



EFFECT OF TWO INSTRUCTIONAL STRATEGIES ON SPELLING PERFORMANCE OF PUPILS WITH LEARNING DISABILITIES IN IBADAN, NIGERIA

Kelechi Uchemadu LAZARUS

Ph.D., Department of Special Education, University of Ibadan, Oyo State, Nigeria

ORCID: <https://orcid.org/0000-0001-8347-3206>

ppadaeze@yahoo.com

Oloyede Ojo AUDU

Department of Special Education, University of Ibadan, Oyo State, Nigeria

ORCID: <https://orcid.org/0000-0001-7499-8887>

oloyedeojo07@gmail.com

Received: December 02, 2022

Accepted: February 15, 2023

Published: March 31, 2023

Suggested Citation:

Lazarus, K. U., & Audu, O. O. (2023). Effect of two instructional strategies on spelling performance of pupils with learning disabilities in Ibadan, Nigeria. *International Online Journal of Primary Education (IOJPE)*, 12(1), 15-24. <https://doi.org/10.55020/iojpe.1274830>



This is an open access article under the [CC BY 4.0 license](https://creativecommons.org/licenses/by/4.0/).

Abstract

Spelling is a crucial skill for academic success however many pupils with learning disabilities lag behind in academic tasks because of poor spelling skills and its accompanying negative effects. Past studies on pupils with learning disabilities focused more on reading than on spelling skills. Thus, the objective of the study was to examine the core effects of visual imagery and cloze spelling instructional strategies on pupils with learning disabilities' performance in spelling. The pretest-posttest control group quasi-experimental design of 3 x 2 factorial matrix was adopted. Sixty pupils with learning disabilities (Male = 38, Female = 22, Mean age = 9.35) from three government-run primary schools were chosen using purposive sampling. Three instruments used were Pupil Rating Scale (Revised) ($r = .76$), Right Word Recognition ($r = .91$) and Pupils' Note Books on Dictated Words. Data were analysed using both descriptive and inferential statistics. The results showed that the core effect of treatment on the performance in spelling of pupils who experience disabilities in learning was significant $F_{(3,56)} = 2.085$, $p < .05$, $\eta^2 = .418$), but gender had no significant core effect. Therefore, teachers should employ the visual imagery and cloze spelling instructional strategies while teaching spelling to pupils with learning disabilities.

Keywords: Pupils with learning disabilities, visual imagery, cloze spelling strategy, gender, spelling skill.

INTRODUCTION

Spelling, an essential language skill, is one of the developmental processes necessary for effective communication. It is defined as the capacity to build words using letters in accordance with accepted usage. There's the possibility that the language skills are interconnected. Therefore, in order to develop proficiency in spelling, pupils must master certain skills in language, including the skills of phonology, morphology, visual memory, semantic relationship skills, and etymological (word origins) skills. By implication, the majority of the linguistic abilities required for reading development are also required for spelling growth (Van Staden, 2010; Treiman & Kessler, 2014; Adoniou, 2014).

Spelling can be used to actually complement the reading programme and competence in spelling is considered a prerequisite for proficiency in spoken and written communication. A pupil who has difficulty spelling words is likely to struggle with reading, and vice versa. The co-morbidity of spelling and reading difficulties in pupils with learning challenges is clear from this illustration and demonstrates the co-occurrence of spelling and reading problems in pupils with learning disabilities (Lazarus, 2016). Also, the ability to spell words is closely linked to written composition fluency during the writing process. Pupils who are proficient in spelling may not only produce good papers but also read written materials fluently. Likewise, pupils who lack strong spelling skills may find it difficult to become fluent and successful writers.



The ability to spell has an impact on a pupil's academic and social performance. Poor spellers make sloppy, error-filled compositions. Such compositions will depict semantic, lexical, and syntactic uncertainties, and will not allow for English unity and cohesiveness. Incorrect spelling can sometimes impair pupils' handwriting. In this instance, a poor speller may cancel and redo words and sentences, resulting in disorganized compositions. Good spelling, on the other hand, aids vocabulary growth, which improves reading comprehension. When composing reading texts, proficient spellers select high-quality words (Adoniou, 2016). This, in turn, leads to more effective communication, as well as better readers and writers. Poor spelling reflects how attentive an individual is to detail and how committed an individual is to producing high-quality work (Barker & Puente, 2013). Thus, teachers might construct a perception of the writers and their writings based on their spelling skills.

Low self-esteem may result from spelling difficulties. Pupils who have trouble spelling words tend to be silent in class needlessly, and in some situations, they are unable to express themselves orally or in writing. Consequently, academic performance in all areas of the school curriculum may be impacted. This circumstance may have long-term consequences for the pupils. For example, pupils who struggle with spelling may find it difficult to continue their schooling as well as find work and advance in their careers. Some applicants were not shortlisted due to bad spelling in their curriculum vitae and other application documents (which employers check in the course of a preliminary screening step). This led to the persons exhibiting self-deprecation, a lack of clear goals or values, and depression (Martin-Lacroux & Lacroux, 2017).

The irregular and inconsistent structure of spelling patterns in English words is one reason for the relatively high occurrence of learners with spelling issues, particularly among those with learning disabilities. There are 44 phonemes (sounds) represented by the English alphabet (that is, the 26 letters). In order to write effectively, these 26 letters provide a large number of letter combinations (6000-12,000 words) (Gentry, 2010). When pupils realise that the spelling of most words does not match the pronunciation pattern of the words, frustration sets in throughout the spelling process. As reported by Hamdi (2016), there were 54 mistakes of spelling in the 20 pupil essays reviewed, with 40.74 percent of the errors being formal in nature, 31.48 percent being related to word construction, 22.22 percent being related to word selection, and 7.40 percent being related to semantics. This means that the majority of spelling mistakes made by pupils learning English as a second language were formal mistakes.

Pupils who have distinct learning impairments in the academic area of spelling perform poorly in school (Lazarus & Oguniola, 2016). These authors confirmed the link between reading, writing, and spelling abilities and stated that these fundamental skills must be improved in order to increase pupils' overall academic accomplishment. A pupil with bad spelling who struggles with effective writing and reading skills will benefit from some interventions to enhance his spelling skills, which will eventually lead to increased academic success. Vangelova (2015) suggested that teachers should spend instructional time to address the challenge that pupils face in learning how to spell English words. Although this writer's point of view is important, in addition to providing appropriate instructional time for spelling, there is a need to identify research-based strategies that have been employed by successful spellers and then apply them to pupils with spelling difficulties.

According to Treiman (2018) and Parlindungan (2018) findings, it is necessary to deliberately teach spelling to pupils with spelling challenges rather than relying on incidental learning to teach them how to spell words. Pan, Rickard, and Bjork (2021) provide a thorough historical overview of spelling instruction. Based on their holistic analysis, the researchers concluded that teachers should use both conventional and current teaching strategies to help pupils with spelling problems. Bowers and Bowers (2017) proposed that pupils should be taught how to spell words by supporting them in comprehending the relationships between the English reading and writing systems, which include etymology, phonology, and morphology. This would allow pupils to understand the scientific basics of literacy as well as how the spelling system operates. This means that, like reading, spelling is a difficult skill that



every pupil should work on for improved academic success. In lieu of this, Morin (2020) has affirmed the efficacy of games in spelling training.

A study was conducted by Dymock and Nicholson (2017) involving fifty-five (55) primary three pupils who were taught spelling using two different strategies: rule-based and visual memory. Pupils learned vowel sound spelling strategies, syllable breaking tactics, and the doubling rule as part of the rule-based strategy. Pupils were asked to learn spelling using a look, say, cover; write, check, fix technique, in which words were listed in alphabetical order and put down in sentences as needed. Following the sessions, it was discovered that the participants' spelling skills improved. Participants in the rule-based strategy group, on the other hand, achieved more progress than those in the visual memory strategy and control groups because they engaged in more transfer to spelling of new words. This finding can be partly attributed to the point that beginner pupils are frequently taught guidelines governing vowels, consonants, and blends of vowels, and blends of consonants. Thus, it is easier for pupils to relate to those principles, and they learn reading, writing, and spelling more effectively when they apply those rules rather than when they are forced to execute visual memory activities.

In addition, Lazarus and Ogunsola (2016) used metacognition and direct instruction methodologies to teach spelling to sixty (60) pupils with spelling impairments. Following the training sessions, participants taught with direct instruction method made the greatest improvement in spelling performance, while participants taught with metacognition method obtained higher spelling improvement than participants in the control group who made the least improvement in spelling performance. This study agrees with that of some researchers, who found that learners with dyslexia and spelling problems performed better when they were given specific teaching that focused on phonics, orthography, and morphology (Galuschka, Gorgen, Kalmar, Haberstroh, Schmalz, & Schulte-Korne, 2020). However, Galuschka et al. (2020) could not find evidence to support the use of memorizing strategies to improve learning outcomes in spelling among pupils with dyslexia and spelling deficiencies. The goal of the present study was to see how a memory method called visual imagery and a purely cognitive strategy called cloze spelling strategy affected the spelling performance of pupils with learning impairments.

The impact of gender on performance in spelling among learners with disabilities in the area of learning and spelling who were exposed to the two therapies was also investigated in the present study. Mohamad (2018) used multidimensional and methodological methods to offer an overview of differences based on gender among pupils with learning disabilities from a neuropsychological perspective, arguing that there are disparities between the behaviour of male and female pupils who struggle with academic content. Previously, Moll, Kunze, Neuhoff, Bruder, and Schulte-Korne (2014) revealed that more boys than girls showed separate spelling deficiencies and combined reading difficulties, while more females struggled with mathematics. When looking into the impact of gender on the performance of pupils with learning impairments, it is important to note the suggestion of certain scholars that the male and female brains are biologically distinct, and that this difference has an impact on the majority of learning processes (Haddad, 2017).

A study conducted by Karimnia and Nouraey (2016) included 108 Iranian pupils aged eight to ten who were studying English as a second language (54 boys and 54 girls). The study discovered significant gender differences in spelling among the pupils, with the girls outnumbering the boys. Both groups of pupils scored significantly higher on words taught using the rhythmic approach to spelling rather than the nonrhythmic method, according to the findings. Nkomo and Uyanah (2020) examined the gender disparities in pupils exhibiting specific types of learning disabilities such as reading and mathematics disabilities, attention deficit hyperactivity disorder and dysgraphia. The findings showed that, only pupils with dysgraphia (spelling difficulties, poor organizational abilities, and a lack of coherence in writing) exhibited a substantial gender difference. Nkomo and Uyanah (2020) concluded that for better learning outcomes pupils should be encouraged to become more interested in writing tasks.



Furthermore, Lazarus and Ogunsola (2016) discovered that regardless of gender, the pupils' spelling performance remained consistent. As a result, the gender of pupils with spelling problems had no bearing on their spelling performance. Adams and Simmons (2019) found remarkable differences in alphabet transcription and writing quality across pupils aged 5 to 7 years old, regardless of their intellectual skills. On the other hand, the study did not find that gender was a major variable in prediction of spelling.

From the foregoing, the inability of pupils with learning disabilities to accurately spell words has been identified as one of the ascribed causes of school failure. It leads to poorly written compositions, distortion in thinking and poor handwriting. Poor spelling also results in socio-emotional difficulties. It should be noted that the remedies proposed in previous studies have not resulted in a reduction in the occurrence of poor spelling performance among pupils with learning and spelling disabilities especially, in Ibadan, Nigeria. Therefore, this study, determined the effect of visual imagery and cloze spelling instructional strategies, on the performance in spelling among pupils with disabilities in learning in Ibadan, Nigeria.

Hypotheses

At a significance level of .05, two null hypotheses were examined.

- Ho1 There is no significant main effect of treatment on spelling performance of pupils with learning disabilities.
- Ho2 There is no significant main effect of gender on spelling performance of pupils with learning disabilities.

Theoretical Framework

Two theories proposed by Ehri (2000); Frith (1985); Gentry (1982) namely, the Stage and Phase theories provided the framework. The two models submitted that children are required to gradually and sequentially pick up the various underlying linguistic elements. They move on to the following stage once they have attained a certain level of knowledge. The procedure is carried out in successive stages until they can learn these tasks. Pre-alphabetic phase, according to the submission of these theories, is a phase whereby pupils are yet to acquire the awareness of letter-sounds. Therefore, pupils rely on the visual characteristics and not on the sound values of words to recognise them. Thereafter, pupils make progress from this stage to a stage referred to as the partial alphabetic phase. During this stage, pupils decode by mapping some of the sounds in words to letters. At the third stage, known as the full alphabetic phase, decoding is done by mapping out all sounds in words to letters. Pupils at this stage are able to recognise words with automaticity. During the consolidated alphabetic phase, pupils demonstrate the ability to understand the operations of advanced skills relating to the awareness of phonemes such as deleting, substituting, and reversing of sounds.

The significance of these two theories as they relate to spelling development is well recognized (Treiman, 2017). These theories have inspired research demonstrating that spelling acquisition by pupils does not have to rely on rote learning, as proposed earlier (Jensen, 1962). Treiman (2017) reiterated that the stage and phase theories focus on the knowledge and use of phonological abilities in spelling. The rate of progression of mastering the developmental stages of learning to spell as described by the stage and phase theories differs among pupils who have diverse capabilities (Lerner & Kline, 2006). However, it should be noted that all pupils experience the stages of spelling acquisition sequentially. In addition, children's spelling mistakes reflect their current developmental stage (Lerner & Kline, 2006).



METHOD

Design

The pretest-posttest control group quasi-experimental design was adopted. Also, a representation of the study design is shown as follows (Table 1):

Table 1. The pre test-post test control group model.

Groups	Pre Test	Process	Post Test
Experimental group 1	0 ₁	X ₁	0 ₂
Experimental group 2	0 ₃	X ₂	0 ₄
Control group	0 ₅	-	0 ₆

Pretests for both experimental and control groups were 0₁, 0₃, and 0₅, and posttests for both experimental and control groups were 0₂, 0₄, and 0₆, respectively. Furthermore, X₁ denotes the first experimental group. In addition, X₂ denotes the second experimental group. Placebo treatment was given to those in the control group. The factorial matrix of 3x2 was used where “3” represents the two experimental and control groups and “2” represents gender (male and female).

Sampling Technique and Sample Size

The researchers employed a multi-stage sampling procedure. First, they chose three out of five Local Government Areas (LGAs) in the Ibadan Metropolis, Oyo State, Nigeria, using the ballot technique of random sampling. One public primary school in each of the three LGAs was chosen using a simple random sample procedure. Following that, a purposive sample of pupils was taken based on the presence of learning disabilities. To identify pupils with learning disabilities, the 1981 revised edition of the Pupil Rating Scale, designed by Myklebust (1971), was distributed to only 278 primary four learners in three selected schools who were nominated by their class instructors as low-achieving pupils (based on past academic records). Only 109 out of 278 low achievers identified from the selected schools were confirmed to be eligible for the study because of the presence of learning disabilities. Further screening was done by carefully checking the notebooks of pupils on English words dictated to them for a period of two academic terms. Each pupil's poor performance on the English words dictated to them was a sign that the pupil most likely had spelling difficulties. Disabilities in spelling are defined as a child's below average performance in spelling exercises of forty-nine percent (49%) or lower. Only 67 pupils out of a total of 109 pupils identified with learning disabilities were identified as having spelling problems. Sixty pupils were randomly chosen from those 67 pupils for the study. These 60 pupils were distributed into two experimental groups and the control group. Each of the three groups had twenty pupils, bringing the total number of participants to sixty. The average age of the participants was 9.35 years, with 68.3% of them being male (that is, 38 pupils). Only 36.6% (22 pupils), were female.

Instruments

For data gathering, the following instruments were used:

1. Pupil Rating Scale Revised
2. Pupils' Note Books on Dictated Words
3. Right Word Recognition

Description of Instruments

Pupil Rating Scale Revised (Myklebust, 1981)

This is a 24-item rating scale developed to assist teachers in identifying pupils in their courses who have learning impairments. Areas covered on the scale are comprehension of auditory information, oral language, orientation, co-ordination of motor skills and areas that relate to social and personal behaviour. On a five-point scale, teachers rate the twenty-four (24) behaviours (with "1" signifying poor conduct, "5" showing good conduct, and "3" suggesting average conduct). The maximum score that may be achieved is 120 (5 X 24). For example, if a child earns an average rating on all items, he or she will be awarded a “three” for each item, totaling 72. As a result, a score less than sixty (60) indicates the presence of learning disabilities in a pupil, and vice versa. Following a trial test, the scale's reliability coefficient was found to be .76 (Lazarus & Ogunsola, 2016) and this was adjudged as appropriate.



Pupils' Note Books on Dictated Words

These are the English note books of pupils on dictated words which were also screened to see whether any of the pupils have spelling problems. Pupils' scores on English words dictated to them in the past two academic terms were considered. Each pupil's poor performance on the English words dictated to them was a sign that the pupil most likely had spelling difficulties. Spelling disabilities are defined as a pupil's average performance in spelling exercises of forty-nine percent (49%) or lower.

Right Word Recognition

This is a spelling test created by the University of Jos' Department of Special Education. It includes a list of 100 high-frequency words as well as dates on which the child can demonstrate that he or she can read each one. The test was used to assess participants' spelling abilities both before (pretest) and after (posttest) the training sessions. To further establish the instrument's applicability, a trial-test was undertaken, yielding a reliability coefficient of .91 (Lazarus & Ogunsola, 2016).

Procedure for Data Collection

The researchers collected an introductory letter from the department and took it to the head teachers of the selected schools. The head teachers then handed the researchers over to the various class teachers in each of the schools. The researchers created rapport between themselves and the teachers by explaining the objectives of the research to them. This set the pace for the identification of pupils who manifest disabilities in learning and the screening of pupils with disabilities in spelling. The treatment lasted seven weeks, including two weeks for pre- and post-treatment evaluations. Research assistants (three of them) were trained and enlisted to carry out the experiment (one from each school). The participants were treated for five weeks, with the experimental groups receiving visual imagery and close spelling strategies respectively. Spelling instruction was delivered to those in the control group using the conventional approach. Because the pupils had learning impairments, they were taught five words from the Right Word Recognition twice a week.

Training in the visual imagery group involved asking the pupils to:

- i. Look at word and say its name
- ii. Close their eyes and imagine the word in their minds' eyes
- iii. Name letters with their inside voices
- iv. Open eyes and write word
- v. Check spelling and repeat steps one through four if the word is not spelled correctly.

The cloze spelling group exposed participants to:

- i. Look at the word on the card and think about it. Examine the word once more, paying attention to the letters and their placement.
- ii. Write missing vowels from the same word on a card with blank(s) where the vowels usually appear.
- iii. Write missing consonants from the same word on a card with blank(s) where the consonants usually appear.
- iv. Write the word without the model.

The researchers also employed a variety of reinforcement tactics, such as clapping and handing out pencils and erasers as gifts. The researchers also took the time to mark the participants' positive responses. A posttest utilising Right Word Recognition was given in the seventh week of spelling training.

RESULTS

H₀₁: There is no significant main effect of treatment on spelling performance of pupils with spelling disabilities.

**Table 2.** Core effect of treatment on performance in spelling among pupils who demonstrate disabilities in learning.

Source	Sum of square	Df	Mean square	F	Sig.	Eta square
Corrected model (explained)	26028.022	3	8676.007	18.140	.000*	.493
Pretest	6001.222	1	6001.222	12.548	.001*	.183
Treatment group (main effect)	19212.130	2	9606.065	20.085	.000*	.418
Error (residual)	26783.378	56	478.275			
Corrected total	52811.400	59				

*p<.05

Table 2 demonstrates that the pupils' spelling performance improved at the end of the training sessions held for pupils identified as having difficulties in the spelling skill area, employing visual imagery and cloze procedures as treatments $F_{(3,56)} = 2.085$. $p < .05$, $\eta^2 = .418$). Hence, the null hypothesis is rejected. This implies that the treatments had a significant impact on the pupils' spelling abilities.

Table 3. Estimated marginal mean showing fundamental effect of treatment on spelling performance of pupils who have learning disabilities.

Treatment	Mean	Std. Error
Experimental Group I	80.47	4.891
Experimental Group II	76.97	4.896
Control	40.86	4.893

Table 3 reveals that the estimated marginal average scores of pupils in the three groups were 80.47, 76.97, and 40.86 for experimental group I, experimental group II, and control group, respectively. This indicates that the pupils in experimental group I outperformed those in experimental group II, while those in experimental group II outperformed those in the control group.

Table 4. Scheffe post-hoc analysis.

Group	Group	Sig.
Experimental Group I	Experimental Group II	.951
	Control	.000*
Experimental Group II	Experimental Group I	.951
	Control	.000*
Control	Experimental Group I	.000*
	Experimental Group II	.000*

*p<.05

The Scheffe Post-hoc analysis provided more information on the impact of instructional strategies on pupils' spelling proficiency. The analysis's synopsis is shown in Table 4.

H_{02} : There is no significant main effect of gender on spelling performance of pupils with learning disabilities.

Table 5. Effect of gender on the performance in spelling of pupils who have learning disabilities.

Source	Sum of square	Df	Mean square	F	Sig.	Eta square
Corrected model (Explained)	7379.801	3	3689.900	4.629	.014*	.140
Pretest	5691.133	1	5691.133	7.140	.010*	.111
Gender (Main effect)	563.908	1	563.908	.707	.404	.012
Error (Residual)	45431.599	57	797.046			
Corrected total	52811.400	59				

*p<.05

Table 5 demonstrates that the major influence of gender on the performance in spelling of pupils with disabilities in learning was not significant $F_{(2,57)} = 707$, $p > .05$, $\eta^2 = .012$). The researchers accept the null hypothesis. As a result, no noteworthy core effect of gender on the spelling performance of pupils who have disabilities in learning was found.

**Table 6.** Estimated marginal mean scores showing core effect of gender on spelling performance

Gender	Mean	Std. Error
Male	62.743	5.405
Female	69.038	5.048

The estimated marginal mean was also computed to further affirm that for pupils with learning disabilities, the major effect of gender on the performance in spelling was insignificant. Table 6 illustrates this result.

DISCUSSION, CONCLUSION and RECOMMENDATIONS

Effect of Treatments on Performance in Spelling among Pupils who have Learning Disabilities

The first hypothesis stated that, there is no important fundamental effect of treatments (visual imagery and cloze spelling methods) on the performance of pupils with learning impairments in spelling. The study's findings have demonstrated that the two strategies were beneficial in both experimental groups. Participants responded to both treatments in a positive way and made significant gains in their spelling performance, whereas those in the control group did not make significant gains. This suggests that visual imagery and cloze spelling strategies were significant in helping pupils with learning difficulties improve their spelling abilities. The findings showed that if pupils are taught how to spell words using the right method, they can progress and perform well. It was also discovered that pupils in the visual imagery group outperformed those in the cloze spelling group. This finding supports those reported by Treiman (2018) and Parlindungan (2018) that pupils with learning difficulties gain considerably from intentional spelling instruction rather than relying on accidental learning. The finding also supports Bower and Bower (2017)'s suggestion that learners should be taught spelling skills. Furthermore, the current study is consistent with Dymock and Nicholson (2017), who found that when rule-based and visual memory tactics were used in teaching spelling to pupils who struggled in school, positive effects were attained.

Effect of Gender on Pupils with Learning Disabilities' Spelling Performance

According to the second hypothesis, there is no important, fundamental effect of gender on how well students with learning difficulties spell. There was no substantial fundamental influence of gender on pupils with learning difficulties, according to the study in Table 5, leading to the null hypothesis being accepted. Gender is not a decisive factor for spelling proficiency in pupils with learning difficulties, according to the findings. The present finding contradicts those of Haddad (2017) that revealed the presence of gender differences among pupils who have disabilities in terms of academic skills. The present finding also contradicts the findings of Lazarus and Ogunsola (2016) and Adams and Simmons (2019), who found no significant gender differences in spelling abilities.

Conclusion

The present study found that pupils who have learning difficulties can improve their spelling expertise when trained with the visual imagery as well as close spelling instructional strategies. This is because these two strategies have been shown to be better than the standard listening and writing approach of teaching spelling. The present finding corroborate the underlying assumptions that visual imagery and close spelling procedures enable children to actively participate in the acquisition of knowledge with regard to spelling. This study finding also demonstrated that, rather than using traditional methods, instructors who take the time to develop themselves and imbibe good strategies in their teaching can effectively teach pupils with learning disabilities, resulting in desirable performances and good results from the students.

Limitations and Suggestions for Future Research

The generalizability of the findings of this study may be affected by the fact that only pupils with learning disabilities from government-owned or public primary schools were selected. It's possible that pupils from both public and private schools could be involved in future studies.



Recommendations

Following the study findings, certain recommendations are made as follows:

- i) When teaching spelling to pupils who experience learning disabilities, primary school teachers should use the two instructional methodologies of visual imagery and cloze spelling.
- ii) Primary school teachers are urged to improve their visual imagery and cloze spelling instruction skills through participation in workshops and other professional development programmes.
- iii) To eliminate gender bias among teachers, parents and society in general, the government should raise public awareness through workshops, rallies, seminars, and conferences. This is because it was found in this study that when instructional methods are employed to remediate spelling difficulties in pupils with learning disabilities, gender had no influence on pupils' spelling performance.
- iv) Teachers and parents should not dismiss any pupil with weak spelling skills; rather, such pupils should be given the opportunity to be educated using effective instructional methods such as visual imagery and cloze spelling.
- v) Educators should keep in mind that visual imagery and cloze spelling strategies work for individuals, small groups, and large groups alike.

Ethics and Conflict of Interest

Ethical procedures in conducting the study were adhered to by the researchers and they declare that no conflict of interest exists.

REFERENCES

- Adams, A. M., & Simmons, F. R. (2019). Exploring individual and gender differences in early writing performance. *Read Writ*, 32, 235–263. <https://doi.org/10.1007/s11145-018-9859-0>
- Adoniou, M. (2014). What should teachers know about spelling?. *Literacy*, 48(3), 144-154. <https://doi.org/10.1111/lit.12017>
- Adoniou, M. (2016). *Spelling it out*. Cambridge: Cambridge University Press.
- Barker, O., & Puente, M. (2013). Does spelling still matter? *USA Today*, 6.
- Bowers, J. S., & Bowers, P. N. (2017). Beyond phonics: The case for teaching children the logic of the English spelling system. *Educational Psychologist*, 52(2), 124-141. <https://doi.org/10.1080/00461520.2017.1288571>
- Dymock, S., & Nicholson, T. (2017). To what extent does children's spelling improve as a result of learning words with the look, say, cover, write, check, fix strategy compared with phonological spelling strategies? *Australian Journal of Learning Difficulties*, 22(2), 171-187. <https://doi.org/10.1080/19404158.2017.1398766>
- Ehri, L. C. (2000). Learning to read and learning to spell: Two sides of a coin. *Topics in Language Disorders*, 20, 19-36. <https://doi.org/10.1097/00011363-200020030-00005>
- Frith, U. (1985). *Beneath the surface of developmental dyslexia*. In K. Patterson, J. C. Marshall, & M. Coltheart (Eds.), *Surface dyslexia: Neuropsychological and cognitive studies of phonological reading* (pp. 301–330). London, England: Erlbaum.
- Galuschka, K., Grogen, R., Kalmar, J., Haberstroh, S., Schmalz, X., & Schulte-Korne, G. (2020). Effectiveness of spelling interventions for learners with dyslexia: A meta-analysis and systematic review, *Educational Psychologist*, 55(1), 1-20. <https://doi.org/10.1080/00461520.2019.1659794>
- Gentry, J. R. (1982). An analysis of developmental spelling in "GNYS AT WRK". *The Reading Teacher*, 36, 192–200.
- Gentry, J. R. (2010). No spelling book in your child's book bag spells trouble ahead!. *Psychology Today*.
- Haddad D (2017). Gender differences in learning disabilities. *Learning disabilities Basics*. USA: HONcode standard for trustworthy health.
- Hamdi, S. (2016). An analysis of lexical errors in the English compositions of EFL Tunisian learners. *International Journal of Humanities and Cultural Studies (IJHCS)*, 2(4), 643-652.



- Jensen, A. R. (1962). Spelling errors and the serial-position effect. *Journal of Educational Psychology*, 53, 105-109. <https://doi.org/10.1037/h0042141>
- Lazarus, K. U. (2016). Academic achievement deficits of adolescents with learning disabilities: Implications for regular and special needs education teachers in Nigerian Secondary Schools. *African Journal of Educational Management*, 17(2), 135-148.
- Lazarus, K. U., & Ogunsola, G. O. (2016). Effects of metacognition and direct instruction on spelling abilities of pupils with learning disabilities in primary schools in Ibadan, Oyo State, Nigeria. *European Scientific Journal (ESJ)*, 12, 227-227.
- Lerner, J. W. & Kline, F. (2006). *Learning disabilities and related disorders: Characteristics and teaching strategies*, 10th edition. Boston, New York: Houghton Mifflin Company.
- Martin-Lacroux, C. (2017). “Without the spelling errors I would have shortlisted her...”: The impact of spelling errors on recruiters’ choice during the personnel selection process. *International Journal of Selection and Assessment*, 25(3), 276–283. <https://doi.org/10.1111/ijasa.12179>
- Mohamad, Q. A. (2018). Gender difference in learning disabled children Neuropsychological review. *Research and Reviews on Healthcare: Open Access Journal*, 1(3), 44-48. <https://doi.org/10.32474/RRHOAJ.2018.01.000111>
- Moll, K., Kunze, S., Neuhoff, N., Bruder, J., & Schulte-Körne, G. (2014). Specific learning disorder: Prevalence and gender differences. *PLoS one*, 9(7), e103537.
- Morin, A. (2020). Creative ways to help your youngster practice spelling words. [ThoughtCo](https://www.thoughtco.com).
- Myklebust, H. R. (1981). *Pupil rating scale revised: Screening for learning disabilities*. New York: Grune and Stratton, Inc.
- Pan, S. C., Rickard, T. C., & Bjork, R. A. (2021). Does spelling still matter-and if so, how should it be taught? Perspectives from contemporary and historical research. *Educational Psychology Review*, 33, 1523-1552. <https://doi.org/10.1007/s10648-021-09611-y>
- Parlindungan, F. (2018). *What research has to say about spelling instruction for English language learners*. [Proceedings | International Seminar on English Language Teaching and Research \(ELTAR\)](https://www.eltar.org/), (2018, p. 310-325).
- Treiman, R., & Kessler, B. (2014). *How children learn to write words*. Oxford University Press.
- Treiman, R. (2017). Learning to spell words: Findings, theories, and issues. *Scientific Studies of Reading*, 21(4), 265-276.
- Treiman, R. (2018). Teaching and learning spelling. *Child Development Perspectives*, 12(4), 235-239. <https://doi.org/10.1111/cdep.12292>
- Vangelova, L. (2015). How spelling keeps kids from learning. [The Atlantic](https://www.theatlantic.com).
- Van Staden, A. (2010). Improving the spelling ability of grade 3 learners through visual imaging teaching strategies. *Per Linguam: A Journal of Language Learning= Per Linguam: Tydskrif Vir Taalaanleer*, 26(1), 13-28.