



THE RELATIONSHIP BETWEEN LEARNING STYLES AND VOCABULARY ACHIEVEMENT IN PRIMARY SCHOOL

Munajat Umaraliyeva

Senior Lecturer of the Department of Practical English
Fergana State University

Qodirjonova Mohina

Student, Fergana State University

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Abstract

Vocabulary acquisition represents a foundational pillar of literacy development in primary education, yet students exhibit markedly different patterns of lexical growth depending on their dominant learning styles. This article investigates the relationship between individual learning styles — visual, auditory, kinaesthetic, and read/write — and vocabulary achievement among primary school learners. Drawing on a mixed-methods research design involving 120 students aged 7–11 across three primary schools in Fergana region, the study employs both standardised vocabulary assessments and learning style inventories. Quantitative findings reveal statistically significant correlations between specific learning styles and vocabulary test performance, while qualitative data illuminate the instructional strategies that best accommodate each learner profile. Results indicate that visual and read/write learners consistently outperform peers in written vocabulary tasks, whereas kinaesthetic learners demonstrate stronger performance in contextually embedded vocabulary activities. The article concludes with evidence-based pedagogical recommendations for primary school teachers seeking to differentiate vocabulary instruction in alignment with diverse learner needs.

Keywords: learning styles, vocabulary acquisition, primary education, VARK model, differentiated instruction, lexical development, English language teaching

Introduction

Vocabulary knowledge is widely recognised as one of the strongest predictors of reading comprehension, academic achievement, and communicative competence in both first and second language contexts [1, p.12].

In primary education, the breadth and depth of a child's lexical repertoire directly influences their ability to access curriculum content, engage with written texts, and participate meaningfully in classroom discourse. Despite this acknowledged importance, vocabulary instruction in primary classrooms often remains insufficiently differentiated, applying uniform approaches to learners whose cognitive profiles and preferred modes of processing information differ substantially.

The concept of learning styles — broadly defined as the characteristic ways in which individuals prefer to receive, process, and retain new information — has generated considerable debate in educational psychology. While critics have challenged strong interpretations of learning styles theory, particularly the now-discredited "meshing hypothesis" suggesting that instruction must match learning style to produce learning gains, a more moderate position holds that awareness of learner preferences can usefully inform the design of differentiated instruction [2, p.87]. When applied to vocabulary teaching, this perspective suggests that offering multiple modalities of word learning — through images, oral

repetition, physical enactment, and text engagement — may expand the range of learners who successfully acquire and retain new lexis.

This study addresses three research questions: (1) What is the distribution of learning styles among primary school learners in Fergana region? (2) Is there a statistically significant relationship between learning style preference and vocabulary achievement scores? (3) Which instructional strategies demonstrate the highest effectiveness across different learner profiles? By examining these questions through both quantitative and qualitative lenses, the study aims to produce actionable insights for primary school teachers navigating the demands of inclusive vocabulary instruction.

Methods

2.1 Research Design. This study employs a concurrent mixed-methods design in which quantitative data on vocabulary achievement and learning style preferences are collected and analysed simultaneously with qualitative observational and interview data. The mixed-methods approach was selected to capture both the measurable relationships between variables and the contextual nuances of classroom vocabulary learning that numerical scores alone cannot convey [3, p.45].

2.2 Participants and Setting. Participants comprised 120 primary school students (aged 7–11) drawn from three state primary schools in Fergana region, Uzbekistan. Schools were selected to represent variation in urban–rural location and institutional resource level. Parental consent and school authority approval were obtained prior to data collection. Class teachers at each site participated in follow-up interviews exploring their instructional practices and observations of learner differences.

2.3 Instruments. Learning style preferences were assessed using a primary-adapted version of Fleming's VARK questionnaire [4, p.3], modified for age appropriateness through simplified language and pictorial response options. Vocabulary achievement was measured using two instruments: a receptive vocabulary test adapted from the Peabody Picture Vocabulary Test (PPVT) format, and a productive vocabulary task requiring students to use target words in written sentences. Both instruments were piloted and validated with a comparable sample prior to the main data collection.

2.4 Data Analysis. Quantitative data were analysed using SPSS v.27. Descriptive statistics characterised the distribution of learning styles and vocabulary scores. Pearson correlation coefficients and one-way ANOVA were employed to examine relationships between learning style categories and vocabulary achievement. Qualitative data from classroom observations and teacher interviews were analysed thematically using Braun and Clarke's six-phase framework [5, p.79].

Results

3.1 Distribution of Learning Styles. Among the 120 participants, the VARK assessment identified the following distribution: visual learners constituted the largest group (38%, n=46), followed by kinaesthetic learners (27%, n=32), read/write learners (21%, n=25), and auditory learners (14%, n=17). Multimodal learners — those showing near-equal preference across two or more categories — represented 22% of the total sample and were included in primary category analyses based on their dominant preference score.

3.2 Learning Styles and Vocabulary Achievement. One-way ANOVA revealed a statistically significant effect of learning style on total vocabulary achievement scores ($F(3, 116) = 8.34, p <$

.001, $\eta^2 = .18$). Post-hoc Tukey tests indicated that visual learners ($M = 72.4$, $SD = 8.1$) and read/write learners ($M = 74.2$, $SD = 7.6$) achieved significantly higher scores on the receptive vocabulary test compared to kinaesthetic learners ($M = 63.7$, $SD = 9.4$) and auditory learners ($M = 65.1$, $SD = 8.8$). However, on the productive vocabulary task — which required contextual word use — kinaesthetic learners demonstrated markedly stronger performance ($M = 68.9$, $SD = 7.2$) compared to their receptive test scores, narrowing the gap with visual and read/write peers.

Pearson correlation analysis further revealed a moderate positive correlation between visual learning preference strength and receptive vocabulary score ($r = .41$, $p < .001$), and between read/write preference and productive writing task performance ($r = .38$, $p < .001$). Kinaesthetic preference showed a weak negative correlation with receptive test scores ($r = -.22$, $p = .015$) but a non-significant relationship with productive task performance ($r = .09$, $p = .34$), suggesting that traditional assessment formats systematically underestimate the vocabulary competence of kinaesthetic learners.

3.3 Qualitative Findings. Classroom observation data corroborated the quantitative patterns. Teachers reported that kinaesthetic learners demonstrated notably stronger vocabulary recall when words were introduced through physical movement, manipulation of objects, or role-play scenarios. One participating teacher noted that students who rarely retained new words through flashcard drilling could recall and accurately use the same words after acting out related scenarios. Conversely, read/write learners showed greatest engagement and retention during silent reading activities and structured writing exercises requiring precise word choice. Auditory learners benefited particularly from choral repetition, rhyme-based vocabulary games, and listening tasks that embedded target vocabulary in oral narrative contexts.

Discussion

The findings of this study contribute to an emerging evidence base suggesting that learning style preferences, while insufficient as the sole basis for instructional design, are meaningfully associated with differential vocabulary achievement patterns in primary education. Three implications merit extended discussion.

First, the systematic underperformance of kinaesthetic learners on standardised receptive vocabulary assessments likely reflects a format bias rather than a genuine deficit in lexical knowledge. When assessed through more contextually embedded tasks — consistent with the productive vocabulary instrument employed in this study — kinaesthetic learners approached parity with their visual and read/write peers. This finding has significant implications for assessment practice: primary educators who rely exclusively on written or pictorial vocabulary tests may systematically misidentify kinaesthetic learners as having weaker vocabulary

development, potentially directing unnecessary intervention toward learners whose lexical knowledge is more robust than conventional testing reveals [6, p.219].

Second, the strong performance of read/write learners on both receptive and productive vocabulary measures suggests that conventional literacy-focused primary classrooms inadvertently privilege this learning profile. While this is unlikely to change fundamentally — written literacy development remains a central mandate of primary education — teachers can broaden their instructional repertoire without sacrificing academic rigour. Research

consistently supports the use of multimodal vocabulary instruction, in which words are introduced through varied sensory channels, as beneficial for learners across the full style spectrum [7, p.156]. Activities such as vocabulary journals (read/write), illustrated word maps (visual), oral storytelling (auditory), and action-based vocabulary games (kinaesthetic) can be systematically rotated within a unit of work to ensure equitable access to lexical development opportunities.

Third, the present study's regional focus on Fergana schools introduces considerations specific to the Uzbek primary education context. National curriculum standards prioritise structured literacy development, and the majority of teachers in this sample reported limited pre-service training in learning style differentiation or multimodal pedagogy. This gap between research-informed practice and actual classroom instruction represents a systemic challenge that professional development programmes must address [8, p.34]. Without sustained investment in teacher capacity, even well-designed curricula will fail to translate into differentiated classroom practice.

Limitations of the present study include its regional scope, which restricts generalisability to other Uzbek contexts or international settings. The cross-sectional design prevents causal claims: while learning style is correlated with vocabulary achievement, it is not possible to determine from this data whether style directly causes achievement differences or whether both are mediated by other variables such as motivation, home literacy environment, or prior English exposure. Longitudinal designs tracking vocabulary growth over multiple school years would significantly strengthen future research in this area.

Conclusion

This article has demonstrated that learning style preferences are meaningfully associated with vocabulary achievement patterns among primary school learners in Fergana region, with visual and read/write learners outperforming peers on standardised receptive measures, and kinaesthetic learners showing relatively stronger performance on contextually embedded productive tasks. These findings suggest that conventional vocabulary assessment formats may systematically underestimate the lexical competence of kinaesthetic learners, while conventional instructional approaches may fail to provide adequate vocabulary learning opportunities for auditory and kinaesthetic learner profiles.

For primary school teachers, the central practical implication is that vocabulary instruction should be deliberately multimodal — not because every learner must receive instruction exclusively matched to their dominant style, but because a varied instructional repertoire expands the range of learners who successfully encounter, process, and retain new vocabulary in memorable and meaningful ways. For school administrators and curriculum designers in Uzbekistan, the findings underscore the need to embed differentiated instruction principles into initial teacher education and continuing professional development programmes, ensuring that awareness of learner diversity translates into effective and equitable classroom practice.

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