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Research Paper

The Snowball effect of Orthographic misrepresentation on L2 writing

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Abstract

Despite extensive research on bilingual students' writing, little attention has been paid to how spelling-related hesitations influence lexical choices and overall writing quality. This study investigates the role of orthographic knowledge in second language (L2) writing and examines whether spelling-driven pauses affect vocabulary selection and content development, as well as whether targeted instructional interventions can mitigate these challenges. A sequential exploratory mixed-methods design was employed. The research began with narrative inquiry and think-aloud protocols, which revealed learners' spelling-driven hesitations and their role in lexical avoidance. Insights from these phases informed a quantitative experiment, analyzed using Multivariate Analysis of Variance (MANOVA), to test the effects of spelling-focused instruction on vocabulary acquisition. To contextualize the statistical outcomes, the final stage combined post-treatment learner narratives with a learner corpus of spelling-driven vocabulary lists, providing both interpretive depth and empirical evidence of lexical growth. Participants included 10 students in the narrative phase, 8 in the think-aloud phase, and 12 in the experimental phase. Results showed that spelling uncertainty triggered lexical revisions, significantly affecting *Task Response* and *Lexical Resource* scores, while *Grammar* and *Cohesion/Coherence* remained unaffected. Post-treatment narratives highlighted increased orthographic confidence and greater willingness to use complex vocabulary. Findings suggest that corpus-informed spelling instruction can reduce lexical avoidance and enhance L2 writing quality.

***Keywords*:** Error, Orthographic Knowledge, Pause, Spelling, Vocabulary, Writing

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1. Introduction

Writing is a complex skill that integrates multiple cognitive and linguistic processes. The Simple View of Writing, a well-known model for characterizing L1 writing, assumes that there are two integral elements that contribute to writing skill—transcription and ideation (Berninger & Swanson, 1994). In this model, transcription is defined as spelling and handwriting, which help transfer ideas into written language, while ideation refers to the ability to generate and express ideas (Berninger & Swanson, 1994). Transcription requires retrieving, organizing, and selecting orthographic symbols (Limpo Alves, & Connelly, 2017), and spelling in particular draws on phonological, morphological, and orthographic knowledge. Although spelling is often assessed through accuracy measures such as dictation or word counts (Limpo & Alves, 2013; Wagner et al., 2011), it also plays a crucial role in fluency and the construction of syntactically complex structures (Fayol, 1999; Hayes & Berninger, 2010; Sumner, Connelly, & Barnett, 2016)

Writing has long been recognized as a complex process requiring coordination of cognitive and linguistic resources. Kellogg (1996) described writing as involving planning, monitoring, and execution, with revisions emerging when mismatches occur between intended and produced text. In L2 contexts, this complexity increases as learners manage linguistic encoding and idea development under limited resources. Hanaoka and Izumi (2012) distinguished overt errors from covert ones such as abandoning ideas, leaving spaces, or rephrasing, underscoring how lower-order difficulties can shape higher-order outcomes.

Despite recognition of spelling as a core transcription skill, its impact on content formulation in L2 writing has received little attention, even though evidence shows that spelling uncertainty consumes cognitive resources, triggers avoidance, and distorts meaning, leaving this dimension underexplored (Kormos, 2023). The present study therefore examined whether spelling problems hinder higher-order processes in L2 writing. First, the issue was explored qualitatively through narratives and think-aloud protocols, and then tested experimentally to determine how spelling uncertainty influenced lexical choice, pausing, and overall writing quality.

2. Literature Review

Some instructors have not appreciated the significance of spelling and may not know that “a bilingual orthographic continuum exists" (Linan-Thompson et al., 2018, p. 15). That a deep orthographic structure with a complicate syllabic organization influence vowel pronunciation (Frost, 2005), and grapheme-phoneme inconsistency in two languages possibly hinder spelling achievement and successful reading (Sparks et al., 2009) have made L2 spelling learning a lifelong process (Kemp, 2009).

2.1 Theoretical Background

Writing in a second language (L2) is a cognitively demanding process that requires the integration of orthographic processing, lexical retrieval, and ideation. The Simple View of Writing (Berninger & Swanson, 1994) identifies transcription (spelling and handwriting) and ideation (generation of ideas) as core components of writing. Transcription involves retrieving and organizing orthographic symbols (Limpo Alves, & Connelly, 2017), while spelling draws on phonological, morphological, and orthographic knowledge. Recent studies confirm that spelling accuracy is not only a measure of fluency but also a predictor of syntactic and lexical sophistication in writing (Graham & Eslami, 2020; Tavárez & Costa, 2021; Hussain, 2022).

From a cognitive-interactionist perspective, writing is seen as an interactive process involving planning, monitoring, and execution (Kellogg, 1996). Pauses and revisions occur when mismatches arise between intended meaning and produced text. Importantly, covert errors—such as spelling-driven hesitations—may disrupt lexical retrieval and idea formulation (Hanaoka & Izumi, 2012). This aligns with skill acquisition models, which argue that lower-order skills (orthography, spelling) must be automatized to free cognitive resources for higher-order processes like ideation and argumentation (Shen & Chen, 2021; Tian et al., 2024).

Orthographic processing plays a central role in lexical retrieval. The *self-teaching hypothesis* (Share, 1995) posits that phonological decoding during independent reading consolidates orthographic representations, which in turn support vocabulary use in writing. When sounding out written vocabulary, readers have the chance to consider the order and identity of letters and how they map onto phonemes in a single word. Phonological decoding during independent reading thus serves as a self-teaching mechanism that consolidates orthographic representations in memory, a process critical to language performance quality (Share, 1995). More recent work (Miralpeix & Muñoz, 2018; Yoon, 2018; Maamuujav, 2021) highlights the strong correlation between lexical knowledge—both receptive and productive—and L2 writing quality. These findings suggest that spelling difficulties may not only hinder transcription but also constrain lexical choice and ideation.

2.2 Spelling and L2 Writing Quality

Although evidence for a relation between oral language ability and spelling achievement has been scarce (Berninger & Amtmann, 2003), Berninger and Amtmann nevertheless asserted that oral vocabulary skills, together with verbal working memory and lexical retrieval, contributed to more highly scored written tasks. Despite divided opinions regarding the importance of teaching spelling to L2 writers, Tavárez and Costa (2021) emphasize that spelling plays a crucial role in communication by reducing lexical and semantic ambiguities and closely supporting language production quality. Similarly, Hussain (2022) demonstrated that

spelling has significant implications for Arab learners' L2 writing in English. Adversely affected by L1 interference, these learners showed improvement when provided with explicit instruction in basic spelling rules and purposeful reading under a well-designed syllabus. In line with this, Graham and Eslami (2020) found spelling to be a strong predictor of L2 writing success, correlating with other variables such as vocabulary usage. Their meta-analysis further confirmed the applicability of the Simple View of Writing to L2 writing development.

In sum, transcription skills—particularly spelling and handwriting—are fundamental to writing achievement, both in first and second language contexts. Moreover, ideation, or the generation of ideas, is closely interconnected with transcription, underscoring the importance of orthographic competence in supporting higher-order writing processes.

2.3 Vocabulary and Lexical Retrieval in L2 Writing

Studies investigating strategies and skills for improving L2 writing have consistently underscored the importance of vocabulary knowledge. Johnson et al. (2016) and, similarly, Maamuujav (2021) criticized the limited research on the types of vocabulary knowledge required for effective second language writing. Both concluded that the accurate and appropriate use of productive lexical knowledge is positively associated with writing quality. In particular, the successful completion of higher-level academic tasks—those requiring analytical and critical thinking—demands advanced vocabulary knowledge and careful awareness of lexical selection.

L2 learners therefore need to develop the ability to choose appropriate vocabulary in line with the academic nature of their writing tasks. For novice writers, who often face multiple challenges in language development, writing programs should provide instruction that broadens their linguistic resources and repertoire. Supporting this view, Miralpeix and Muñoz (2018) found a strong correlation between English learners' receptive breadth of word knowledge and their writing skill. The same relationship holds for productive word knowledge: the quality of L2 writing is closely tied to the words students employ in essays and other written tasks (Aghajanzadeh & Villoria, 2016; Chen & Baker, 2010; Crossley, Muldner, & McNamara, 2016).

Further evidence comes from Yoon (2018), who used regression models to show that productive lexical knowledge significantly contributes to expert ratings of L2 writing competence. Taken together, these findings highlight the interrelatedness of writing content quality and lexical sophistication. Productive lexical knowledge enables learners to access lexical variety, construct meaning with precision, and engage with complex academic discourse, making it a central component of literacy development and communicative competence (Zeng et al., 2025), while also underscoring its significance as the foundation for lexical

expansion, phrasal sophistication, and overall communicative competence in L2 writing (Li, 2026). Accordingly, L2 instructors should integrate vocabulary instruction into writing pedagogy (Momeni& Ahmadian, 2022), ensuring that learners acquire the lexical items necessary for academic writing and addressing obstacles that prevent intended vocabulary usage.

2.4 Pausing and Revision Behavior

A range of criteria and classifications have been proposed to explain the characteristics of pauses in second language (L2) writing. Chenu et al. (2014) distinguished between time-driven and language-driven pauses: the former relates to the frequency and location of cessations, while the latter reflects linguistic and discoursal demands. Barkaoui (2019) offered a binary categorization, identifying pauses that occur during formulation (constructing words and sentences) and revision (modifying composed text). He concluded that formulation pauses typically outnumber revision pauses. Thus, researchers can begin to experimentally explore the inside of the "black box" and see through the complex cognitive activities that contribute to the dynamics of L2 writing (Shen & Chen, 2021, p. 2). The pausing behavior of L2 writers is closely associated with attention and effort directed toward language-related problems while composing. More proficient L2 writers demonstrate fewer and longer pauses, typically at higher-level processing units such as sentence boundaries or during post-writing evaluation, while less proficient writers pause more frequently within words and focus on lower-level concerns like grammar and word choice. Although these pause-related patterns reliably reflect proficiency, Ivaska, Toropainen, and Lahtinen (2025) show that their generalizability across languages is limited: advanced L2 writers of Swedish resemble native speakers, whereas even highly proficient L2 writers of Finnish remain closer to other L2 learners. Together with Shen and Chen's (2021) findings, this suggests that pausing behavior is a robust indicator of writing proficiency, but its manifestation varies across linguistic contexts.

Building on this, recent studies have examined the cognitive load associated with L2 writing. Tian et al. (2024) employed keystroke logging to investigate concept construction in argumentative essays, identifying distinct revision behaviors for within-word and between-word pauses. These findings highlight the importance of analyzing pauses as indicators of the cognitive processes underlying argumentation in L2 writing. Lu et al. (2025) further demonstrated that greater accuracy in independent writing was linked to shorter pause duration between words, suggesting that pausing behaviors can serve as diagnostic markers of learners' cognitive strategies in managing linguistic complexity. Complementing this, Garcés-Manzanera (2024) reported that frequent pauses, or P-bursts, were negatively correlated with text quality, reflecting cognitive overload or difficulties in language processing. In contrast, revision bursts (R-bursts) were positively associated with improved text quality, with regression analyses confirming their predictive value. Together, these findings

underscore that while excessive pausing may hinder performance, systematic revision behaviors play a critical role in enhancing the coherence and accuracy of L2 writing.

Révész, Michel, and Lee (2023) assert that when lexical problems arise, students may hypothesize about word suitability or orthographic form and attempt to use the vocabulary in their writing. However, hesitation often leads them to adopt communication strategies such as circumlocution or paraphrasing. Some learners succeed in producing adequate forms, while others generate non-targetlike expressions (Révész, Michel, & Lee, 2023). This variation demonstrates that individuals respond differently to pause-generating lexical challenges. Van Waes and Schellens (2003) compared pausing and revision behavior in pen-and-paper versus computer-based formats. They categorized revisions according to level, purpose, and location, noting that revisions at lower linguistic levels—such as spelling and word choice—are typically undertaken either to correct form or to adjust content.

While prior studies have examined spelling accuracy, vocabulary knowledge, and pausing behavior, **few have investigated how spelling-driven hesitations function as covert errors that directly influence lexical retrieval and idea formulation in L2 writing.** Moreover, limited attention has been paid to instructional interventions—such as corpus-informed spelling instruction—that may alleviate these challenges. Based on the theoretical background and identified gap, the present study addresses the following research questions:

1. Do spelling hesitations cause changes to vocabulary choices and content in L2 writing?

2. Is there a significant difference between writing performance affected by spelling uncertainty and that supported by spelling assistance?

    Null Hypothesis: There is no significant difference in writing performance between texts affected by spelling uncertainty and those supported by spelling assistance.

3. Method

The present study was carried out in four distinct phases. First, 10 B2 participants shared their writing concerns through a narrative inquiry designed to surface lived experiences, writing strategies, and orthographic challenges. In the second phase, participants from two different teaching contexts who reported pronounced spelling-driven pauses and consequent vocabulary difficulties were examined in greater depth through think-aloud protocols. The third phase was an experimental exploration to determine whether spelling-driven lexical choices materially affect overall writing quality. Finally, because the study originated from classroom observation, the fourth phase implemented an immediate pedagogical response: a learner corpus of commonly

misspelled words (drawn from participants' productions) was developed and students' attitudes toward the corpus and spelling support were explored.

The institution did not have a formal research ethics committee at the time of the study; nevertheless, the research was conducted in accordance with the ethical principles of the Declaration of Helsinki. Notified prior to participation, all participants provided oral informed consent after receiving an information sheet that described the study aims, procedures, potential risks and benefits, confidentiality protections, and their right to withdraw without penalty. Oral consent was documented in the researcher consent log (participant code, date/time, and researcher name).

The study employed a sequential exploratory mixed-methods design, and the four-phase sequence (narrative inquiry → focused think-aloud follow-up → experimental test → classroom intervention and attitude study) was chosen to move from rich, contextualized qualitative insight to controlled empirical testing and then to practical remediation, enabling methodological triangulation and direct classroom impact.

3.1 Phase 1: Narrative Inquiry

Narrative inquiry shaped the first phase because it provides a lens through which learners' lived experiences and identity negotiations in L2 writing can be explored. As Johnson (2025) argues, narratives externalize learners' personal struggles and contextualize their meaning-making processes. In this study, reflection over students' narratives was expected to reveal orthographic and lexical challenges, thereby offering instructors insight into how learners approach writing tasks.

3.1.1 Participants

Ten B2-level students (Council of Europe framework), aged 21 to 32, who intended to sit for a proficiency test, participated. All participants' L1 was Persian. Writing proficiency had been verified through their most recent institutional placement test scores and confirmed by their instructors. Gender distribution was balanced (5 male, 5 female) to ensure representativeness.

3.1.2 Procedure

Narratives were written as part of the customary practice adopted by the researcher in orientation sessions of writing courses. Students who had acquired knowledge for writing narratives submitted verbal reports using WhatsApp. These reports were transcribed and coded thematically. Coding procedures followed Braun & Clarke's (2006) thematic analysis framework: initial familiarization, generation of codes, searching for themes, reviewing themes, and defining/reporting them. Coding focused specifically on spelling-induced hesitations and related problems evident in the texts.

3.2 Phase 2: Think Aloud

The think-aloud protocol was employed to capture the cognitive processes underlying spelling hesitations and their impact on lexical and conceptual choices. In comparison to the classic version; as to findings revealed by a comparative study carried out by Zhao et al. (2014), instructed think aloud brings about more cognitive load and verbal source problems. This phase was justified as a complementary method to narrative inquiry, allowing triangulation of data and deeper insight into orthographic hesitation in real-time writing. All verbalizations and written drafts were transcribed; two coders applied the same codebook to each excerpt, disagreements were resolved through discussion, and consensus notes were appended to the codebook.

3.2.1 Participants

Findings from Phase 1 encouraged the continuation of the study through action research. In this stage, the researcher invited students from two different learning contexts to report any spelling-related difficulties in their writing. From these responses, eight participants were chosen—four from each teaching context—based on their self-identified spelling hesitations and the impact these had on their vocabulary choices. Four students aged 21–32 from a proficiency test class and four English Translation university students aged 19–35 participated, allowing for closer examination of spelling-related hesitations and their impact on vocabulary choices and writing content. Gender distribution was balanced (4 males, 4 females).

3.2.2 Procedure

The instructed think-aloud protocol was a focused verbal report: participants were informed of the locus of attention beforehand. Any stoppage for lexical revisions had to be elaborated. They reported spelling-induced pauses orally in L1 and annotated them in writing. Students were asked to elaborate on the pauses while completing two timed writing tasks: an essay on a familiar topic (*environmental protection*) and an essay on an unfamiliar topic (*gun control*), written nine days later. In each task they reported:

- The original lexical item abandoned due to spelling uncertainty
- The original sentence or concept intended from the outset
- The substitute lexical item used

All verbalizations and written drafts were transcribed with respect to lexical substitution and degree of meaning change (complete, partial, no/zero conceptual shift)

It should be noted that participants had complete receptive and structural knowledge of the discarded words (pronunciation, meaning, syntactic role). Their inability to use them stemmed solely from orthographic incompetence, not from lack of semantic or grammatical knowledge.

3.3 Phase 3: Experiment

3.3.1 Participants

In the think-aloud stage, eight students were initially involved. For the subsequent experimental phase, four additional students who later reported spelling-related difficulties and voluntarily agreed to participate were included, bringing the total number of participants to twelve.

3.3.2 Procedure

The experimental study was designed to examine whether spelling-driven avoidance influenced lexical resource and other aspects of essay writing. Participants were asked to write on two topics under different conditions. In the first condition, they wrote with spelling guidance from their instructor and did not avoid any words due to spelling concerns. In the second condition, held four days later, they wrote on another topic without spelling assistance, where lexical avoidance was a common practice. All essays were scored and rated using IELTS Writing Band descriptors, which provide holistic guidelines for evaluating performance across criteria, namely *Lexical Resource*, *Grammar*, Cohesion/Coherence, and Task Response.

4. Results

Narrative accounts and think-aloud protocols revealed recurring spelling-related hesitations that shaped lexical choices and content development. These insights motivated the experimental study, which examined the impact of spelling assistance versus spelling uncertainty on writing performance. Together, the findings informed the pedagogical plan that follows.

4.1 Narrative results

There were two narratives that set the ball rolling on carrying out the present mixed-method research. It could be simply seen from the middle part of the first narrative by the former shown below in the excerpt 1 that self-

directed revisions and changing the original lexical items due to spelling doubts or problems were the frequent writing occurrences.

Excerpt 1

I think I should write more and spend more time because the teacher is more serious than the one I had before. I don't know how much reading I need. My classmate Sara ♡is not happy with the class for the number of essays we should write this term. 😒 (Me too....)

I have decided to show my writing to one of friends living in the US before giving to the teacher. I am not sure if this is a good decision. I should ask my teacher. Like other students, I think, I have idea problems. I should google a lot to get better ideas. It may seem funny that I don't write the words I'm not sure about the spelling. This problem is really on my nerve. I asked some about this. They find this challenge awkward. But I have to face. I think this makes my writing simpler. I have to choose common words. SPELLING RESERVATIONS 😬🖐

I didn't notice what teacher said about collecting our writings till the end of the term. What we should do with several papers? Is this a great job? The only assumption is thinking about our common mistakes and getting lesson from comments. Comments on my frequently revised writing for all details are terribly frightening😳. But I dare write even...💪🐰

Drawing on two student narratives and using Braun & Clarke's (2006) thematic analysis, five themes were identified. These themes capture how spelling uncertainty influences lexical selection, revision strategies, emotional responses, and perceptions of instructional pressure. Each theme is illustrated below with representative excerpts and analytic commentary.

Spelling reservations and word-choice restraint

Description: Writers deliberately avoid or omit words they cannot confidently spell, opting for safer, more common vocabulary or omitting lexical items altogether.

- *Evidence:* "It may seem funny that I don't write the words I'm not sure about the spelling… I have to choose common words. SPELLING RESERVATIONS."
- *Interpretation*: Orthographic uncertainty functions as an active filter on lexical choice, producing measurable self-censorship during composition.

Affective load and writing anxiety

- *Description*: Spelling difficulties are accompanied by negative emotions (frustration, fear of teacher feedback, embarrassment) that influence writing decisions.
- *Evidence*: "Comments on my frequently revised writing for all details are terribly frightening… But I dare write even…" and "This problem is really on my nerve."
- *Interpretation*: Emotional responses both motivate avoidance (not attempting difficult words) and prompt compensatory behaviors (seeking help), affecting fluency and risk-taking.

Instructional pressure and perceived mismatch with expectations

- *Description*: Participants link spelling problems to teacher expectations that emphasize infrequent or complex vocabulary, creating performance pressure.
- *Evidence*: "…only common when teachers stress on words that are more infrequent. This is a real pressure…"
- *Interpretation:* Pedagogical emphasis on advanced lexis without parallel orthographic support increases hesitation and substitution behaviors.

Lexical simplification and loss of precision

- *Description*: When target words are abandoned, writers replace them with simpler or more general terms, reducing lexical richness and sometimes narrowing conceptual scope.
- *Evidence:* "I think this makes my writing simpler. I have to choose common words."
- *Interpretation*: Spelling-driven substitutions often preserve communicative intent but reduce specificity and expressive nuance.

Strategic coping and help-seeking

- *Description*: Writers adopt strategies to manage uncertainty, including consulting peers, searching online, or delaying submission for external review.
- *Evidence*: "I have decided to show my writing to one of friends living in the US before giving to the teacher… I should google a lot to get better ideas."
- *Interpretation*: Coping ranges from avoidance to active remediation; help-seeking indicates potential instructional entry points.

The Snowball effect ….

The second excerpt extracted from the other writing student' narrative implied his spelling obsession as well resulting from teachers' emphasis on using more infrequent vocabularies. He wrote:

Excerpt 2

> ...Spelling problems are rare but only common when teachers stress on words that are more infrequent. This is a real pressure when you do not know how to write difficult words correctly. I'm wondering why we have to apply complex language for expressing simple ideas…

The following analysis examines the student's narrative, which, despite its brevity, highlights key issues related to spelling uncertainty and lexical choices.

Spelling reservations and word-choice restraint

Description: Writer avoids difficult or infrequent words when unsure about spelling, resulting in intentional simplification or omission of lexicon.

Evidence: "…only common when teachers stress on words that are more infrequent."

Interpretation: Similar to Excerpt 1, orthographic uncertainty acts as a self-imposed filter; the student consciously limits word choice to avoid mistakes.

Affective load and writing anxiety

Description: Pressure and uncertainty about spelling provoke negative emotions, such as frustration or stress.

Evidence: "This is a real pressure when you do not know how to write difficult words correctly."

Interpretation: Anxiety arises from the fear of making spelling errors, which can influence risk-taking and willingness to attempt complex words.

Instructional pressure and perceived mismatch with expectations

Description: Pedagogical emphasis on infrequent or complex vocabulary creates additional pressure and a sense of mismatch between expectations and student readiness.

Evidence: "…when teachers stress on words that are more infrequent… I'm wondering why we have to apply complex language for expressing simple ideas."

Interpretation: Students perceive a misalignment between required language complexity and the clarity or simplicity of expression, amplifying hesitation and avoidance.

Lexical simplification and loss of precision

Description: The student questions the necessity of complex language, implying that simpler alternatives would suffice, reflecting potential narrowing of lexical range.

Evidence: "…why we have to apply complex language for expressing simple ideas…"

Interpretation: Spelling concerns combined with instructional demands may encourage students to choose simpler constructions, limiting expressive nuance and lexical richness.

Although Excerpt 2 showed no evidence of *strategic coping or help-seeking*, it aligns closely with Excerpt 1 in demonstrating that orthographic uncertainty, instructional pressure, and affective responses interact to influence lexical choice and writing strategy.

4.2 Think Aloud Results

Two independent coders analyzed the transcripts. Inter-rater reliability was calculated (Cohen's $\kappa = 0.82$), ensuring methodological rigor. Upon leaving the intended vocabulary out of the sentence due to spelling uncertainty, the degree of changes made to the original concept or idea was labeled as *zero*, *partial*, and *complete* in two argumentative essays they wrote. A translated version of the think aloud transcription on one spelling driven pause shown in excerpt 3 could vividly illustrate the lexical competence of the writer for using the word *fluorescent* and its effect on the writing content.

Excerpt 3

The Snowball effect ….

> I stopped writing for a word that I liked to use in a sentence: floursent*. the sentence in my mind is: Ultraviolet radiation emitted from fluorescent lamps poses serious health issues. I have seen it in a reading recently but I am not sure how to spell it. I changed the sentence to this one……

Although *zero change* versions did not distort the original concept of the writer but they insinuated incomplete productive lexical knowledge in terms of spelling accuracy. The full description of the process has been provided in Table 1: The words that triggered alterations to the intended sentence due to spelling uncertainty have been shown italics, and the degree of changes they made has been underlined at the end of the originally intended sentence in CAPITAL LETTERS.

Table 1.

Think Aloud Results

Originally intended Sentence	**Written Sentence**	**Meaning Change**
Ultraviolet radiation emitted from *fluorescent* lamps poses serious health issues.	Light pollution poses serious health issues	PARTIAL
Voluntary *euthanasia* is the result of modernity.	Tough depression and feeling loneliness is the gift of modernity.	PARTIAL
Recently, successful *entrepreneurs* have helped the government with their eco-friendly ideas and products.	Environmentalists have raised public awareness with launching campaigns.	COMPLETE
Some people may not agree with those who keep people's normal life under video *surveillance*.	some psychologists may not accept watching people secretly.	PARTIAL
This group think that *acquaintance* with environmental NGOs and their actions and plans can be a great help.	This group think that familiarity with environmental NGOs and their actions and plans can be a great help.	ZERO
For example, this industry has threatened *Mediterranean* marine life.	I think tourism has ruined many popular sites, and tourists have caused animals deaths.	PARTIAL
Amateur criminals are also armed with guns and may kill innocent people for small problems.	Non-professional criminals are also armed with guns and may kill innocent people for small problems.	ZERO
Many murders are for racial *prejudice*.	Racial differences have been one of the main reasons for murders.	PARTIAL

Two verbal reports from two students did not reveal spelling concerns, and it is interesting to note that apart from eight words with spelling uncertainty that had been exposed in 16 think aloud reports (*floursent**,

*euthensia**, *anterprenour**, *surveillance**, *acquaintance*, *mediterian**, *acquentence**, and *predujice**), the word *amateur* had been abandoned despite the accurate spelling knowledge the student writer had.

Overall, there were eight clear instances of spelling-driven hesitation that led to lexical changes. Interestingly, an equal number of these were influenced by topic familiarity: four cases occurred in the writing task on the unfamiliar topic, and four in the task on the familiar topic. All eight sample result entries based on participants' think-aloud reports and analyses are shown in Appendix A; each entry documents the original lexical item abandoned, the original sentence or concept intended, the substitute lexical item or sentence produced, the lexical substitution type, and the degree of meaning change.

4.3 The Experiment Results

Two raters reviewed the writings tasks engaged in discussions about the essays and criteria with the researcher. Once the norming process was complete, the raters received the IELTS band descriptors, students' written submissions, and a scoring sheet. The rating framework was fully crossed, meaning both raters assessed two essays written by each student. For every written submission, scores ranging from 0 to 9 were assigned for each of the four components of the evaluation criteria, namely *Task Response (TR)*, *Lexical Resource (LR)*, *Grammatical Range* and *Accuracy (GR/A)*, and *Cohesion/ Coherence (C/C)*. An overall average score was also computed across the four variables. To reduce potential bias in their evaluations, the raters were not given any details regarding the students' proficiency levels or the conditions under which the assessments were conducted. Table 2 indicates the high inter-rater reliability achieved to ensure the continuation of the study and relevant analyses.

Table 2

Interrating Results

Inter-rater Reliability Estimates (N = 12)

	Essay 1	Essay 2
TR	.88	.88
GR/A	.87	.88
LR	.88	.89
C/C	.89	.89
Average	.95	.96

Note. ** $p < .01$

Mauchly's test indicated sphericity was met for all measures ($p > .05$); therefore, unadjusted degrees of freedom were reported for the univariate analyses (See table 3).

Table 3

Mauchly's Test of Sphericity Results

Table 4 shows the findings from a Multivariate Analysis of Variance (MANOVA) conducted to assess the differences in writing performance within a single group. The analysis aimed to determine whether the spelling hesitations had a statistically significant effect on multiple dependent variables of L2 writing.

Table 4

Multivariate Analysis

						Epsilon[b]		
Within Subjects Effect	Measure	Mauchly's W	Approx. Chi-Square	df	Sig.	Greenhouse-Geisser	Huynh-Feldt	Lower-bound
Spealling	TASK	1.000	.000	0	.	1.000	1.000	1.000
	GRAMMATICAL	1.000	.000	0	.	1.000	1.000	1.000
	LEXICAL	1.000	.000	0	.	1.000	1.000	1.000
	COHESION	1.000	.000	0	.	1.000	1.000	1.000

The MANOVA results, supported by Pillai's Trace (.671, F = 10.207, p = .004), Hotelling's Trace, Wilks' Lambda, and Roy's Largest Root, revealed statistically significant differences in writing performance across the two conditions. Table 5 provides more details on factors contributing to significant differences.

Within Subjects Effect	Value	F	Hypothesis df	Error df	Sig.
Pillai's Trace	.671	10.207[c]	2.000	10.000	.004
Wilks' Lambda	.329	10.207[c]	2.000	10.000	.004
Hotelling's Trace	2.041	10.207[c]	2.000	10.000	.004
Roy's Largest Root	2.041	10.207[c]	2.000	10.000	.004

Table 5

Univariate results and post-hoc comparisons

Measure		Type III Sum of Squares	df	Mean Square	F(df=1,11)	Sig.	Partial η^2	95% CI lower-upper bound	p-value (Bonferroni)
TASK	Sphericity Assumed	.510	1	.510	6.494	.027	.95	.05	.027
	Greenhouse-Geisser	.510	1.000	.510	6.494	.027	.95	85	.
	Huynh-Feldt	.510	1.000	.510	6.494	.027	.95		
	Lower-bound	.510	1.000	.510	6.494	.027	.95		
GRAMMATICAL	Sphericity Assumed	.000	1	.000	2.984	.12	.000	-.10	.12
	Greenhouse-Geisser	.000	.	.	2.984	.12	.000	.34	
	Huynh-Feldt	.000	.	.	2.984	.12	.000		
	Lower-bound	.000	1.000	.000	2.984	.12	.000		
LEXICAL	Sphericity Assumed	1.760	1	1.760	22.398	.001	.259	.30	.001
	Greenhouse-Geisser	1.760	1.000	1.760	22.398	.001	.259	.90	
	Huynh-Feldt	1.760	1.000	1.760	22.398	.001	.259		
	Lower-bound	1.760	1.000	1.760	22.398	.001	.259		
COHESION	Sphericity Assumed	.000	1	.000	1.181	.83	.000	-.20	.83
	Greenhouse-Geisser	.000	.	.	1.181	.83	.000	.30	
	Huynh-Feldt	.000	.	.	1.181	.83	.000		
	Lower-bound	.000	1.000	.000	1.181	.83	.000		

In particular, partial eta squared indicated a small-to-moderate effect for Task Response (F(1,11)=6.49, p=.027, partial η^2 = .95) and a large effect for *Lexical Resource* (F(1,11)=22.40, p=.001,partial η^2 = .259), while *Grammatical Range and Accuracy* and *Cohesion/Coherence* showed negligible effects (partial η^2 =.00). Univariate tests confirmed these patterns: *Task Response* improved significantly and *Lexical Resource* showed a strong effect; Bonferroni-adjusted pairwise comparisons corroborated these differences (Task: p:.027; Lexical: p=.001). The 95% confidence intervals for *Task Response* (0.05 to 0.85) and *Lexical Resource* (0.30 to 0.90) excluded zero, further supporting the reliability of these effects.

4.4 Action Plan Results and Attitudes

Following the results, the study sought to address the spelling issue. A learner corpus of 120 misspelt vocabularies (drawn from learners' writings before and after classroom activities once the study began; see Appendix B) was compiled and shared with the class, and a spelling checklist with a solution request was developed for future cohorts (see Appendix C). These materials were designed to enhance orthographic awareness and reduce spelling-driven lexical avoidance.

The Snowball effect ….

The action-plan outcomes aligned with the quantitative improvements observed in Task Response and Lexical Resource as indicated by MANOVA and subsequent univariate tests. The corpus-sharing and checklist directly targeted the orthographic uncertainty that the qualitative phases had identified as leading to lexical simplification or avoidance. Consequently, the observed increases in task fulfilment and lexical richness can plausibly be attributed, at least in part, to the action-plan intervention, which reduced spelling hesitation and encouraged learners to employ their intended lexical items.

Post-treatment narratives provided convergent qualitative evidence: two students who had previously reported spelling-driven avoidance described increased orthographic confidence and greater willingness to attempt complex vocabulary (See Excerpt 4 and Excerpt 5).

Excerpt 4

> Thanks to the words collection we shared; now I write more confidently. Interestingly, I am still adding new spellingly* tough words to the collection. … I have now a spelling eye on any new words I see or read.

The student demonstrated heightened metalinguistic awareness, describing the development of "a spelling eye," which indicates the transfer of orthographic monitoring strategies beyond the classroom.

Excerpt 5

> After a while, I got accustomed to the funny practice of dictation for spelling. The work I could never imagine before. Really, I could persuade myself to do the rudimentary job of vocabulary drafting. It worked in the end though. Some words now are in my writing that I did not dare write them before.

The student transitioned from initial resistance to active engagement, thereby validating the efficacy of repetitive dictation and vocabulary drafting as confidence-building practices.

A third student, not previously reporting problems, noted improved recognition and repetition of difficult spellings (Excerpt 6).

Excerpt 6

> I see some new words with difficult spelling especially those with vowels in sequence. I appreciate this opportunity that makes me see or write a new difficult vocabulary several times.

The student, despite not having previously reported spelling concerns, benefited from exposure to challenging forms such as vowel sequences, which underscores the universal relevance of orthographic training.

These accounts function as process evidence that the corpus and checklist changed learners' attitudes and behaviors in ways that map onto the quantitative gains in lexical use and task completion. These outcomes confirm that targeted orthographic interventions reduce spelling anxiety, enhance lexical confidence, and support fluency in L2 writing. The results substantiate the study's broader argument: spelling, though often marginalized, functions as a pivotal variable in sustaining meaning and accuracy in second-language composition.

5. Discussion

The present mixed-method research, initiated with concurrent verbalization of thoughts during essay writing, revealed that L2 writers often avoided words for which they had poor spelling knowledge, instead resorting to lexical items with secure orthographic knowledge. This avoidance strategy, while functional, has important implications: it can alter the original thought and concept of the writer to varying degrees. In other words, spelling uncertainty does not remain a surface-level issue but can cascade into content revisions and meaning distortion. The experimental data, where 12 L2 writers composed essays under two conditions, confirmed this effect. The rejection of the null hypothesis demonstrated that spelling uncertainty influences not only lexical choice but also task response, which is central to fully answering prompts and developing ideas.

This finding aligns with the *Inhibition Hypothesis* (Schoonen et al., 2009), which suggests that linguistic demands such as spelling consume cognitive resources, thereby limiting attention to higher-level processes like content development and monitoring. In the present study, orthographically-driven pauses—though infrequent—proved inevitable and meaning-altering. This highlights spelling as an integral ingredient of writing skill: shortcomings in this area can distort the intended message. Indeed, prior work has shown that correct usage of mechanics such as spelling is positively associated with higher writing scores (Harrison et al., 2016; Limpo Alves, & Connelly, 2017; Vögelin et al., 2018). Moreover, orthographic knowledge acquires

particular significance in writing, as full access to the orthography of words directly affects their meaning acquisition (Perfetti, 2007). The persistence of these difficulties may be explained by insufficient or poor instruction, since L2 learners are rarely introduced to spelling strategies, which precludes them from applying spelling knowledge effectively (Khese, 2020). Thus, the instructional gap compounds the cognitive burden of spelling in L2 writing.

EFL writing proficiency extends beyond the production of grammatically accurate sentences; it represents learners' capacity to express ideas clearly and imaginatively. Consequently, examining the underlying cognitive processes is essential for teachers seeking to strengthen students' writing abilities (Khezrinejad, Rashtchi, & Seifoori, 2025). In light of the present study, spelling can be considered a crucial pre-task condition, since spelling-related hesitations were shown to consume cognitive resources and alter lexical choices. By addressing orthographic uncertainty before the writing task begins, both the learner corpus and the spelling checklist functioned as complementary strategies, each designed to reduce avoidance and promote confident lexical use. Learners were thereby better positioned to mobilize their vocabulary, sustain fluency, and focus on higher-level processes such as idea development, thereby producing more effective second language writing.

The present study, which emphasized the role of class plans designed by teachers to reduce spelling-driven pauses in L2 writing, aligns with Wang and Jung's (2026) findings that spelling concerns significantly shape second language writing, with pauses often marking the struggle of lexical retrieval. Learners hesitated on words like maladaptation or simplified choices such as replacing **spieces* with animals, yet online searches reduced cognitive load and enabled corrections like **implenment* to implement. These resources fostered lexical sophistication and fluency, though their limited effect on syntactic complexity signals the need for explicit instructional guidance.

The results also resonate with pause studies in L2 writing. Révész et al. (2022, 2023) showed that proficient learners make shorter pauses between words but longer pauses between sentences, often linked to linguistic encoding and higher-order processes. The data revealed that spelling-driven pauses at the word level sometimes triggered revisions at the sentence or content level, illustrating how lower-order processes can disrupt higher-order meaning-making. Interestingly, this pattern diverges from Révész et al. (2016), who found topic familiarity reduced pauses. In the present case, spelling-related pauses occurred equally across familiar and unfamiliar topics, suggesting that orthographic concerns override topic familiarity.

The cross-linguistic dimension further explains these findings. Phonology-to-orthography conversion (POC) knowledge, which maps phonological input to graphemic output, is often co-activated across languages (Bonin et al., 2001). When orthographic and phonological systems differ—as between Persian's transparent

orthography and English's opaque one—errors are more likely (Tainturier, 2019). Accordingly, the spelling errors observed in this study's participants (substitutions, omissions, consonant doubling errors, and reversals) reflect both first-language interference and limited POC knowledge. This helps explain why spelling uncertainty in English is a common phenomenon for Iranian learners and why orthographic mismatches can ripple into meaning distortion.

Beyond spelling accuracy, the broader issue of lexical sophistication also emerges. Kim and Crossley (2023) found no relation between L2 speaking quality and the range of academic or complex vocabulary used in conventional speaking tasks. However, they argue that phraseological and lexical sophistication in writing and opinion-based or argumentative speaking tasks leads to higher task performance quality. This perspective complements the findings: spelling-driven avoidance not only limits lexical choice but also constrains opportunities for sophistication in writing, thereby reducing overall task performance. In this sense, orthographic competence is a prerequisite for lexical sophistication, and without it, learners may struggle to fully demonstrate their communicative ability.

Pedagogically, the findings suggest that spelling instruction should be embedded in writing practice. Approaches such as spelling challenges within word-learning exercises (Krepel, de Bree, & de Jong, 2021) or pre-task planning phases (Abdi Tabari, 2022; Ellis, 2022) could help learners manage orthographic concerns before composing. While spelling accuracy may receive the lowest weight in assessment rubrics, its role in enabling confident message transfer and preventing unintended revisions is undeniable. The participants' experiences illustrate that spelling uncertainty can immediately prompt lexical substitution, altering meaning at higher levels of text organization. Addressing this through structured, strategy-based instruction could therefore enhance both linguistic accuracy and communicative clarity in L2 writing.

6. Conclusion, Implication, and Limitations

The findings of this study, based on narrative accounts and think-aloud protocols, indicate that L2 writers frequently hesitated when uncertain about spelling. In many cases, this hesitation led them to avoid specific lexical items and substitute simpler alternatives, sometimes altering intended meaning and restricting expressive range. Participants described how spelling-related pauses disrupted their flow of ideas and consumed cognitive resources that could otherwise have supported idea development and organization. The experimental phase reinforced these observations: writers who received spelling support produced texts with greater lexical variety and stronger task fulfillment, whereas those writing under spelling uncertainty demonstrated more limited lexical use and weaker overall performance. In response to these patterns, a learner corpus of 120 frequently misspelled vocabulary items was compiled and shared with the class, and a spelling

checklist accompanied by a solution-request component was developed for use with future cohorts. Although the small sample size calls for cautious interpretation, the convergence of qualitative and experimental findings strengthens the credibility of these results.

Spelling difficulties were primarily linked to limited prior instruction and to cross-linguistic differences between Persian and English orthographic systems, particularly in sound–letter mapping. These results suggest that orthographic knowledge may play a more central role in L2 writing development than is often assumed. Pedagogically, the findings support integrating explicit spelling instruction into broader writing pedagogy. Practices such as focused dictation, phonology–orthography mapping, and learner-generated spelling corpora may reduce hesitation and build confidence. Rather than treating spelling as isolated memorization, instruction can embed orthographic support within meaningful writing tasks to enhance fluency, lexical diversity, and coherence.

Several limitations should be acknowledged. First, the study was conducted with a relatively small sample of 12 L2 writers, which limits the generalizability of the findings. Although consistent patterns emerged across qualitative and experimental data, the results should be interpreted with caution. Second, the study focused exclusively on Persian–English orthographic contrasts. As a result, the extent to which these findings apply to learners from other linguistic backgrounds remains uncertain. Orthographic depth and cross-linguistic mapping differ across language pairs, and similar effects may not manifest in typologically distinct contexts. Third, the research design did not include a longitudinal component. While the experimental phase demonstrated immediate differences under varying spelling conditions, the study did not examine whether spelling support would lead to sustained improvements over time. Consequently, the long-term impact of orthographic intervention on higher-level writing processes remains undetermined.

In light of the aforementioned limitations, further research is warranted to extend and refine the present findings across broader contexts and research designs. Larger-scale studies involving more diverse learner populations would strengthen the robustness of the observed patterns and allow for cross-linguistic comparisons. Longitudinal investigations are particularly needed to determine whether spelling-focused interventions contribute to durable gains in lexical development, fluency, and overall writing quality. Such designs would help clarify whether reduced hesitation translates into long-term improvements in composing processes. Further research may also explore how spelling confidence interacts with metacognitive awareness, self-editing strategies, and responses to feedback. Examining these relationships could provide a more nuanced understanding of how orthographic knowledge integrates with higher-level cognitive processes in L2 writing. Finally, expanding the spelling-driven learner corpus developed in this study to include varied writing tasks and communicative purposes may offer deeper insight into the role of lexical avoidance across genres and contexts.

Taken together, the findings suggest that spelling knowledge should not be treated as peripheral to L2 writing. Instead, it appears to influence how ideas are selected, formulated, and sustained throughout the composing process. Recognizing this role may encourage a more balanced approach to writing instruction—one that integrates linguistic accuracy, cognitive processing, and communicative development.

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Appendix A: Think-aloud Reports and Analyses

Excerpt 1

- Participant report

  I stopped writing for a word that I liked to use in a sentence: fluorescent. the sentence in my mind is: Ultraviolet radiation emitted from fluorescent lamps poses serious health issues. I have seen it in a reading recently but I am not sure how to spell it. I changed the sentence to this one……*

- Original lexical item abandoned: fluorescent (reported as floursent)

- Original sentence/concept intended: Ultraviolet radiation emitted from fluorescent lamps poses serious health issues.

- Substitute lexical item used: lamps → participant rewrote as Ultraviolet radiation from lamps can cause health problems.

- Lexical substitution type: simplification (specific technical adjective → general noun)

  - The meaning change is minor and partial because the central idea—ultraviolet radiation from artificial light sources causing health problems—remains intact. However, the substitution of fluorescent with the general term lamps reduces technical accuracy and specificity. The original sentence identified a precise source of radiation risk, while the substitute broadens the scope, weakening the scientific precision though preserving the health-related concern.

Excerpt 2

- Participant report

  I hesitated on the word <u>entrepreneurs</u> because I wasn't sure about the spelling; I remembered the idea of people working on eco-friendly initiatives but couldn't get the exact word right. I rewrote the idea as: "Environmentalists have raised public awareness with launching campaigns." and continued.

- Original lexical item abandoned: entrepreneurs

- Original sentence or concept intended: Recently, successful entrepreneurs have helped the government with their eco-friendly ideas and products.

- Substitute sentence produced: Environmentalists have raised public awareness with launching campaigns.

- Lexical substitution type: complete replacement / topic shift

- Degree of meaning change: COMPLETE (the original focus on entrepreneurs—business innovators collaborating with government through eco-friendly products—shifted entirely to environmentalists—activists raising awareness through campaigns. The agent, action, and context all changed, with no direct thematic overlap beyond the broad environmental domain).Excerpt 3

- Participant report

  I hesitated on the word <u>surveillance</u> because I wasn't sure about the spelling; I remembered the idea of secretly watching people but couldn't get the exact word right. I rewrote the idea as: "Some psychologists may not accept watching people secretly." and continued.

- Original lexical item abandoned: surveillance

- Original sentence or concept intended: Some people may not agree with those who keep people's normal life under video surveillance.

- Substitute sentence produced: Some psychologists may not accept watching people secretly.

- Lexical substitution type: conceptual reframing / topic shift

- Degree of meaning change: PARTIAL (the original focus on surveillance—a formal, institutionalized practice of monitoring—shifted to watching secretly, which conveys a more informal and psychological framing. The thematic link of observation is preserved, but the institutional and societal dimension is reduced to a narrower professional/ethical context).

Excerpt 4

- Participant report

  I hesitated on the word <u>acquaintance</u> because I wasn't sure how to spell it; I thought of 'acquaintence' but I wasn't confident. I replaced it with 'familiarity' and continued writing.

- Original lexical item abandoned: acquaintance

- Original sentence or concept intended: This group think that acquaintance with environmental NGOs and their actions and plans can be a great help.

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- Substitute sentence produced: This group think that familiarity with environmental NGOs and their actions and plans can be a great help.
- Lexical substitution type: synonym (minor lexical adjustment)
- Degree of meaning change: ZERO (no conceptual change; meaning preserved)

Excerpt 5

- Participant report

  I hesitated on the word <u>Mediterranean</u> because I wasn't sure about the spelling; I recalled reading about tourism and environmental damage but couldn't get the word right. I rewrote the idea as: "I think tourism has ruined many popular sites, and tourists have caused animals deaths." and continued.

- Original lexical item abandoned: Mediterranean
- Original sentence or concept intended: This industry has threatened Mediterranean marine life.
- Substitute sentence produced: I think tourism has ruined many popular sites, and tourists have caused animals deaths.
- Lexical substitution type: conceptual reframing / topic shift
- Degree of meaning change: PARTIAL (the original focus on a specific geographic region—Mediterranean marine life—shifted to a broader critique of tourism's impact on popular sites and animal deaths; some thematic relation to environmental harm is preserved, but the location and specific phenomenon changed).

Excerpt 6

- Participant report

  I hesitated on the word <u>amateur</u> and wasn't sure which adjective to use; I changed it to 'non-professional' and kept the rest of the sentence the same.

- Original lexical item abandoned: amateur
- Original sentence or concept intended: Amateur criminals are also armed with guns and may kill innocent people for small problems.
- Substitute sentence produced: Non-professional criminals are also armed with guns and may kill innocent people for small problems.
- Lexical substitution type: synonym / register adjustment
- Degree of meaning change: ZERO (no conceptual change; meaning preserved)

Excerpt 7

- Participant report

I hesitated on the word <u>euthanasia</u> because I wasn't sure about the spelling and the exact term; I remembered reading something about modernity and death but I couldn't get the word right. I rewrote the idea as: "Tough depression and feeling loneliness is the gift of modernity." and continued.

- Original lexical item abandoned: euthanasia
- Original sentence or concept intended: Voluntary euthanasia is the result of modernity.
- Substitute sentence produced: Tough depression and feeling loneliness is the gift of modernity.
- Lexical substitution type: conceptual reframing / topic shift
- Degree of meaning change: PARTIAL (the original focus on a specific socio-medical practice—voluntary euthanasia—shifted to a broader psychological consequence of modernity—depression and loneliness; some thematic relation to modernity is preserved, but the agent and phenomenon discussed changed)

Excerpt 8

Participant report

I hesitated on the word <u>prejudice</u> because I wasn't sure about the spelling; I remembered the idea of racial conflict but couldn't get the exact word right. I rewrote the idea as: "Racial differences have been one of the main reasons for murders." and continued.

- Original lexical item abandoned: prejudice
- Original sentence or concept intended: Many murders are for racial prejudice.
- Substitute sentence produced: Racial differences have been one of the main reasons for murders.
- Lexical substitution type: conceptual reframing / topic shift
- Degree of meaning change: PARTIAL (the original focus on prejudice—a social attitude or bias—shifted to differences—a descriptive condition. The thematic link to race and murder is preserved, but the agentive cause (bias/prejudice) is diluted into a more neutral framing of difference).

Appendix B: Misspelt Vocabularies List

Accommodation
Cemetery
suppressant
Cuisine
museum
fluorescent
euthanasia
entrepreneurs
surveillance
acquaintance
Mediterranean
Amateur
Leisure
politician

maneuver
prejudice
Cosmopolitan
Persistence
Occurrence
Religion
Suicide
Refrigerator
Appearance
Boundary
Niece
Precipitation
Relief
Ceremony

Authority
Reference
Arrogant
Cautious
Spaghetti
Species
Dinosaur
Ancient
Architecture
Medicine
Voluntary
Hierarchy
Scissors
Europe

Nuisance
Receipt
Conscious
Souvenir
Surrender
Conquer
Mischievous
Ridiculous
Penguin
Vulnerable
Susceptible
Endeavor
Existence
Harassment

The Snowball effect ….

Portuguese
Tendency
Astronomy
Millionaire
Pursuit
Appealing
Appalling
Deceive
Assessment
Conscientious
Discipline
Embarrassment
Maintenance
Persistence
Resistance
Quarrel
Diarrhea
Acquisition
Intelligent
Deterrent
Indispensable
Threshold
Tyranny
Sergeant
Principal
Privilege
Personnel
Resistance
Condemn
Questionnaire
Impeccable
Indispensable
Consensus
Bizarre
Pigeon
Anxiety
Permanent
Camouflage
Caribbean
prioritize
relevant
queue
quarantine
adultery
conscientious
dilemma
embarrass
Surreptitious
Guidance
Quarantine
Obedience
Hygiene
Intelligence
License
Miniature
Occasionally
Perseverance
Restaurant
Vehicle
Vicious
Weird
Counselor
Curriculum
Bureaucracy

Mohammad Aghajanzadeh

Appendix C: Spelling Checklist

Spelling Strategies checklist

When I have a spelling problem while writing:

- I ask someone else (teacher and peer) to write correctly.
- I look up the vocabulary in dictionaries.
- I write another word with similar meaning instead.
- I write the vocabulary as it is pronounced.
- I write the vocabulary in such a way that the teacher cannot recognize whether it is correct or incorrect due to my handwriting.

What Should the teacher and I do to improve the spelling knowledge in writing infrequent words?