982), phonological decoding (or reading by ear) belongs to the non-lexical translation route, since no reference is made to the lexical storage. Words are perceived as sound patterns and not connected to their semantic content. This seems to contradict the assumption that the phonological information of a word is stored together with its graphological and lexical information. Probably different features of a lexical entry are activated by different impulses. Thus, reading aloud might stimulate the phonological component without stimulating the semantic component of the lexical entry, whereas reading for meaning does evoke the semantic content of a word. This can be observed when readers correctly articulate words which they do not know the meaning of.

<sup>2</sup> The latter especially for L1 German speakers, who are used to devoicing underlyingly voiced final stops and fricatives.

There is another version of non-lexical phonological decoding, which relies not primarily on phonographic relationships, but on analogy with visually similar words of which the phonology is known. Thus, in words containing similar grapheme strings with equal phonemic realisations such as ⟨night, right, sight, light⟩ the cluster ⟨ight⟩ is not recognised by GPC but more likely via the analogy that (i) ⟨ight⟩ is always a cluster and (ii) it is always pronounced /ait/.

When “reading by ear”, the reader relies on his phonemic abilities to identify errors: a potential error is a word that “sounds wrong” when pronounced. It is almost impossible to decide whether consciousness or “Sprachgefühl”, i.e. intuition, plays the predominant role here. As already mentioned, this does not help in detecting homophonic substitutions or “phonetically reasonable” errors. In this respect “reading by ear” and spelling by “sounding out” suffer from the same weakness, as they rely on regular GPC/PGC – a particular problem in English. They are of limited utility and need to be complemented with use of the visual strategy or metalinguistic knowledge.

When using the “reading by eye” strategy, readers match the visual image of a word with the images stored in their visual word storage system. The retrieval of a visual image of a word, employed as a strategy for spelling, can help to control the process if the phonemic route was originally used for spelling.

In most cases the learner needs to apply other complementary strategies and may also need “external aids”, e.g. dictionaries or word-lists, to find a matrix against which he can match his output.

Stuart (1990), confirming an earlier study by Supramaniam (1983), found evidence that good readers and spellers performed well on a task where they were asked to find and delete all occurrences of a single consonant letter throughout a whole text. Successful subjects used both phonological and visual strategies.

The learner may combine two or three strategies, giving preference to one and employing the other(s) for repair or monitoring purposes. There seems to have been little research into these repair processes to date.

### 3.3. GLEFLs' proofreading

Some misspellings are brought about by either graphological, phonological or lexical transfer, or the transfer of L1 spelling strategies inappropriate to L2. Transferred language features have been in the learner's mind longer than non-transferred, as they are related to a previously acquired system of the L1. By contrast, the recently acquired features of L2 are fresh in his mind and are relatively salient, as the psychological theory of recency would suggest. The GLEFL, however, may rely more on what he knew before he learned English and therefore not be able to detect L1-based errors. For instance, the spelling ⟨Haus⟩ in German has been in his lexicon since early schooldays. Now he adds the phonetically, semantically and graphemically very similar English ⟨house⟩, which may frequently lead him to transfer the L1 features to this word. L1 spelling transfer can invite spelling “false friends”. Graphemes and grapheme clusters can be substituted and erroneous “hy-

brid" forms like \*⟨hause⟩, \*⟨House⟩, or \*⟨haus⟩ occur. What happens now, if the learner has to check his own spelling? Several possibilities exist:

(i) The visual image of the erroneous form will activate the same lexical entry as would the German form, since the two are related: so the error in \*⟨hause⟩ will go undetected.

(ii) It does not even cross his mind that there is a way of misspelling this "easy" word (because their components are more or less the same and he believes he need not learn them), and he will therefore not check it at all.

(iii) The learner extracts the deviant word from the text and matches it against his German visual image (e.g. spellings like \*⟨House⟩ are sometimes repaired as ⟨haus⟩, as the learner only attends to the non-capitalisation in English). Either he does not repair the word at all, because it resembles the German version, or he miscorrects.

(iv) The learner sounds the word out, and the spelling proves to be right, according to German as well as English PGC. In this case, he would not make any correction.

Other words pose further problems:

(v) Suspecting a misspelling of \*⟨olvays⟩, the GLEFL sounds this word out, using German phonology, but can find neither deviance (⟨o⟩, ⟨v⟩), since he pronounces it \*[ɔ:lveiz].

(vi) He sounds out the word spotted, and then applies typically German PGC. (e.g. \*⟨fahther⟩ ⇒ /fa:pə/, then he matches the English long vowel /a:/ with German ⟨ah⟩, which is a typical spelling for German /a:/. No correction is attempted.

To sum up, as in spelling, so too in proofreading the GLEFL is confronted with two language systems, which allow various ways of matching, switching, and indeed transferring, since the languages are cognate. As in spelling, the proofreading process is influenced by this "double reference" system, in contrast to the monolingual system that influences the ENS. Therefore, we might expect it to be far more difficult to spot interlingual errors than intralingual ones, since the former have a broader scope.

### 3.4. Hypotheses concerning GLEFL'S performance in spelling and proofreading

(i) L1 transfer impinges on the English spelling of GLEFLs. This transfer can be positive or negative, yielding facilitation and interference respectively. Therefore typical L1-based spelling errors can be expected from GLEFLs which would not be expected from native speakers. Phonological interference is especially crucial, since sounding out is a basic spelling strategy.

(ii) The strategies used by ENSs will differ from those used by GLEFLs, since the latter are adding a second language system and may rely on their L1 PGC spelling conventions.

(iii) In proofreading, the amount of detected errors will not be significantly

different from the overall sum of the errors made, because of the fact that similar strategies are employed in initial spelling and proofreading.

(iv) L1 related errors will be more difficult for spellers to spot and cure than intralingual errors.

(v) Sounding out will be the most frequently used monitoring and. Therefore the number of errors caused by phonological interference in spelling and remaining undetected by monitoring will outnumber those caused by other factors.

## 4. The present study

### 4.1. Subjects

To test the hypotheses listed in the previous section we designed and conducted a study which involved 200 novice (near-beginner) learners of English, aged 12/13 years, with L1 German. They all came from the same school type (comprehensive school) and were taught with the same syllabus and materials, but by different teachers. By the time the test was conducted they had been learning English for about six months for three lessons per week.

### 4.2. Method

We asked the pupils to write an English dictation, a test form they were familiar with. The text contained 145 words, all known to the pupils according to the syllabus, except one – which was spelled out by the teacher. The dictation was read three times. First they listened to the text read straight through at normal speed. Then it was read in smaller, fixed units, each of which they wrote down. The whole text was read a third time at normal speed for them to check their versions. After that the students were given access to an English-German dictionary, where all words contained in the test were to be found. They were issued with green pens at this point and asked to underline all words looked up in the dictionary. The whole procedure took 45 minutes approximately: 30 mins. to write and 15 mins. to check. During the checking phase the pupils did not have any further access to the original text.

The dictations were all subsequently marked by the same teacher. All test papers with more than 50 errors (n=15) were excluded from the study. Since 200 students took the test, 185 were considered for evaluation.

### 4.3. Results: Spelling errors in the dictation

The average total number of errors per dictation was 18.5, ranging between two dictations containing no error and one with 50 errors. The figure 18.5 includes some repeated errors. If we exclude these, the average number of errors drops to 16.7 errors per dictation. On average Ss wrote 12.8% of all words per dictation wrongly, suggesting that the task was quite demanding. The following chart (Fig. 2) provides an overview of the spelling to dictation performance.

results	per dictation	total in corpus
words	145	26825
erroneous words	18.5 (12.75%)	2495
repeated errors	1.8 (1.24%)	243
errors detected (of all errors)	5.5 (29.7%)	66
repeated errors detected	.8 (4.4%)	29
remaining errors	12.97 (73.3%) <sup>3</sup>	1828

FIGURE 2: Spelling performance in dictation

#### 4.3.1. Spelling strategies in evidence

The following spelling strategies were in evidence in our data: real word transfer from German into English; substitution of target words by other real English words; and "original" (nonexistent) misspellings of clusters with a varying noticeable influence of either L1 or L2 phonology. The first two will now be discussed in more detail.

##### 4.3.1.1. Real word transfer from German: interlingual transfer

Out of a total of 26,825 words, the Ss misspelled 2,395 words. 98 (4.1%) words that are similar in pronunciation, and/or spelling and /or meaning in German and in English were directly transferred from German into English, causing errors like: \*⟨familie⟩ (9.18%)<sup>4</sup>, \*⟨habe⟩ (.54%), ⟨bruder⟩ (.27%), \*⟨vater⟩ (.36%), \*⟨ist⟩ (.27%), \*⟨wie⟩ for target ⟨we⟩ (.27%), \*⟨wir⟩ for target ⟨near⟩ (.27%), \*⟨haus⟩ (3.24%), \*⟨geht⟩ for target ⟨get⟩ (.81), \*⟨ab⟩ for target ⟨up⟩ (12.8), \*⟨wen⟩ for target ⟨then⟩ (.27), \*⟨Horst⟩ for target ⟨first⟩ (.27), \*⟨ei⟩ for target ⟨I⟩ (.27), \*⟨fahr⟩ for target ⟨far⟩ (2.16), \*⟨Bus⟩ for target ⟨bus⟩ (2.16). It is obvious that the students not only transferred words with a similar meaning, but also transferred into English German words which are homophonous with the intended English words, i.e. "false friends" (cf. \*⟨fahr⟩ for ⟨far⟩). This indicates that the learner relied mainly on the phonemic route in spelling; had he taken the visual route or utilised metalinguistic knowledge those errors would not have emerged.

##### 4.3.1.2. Word substitution by real English words: intralingual transfer

Another category of errors is real word transfer from English, i.e. either homophonic or phonemically similar wrong words were spelled instead of the target words. Thus, deviances such as \*⟨too⟩, \*⟨to⟩ for ⟨two⟩; \*⟨down⟩ for ⟨town⟩; \*⟨that⟩ and \*⟨what⟩ for ⟨but⟩; \*⟨when⟩ for ⟨then⟩; \*⟨do⟩ and \*⟨too⟩ for ⟨to⟩, \*⟨watches⟩ for ⟨washes⟩, \*⟨walk⟩ for ⟨work⟩ occurred.

These misspellings result from following the phonemic spelling route. As discussed in Section 1, it is impossible to choose the right word out of a number of

<sup>3</sup> In proportion to the sum of erroneous words.

<sup>4</sup> The number in brackets indicates the percentage of the error frequency relative to that of the word occurrence in the dictations of the 185 subjects: ⟨family⟩ occurs 370 times, and 34 deviances \*⟨familie⟩ were elicited and  $34 \times 100$  of  $370 = 9.18$ .

homophones infallibly, if only phonemic access to the lexicon is used. The fact that these phonemically similar words are retrieved from the mental lexicon is evidence for the Ss' lack of L2 phonological competence. Obviously, they misperceived some words and chose the phonetically most similar one from their word storage. Clearly, they were accessing neither the grammatical nor the pragmatic route, or they would have avoided such misspellings.

#### 4.4. Results for proofreading

Ss spotted and corrected autonomously on average 5.5 errors per dictation themselves, which is 29% of their misspellings. None was able to spot and correct all the errors in his dictation. The highest number of errors spotted was 16 out of 35 errors.

The number of words looked up was only 0.75% more than the number of actually corrected words, which indicates that the Ss did not check the spelling of words spelled correctly, but tended only to look up mis-spelled words.

Four times the Ss looked up a correctly spelled word and "miscorrected" it into a wrong form (⟨house⟩ = \*⟨hous⟩, ⟨prepares⟩ = \*⟨prepars⟩, ⟨washes⟩ = \*⟨wash⟩, ⟨then⟩ = \*⟨when⟩). Another six words were detected as misspelled, checked and corrected through substitution with a homophonous or near-homophonous word instead of the correct one, for instance \*⟨toun⟩ = \*⟨down⟩ for target ⟨town⟩, or \*⟨sen⟩ = \*⟨than⟩ for target ⟨then⟩.

Different correlations were found in the results of the study. The total number of errors and the number of errors spotted correlate at Pearson  $r$  of .608, which allows us to conclude that the more misspellings occurred per dictation the more were detected. This, however, does *not* mean that the worse a GLEFL spelled, the better he monitored his errors. The correlation can be explained with reference to the proportions of misspellings and monitored errors (detection rate): a dictation with 35 misspellings and 15 monitored errors still contains 20 errors after proofreading i.e. 42.8 % of the misspellings were monitored. On the other hand a detection rate of only 12.5% was achieved in a dictation containing 8 misspellings with 1 error monitored. Seven errors remain in this dictation, which is in total a better final result, testifying to superior spelling skills. The opposite relationship was also found in the data. Thus, good and poor proofreading performances were found in the data of both good and poor spellers.

The strongest correlation ( $r = .963$ ) was found for the total number of errors and the errors that remained in the dictation after proofreading. This indicates that the more words were misspelled in a dictation the more errors also remained after the proofreading phase. Although poor spellers were able to improve their dictations by proofreading, the proportion of the remaining errors is still higher than in good spellers' performance. As already mentioned, about 25% of all misspellings that remained in the test after on-line monitoring were detected and corrected by the Ss themselves. On-line monitoring was hardly in evidence at all in the testpapers, as there was no crossing out with the same ink or any signs of

hesitation, e.g. restarting a word. The difference between the results of on-line monitoring (the overall amount of errors in the dictation after writing it) and proofreading (the amount of detected errors per misspelling after proofreading) shows a moderately strong correlation (Pearson  $r$ ) of 0.569, allowing the conclusion that the more errors there occurred on a particular word the more errors were detected. Referring to the learner and his dictation, similar correlations were found, i.e. the more misspellings occurred per dictation the more errors were detected on average.

The main problem for monitoring lies not in the influence of either L1 or L2, but in the lack of language awareness and self-awareness. Learners overestimate their abilities and underestimate the problematicity of English spelling: they need to be more sceptical and critical towards their own production. The Ss only checked 0.75% of the correctly spelled words with their dictionaries. On the other hand, they failed to detect about 75% of all misspellings. As the time factor did not play a major role in this study, since they had about 20 minutes to check 145 words, there must have been other reasons for this poor result.

#### 4.4.1. Monitoring real word transfer

190 real word substitutions occurred in the group's writing. Ss transferred 96 words directly from German into English, while 94 wrong English words were substituted for the target word. Of the German substitutes, 33 (34.78%) were detected and corrected by the Ss. These 33 words can be divided into i) quasi-homophones<sup>5</sup>, which do not match the English meaning: e.g. ⟨*Mai:my*⟩, ⟨*Ei:I*⟩, and ii) words which are cognate in meaning and pronunciation, e.g. ⟨*house:Haus*⟩, ⟨*family:Familie*⟩. 46 English homophones were substituted for the targets, only 8 of them (17.39%) being spotted. Using the phonemic access to spelling makes homophones extremely difficult to recognise. That is why we must assume that the phonemic strategy for proofreading, i.e. "reading by ear" was used by a great number of Ss.

Exactly 50% of the real words with a similar meaning but different spelling in German and English (type ii) were detected. This is almost three times as many as they achieved for the homophones. Obviously, the Ss had a sensitivity towards these words. A high proportion (64%) of words such as \*⟨*familie*⟩<sup>6</sup> were detected. Perhaps the word looked "too German" to the learner, or the different *gestalts* in English and German provided clues: or a combination of both.

Fewer real word substitutions from English (i.e. intralingual transfers) were detected. Obviously real English words "look English" and do not disturb the reading process as much as German words do. A slight difference is noticeable between homophones and other substitutes, i.e. homophones were recognised about 2% less than the others. Real word substitutions can only be monitored via access to

<sup>5</sup> Quasi homophones are words which have a very similar sound pattern in English and German. Real homophones do not exist, as a pair of sounds is seldom really identical in both languages. Hence further we shall refer to these words simply as homophones, bearing this restriction in mind.

<sup>6</sup> The detection rate is the proportion of detected errors compared to the total number of errors committed.

meaning, and since only 20% of the total number of these errors was detected, the Ss obviously paid more attention to form than to meaning. These data are shown in Fig. 3:

	Errors	Monitored	% <sup>7</sup>
L1 homophones	46	8	17.39%
L1 (other words)	50	25	50%
L1 total	96	33	34.78%
L2 homophones	16	3	18.75%
L2 other words	78	16	20.51%
L2 total	94	19	20.21%

FIGURE 3: Monitoring real word substitution

The hypothesis that intralingual errors are easier to spot and correct was not substantiated.

#### 5. Conclusions

Relating the results to the hypotheses we aimed to test, the following conclusions can be drawn:

(i) First, since there was no ENS control group involved in this study, no direct comparison could be made with the GLEFLs. However, a large number of the errors were intralingual, which can affect both groups. On the other hand, a considerable number of L1-related errors occurred, which are errors made by GLEFLs exclusively. Subjects transferred real German words and also PGCs. Phonetically reasonable substitutions due to both German and English PGCs occurred.

(ii) L1 transfer facilitates spelling only in very few cases. Similar PGCs in English and German for consonants can support correct spellings; however, even slight differences interfere. More problems occurred in spelling vowels. Words with similar spellings and different pronunciations in English and German, and similarly pronounced but differently spelled words caused problems in L2 spelling.

(iii) As for strategy preferences, the incidence of phonemically reasonable errors (related to both L1 and L2 phonology) strongly suggests that the GLEFL used phonemic access to spell new words. The errors caused by phonological interference from either L1 or L2 outnumber others. Ss were less successful in spotting phonetically reasonable variations, caused by L1 or L2 PGCs, than in spotting other misspellings. This seems to confirm that they used mainly sounding out as a proofreading strategy. Reading aloud could be observed during proofreading, which reinforces this suggestion. However, a high proportion of words was spelled correctly, which is evidence for the visual route for spelling, since not all of these words could be spelled by taking only the phonemic route. Metalinguistic knowledge was apparently rarely used, as could be seen in the high proportion of possessive case errors, where the GLEFLs either omitted or misplaced the apostrophe.

(iv) The difference in frequency between spelling errors and detected errors in

<sup>7</sup> This column shows the number of monitored errors as a percentage of total errors committed.

proofreading is significant, although the results for both are not satisfying, since every eighth word was misspelled and only a quarter of these spelling errors were detected. The factors that may have caused this difference are time, the chance to use the dictionary (as an external aid to check words against), and the concentration on proofreading.

(v) L1-derived errors do not seem to be more difficult to spot than other errors. However, it is likely that an awareness of dealing with an L2 system facilitates the process of monitoring L2-based errors. Further explanations cannot be made on the basis of this study.

To sum up, GLEFLs are influenced in their spelling by two language systems. Transfer takes place in spelling, but is of minor importance in proofreading. In writing Ss take the visual and phonemic routes for spelling. In proofreading, phonemic access is more frequently used. However, metalinguistic knowledge is seldom applied, although it had been taught explicitly in the classroom according to the current syllabus. Obviously, a gap between knowledge and use exists here.

English spelling causes problems for GLEFLs. Although spelling is taught in the classroom and so are special features of English PGC, every eighth word is still misspelled in the GLEFLs' writing, if dictation is a representative writing task.

### 6. Implications for teaching spelling

Extrapolating from the study, the following implications for teaching spelling and proofreading should be considered by the teacher:

(i) Various factors influence L2 spelling. Interlanguage phonology plays an important role. The better learners are able to pronounce English words, the better they will be able to spell them. This is especially true for sounds that are unfamiliar in German: here a correct pronunciation is important, otherwise substitutions in pronunciation will doubtlessly cause misspellings. For words which are pronounced similarly but not identically in English and German, the finer differences have to be made clear. Paying attention to correct pronunciation is especially necessary since the phonemic route to spelling is frequently resorted to and learners tend to switch from spelling via visual access to sounding out if the spelling of a word causes problems. The same applies to proofreading. But the different PGCs need to be taken into consideration and should be taught on a contrastive basis to raise the learner's awareness of them.

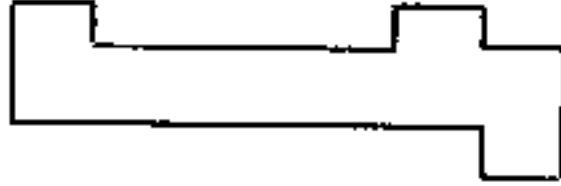

(ii) Spelling via the visual route is the most successful strategy. This should be encouraged. Exercises like copying words and phrases can promote this process. Therefore copying, especially for novice writers (respectively spellers) should not be neglected as it is at the moment, on the grounds that it is mindlessly mechanical.

(iii) The more learners read the more they become familiar with the correct visual image of a word. This strengthens the visual lexical entry in the memory, and thus facilitates the retrieval of visual information to serve both spelling and proofreading. As it has been proved that misspellings disturb the reading process, frequent readers, who are accustomed to reading correctly spelled words (although

they do not focus on spelling while reading), will detect the misspellings as disturbances more easily than will occasional readers. This suggests using "cloze" texts where students have to detect misspellings out of a number of correctly spelled versions of words.

(iv) The *gestalt* of a word is also very important. Well-known personal "spell-aids", such as writing down variations of a word in order to search for the correct version, are based on gestalt imagery. Learners should be encouraged to use these. To facilitate this kind of visual imagery, various means can be used, for example colouring and different letter types (CAPITAL, zigzag, bold, italic) and writing media (blackboard, pen, computer, typewriter) could be used. Or use can be made of the tachistoscope, which flashes a whole word on a screen for a fraction of a second, not long enough for analysis but long enough to impress the gestalt on the learner's mind (James, 1970). It is possible to draw geometrical figures which define and distinguish the shapes of two confusable words. Thus words such as German *Familie* and English *family* can be distinguished by different shaped "boxes" as in the following task:

First the students draw the boxes around the two words carefully, after which they try to memorize the shape of the boxes, and in the end they are shown the empty boxes and they have to assign each word to its right box.

- |    |   |            |   |
|----|---|------------|---|
| 1. | f a m i l y   | vs.        | F a m i l i e   |
| 2. |  | which box? |  |
| 3. | family  |            | Familie   |

(v) Contrastive teaching is necessary when words are cognate but not totally identical, in order to avoid "false friends" associations.

(vi) Metalinguistic knowledge tends to be stored in the learner's mind, associated with specific items or tokens, and not sufficiently automatised. Practice needs to be provided in applying rule knowledge and should lead to an automatization of rules. This is not a problem unique to spelling but applies to FLL in general and has been debated by researchers for decades.

(iv) Especially for proofreading it is necessary to increase the learner's attention to spelling. Doubt and skepticism about one's own performance are important. Simple mechanical exercises, such as finding and underlining (or deleting) special graphemes or clusters, or identifying the appropriate graphemes for one particular phoneme in a given text, or checking every fifth word in a text – all these can lead to an increase of language awareness. But this will only work if the learner is successful in such exercises. If he has to check a text again after he had done so already by himself and he is able to spot more errors than before, he might be more attentive in checking the next text.



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