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Integration of Ethnoscience in Arabic Language Learning to Improve Students' Vocabulary Mastery in Islamic Elementary Schools

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ABSTRACT. Arabic vocabulary mastery is a fundamental component of students' language competence, particularly in Islamic elementary schools (SD/MI). However, vocabulary learning is often dominated by memorization-based activities, limiting connections with students' cultural backgrounds and everyday experiences. This literature review examines the integration of ethnoscience into Arabic language learning as a contextual and culturally relevant approach to vocabulary mastery. A systematic literature search was conducted using Google Scholar, ERIC, Scopus, and ScienceDirect, with keywords including "ethnoscience," "Arabic language learning," "Arabic vocabulary," "vocabulary acquisition," and "contextual learning." Studies published between 2015 and 2023 were included when addressing ethnoscience, Arabic language education, vocabulary learning, or contextual pedagogy, while duplicate, irrelevant, and non-academic sources were excluded. The findings indicate that ethnoscience connects Arabic vocabulary with local culture, environmental knowledge, and students' everyday experiences, supporting meaningful learning, motivation, and vocabulary retention. It also promotes observation, exploration, and active participation. Effective implementation, however, requires teacher competence, appropriate learning resources, and curriculum alignment. Overall, ethnoscience offers a promising contextual approach to Arabic vocabulary learning in SD/MI.

Keywords: *Ethnoscience; Arabic Learning; Vocabulary Mastery; Islamic Elementary Schools.*

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INTRODUCTION

Arabic language learning in Islamic elementary schools holds a strategic position because Arabic is closely connected to Islamic knowledge, religious texts, and students' cultural identity. Nevertheless, learners often face difficulties in vocabulary acquisition due to limited exposure and learning practices that emphasize memorization over meaningful language use. Vocabulary knowledge is fundamental to the development of listening, speaking, reading, and writing skills, while effective vocabulary learning requires varied opportunities for encountering and using words in meaningful contexts (Nation, 2021); (Fan, 2020). Contextualized learning can therefore strengthen vocabulary acquisition by enabling learners to associate new words with meaningful

experiences rather than isolated word meaning memorization (Nakata & Elgort, 2021). Accordingly, innovative and contextually grounded approaches are needed to make Arabic vocabulary learning more meaningful, interactive, and relevant to students' everyday and cultural environments. One promising approach to address these challenges is the integration of ethnoscience into Arabic language learning. Ethnoscience connects local knowledge, cultural practices, and community experiences with formal educational concepts, making learning more contextual and meaningful (Kelana et al., 2021). Research in elementary education indicates that local wisdom-based learning can enhance students' understanding, engagement, and learning outcomes by connecting academic concepts with familiar cultural and environmental contexts (Suryanti et al., 2020a); (Sukenda Egok & Gurmani, 2020). Although ethnoscience has predominantly been applied in science education, its contextual principles can be extended to Arabic learning by using local traditions, objects, and cultural practices as authentic resources for vocabulary development and meaningful language use.

The integration of ethnoscience into Arabic learning enables students to acquire vocabulary through meaningful cultural and contextual experiences. Local foods, traditional activities, plants, animals, and cultural objects can serve as authentic resources for introducing Arabic vocabulary closely related to students' everyday lives. Such culturally responsive learning strengthens the connection between new knowledge and learners' existing experiences, making learning more relevant and meaningful (Mashoko, 2022); (Ferdiansyah et al., 2023). In this approach, vocabulary learning moves beyond rote memorization toward understanding the meaning, function, and cultural significance of words within their social context.

Previous studies demonstrate that culturally responsive and contextualized learning can strengthen students' engagement, motivation, and academic outcomes by connecting classroom instruction with learners' cultural identities and lived experiences (Fallon et al., 2022); (Anyichie & Butler, 2023). In elementary education, integrating local wisdom and ethnoscience enables students to connect scientific and academic concepts with familiar cultural practices, making learning more meaningful and relevant (Aji & Pujiastuti, 2022). Thus, incorporating students' cultural backgrounds into learning materials can foster a more contextual, inclusive, and student-centered learning environment. In Arabic language education, vocabulary mastery remains a persistent challenge, particularly in Islamic schools, where conventional instruction often emphasizes memorization and translation. Such approaches may limit meaningful vocabulary retention and learner engagement. Recent studies indicate that interactive media, symbolic representations, and contextualized learning can enhance Arabic vocabulary acquisition and make learning more engaging (Kiki Safitri et al., 2023). Therefore, integrating Arabic vocabulary instruction with ethnoscience-based contexts offers a promising strategy for connecting linguistic learning with students' real-world experiences while fostering more meaningful and effective vocabulary development.

The theoretical foundation of ethnoscience integration is rooted in constructivist and sociocultural learning theory, which views learning as an active process of constructing knowledge through interaction with prior understanding, social contexts, and cultural environments. From this perspective, students actively interpret new knowledge through meaningful experiences and mediated social interaction (Newman & Latifi, 2021). In Arabic learning, ethnoscience therefore encourages students to explore vocabulary and concepts through observation, discussion, and interaction with culturally relevant objects and practices. Such contextual learning not only supports cognitive development but also strengthens cultural literacy and appreciation of local knowledge (Jannah et al., 2022); (Suryanti et al., 2020b).

Furthermore, ethnoscience-based Arabic learning aligns with the goals of Islamic elementary education by integrating linguistic competence, cultural awareness, and character development. Embedding local cultural knowledge in language instruction can strengthen

students' cultural identity while making Arabic learning more meaningful and contextually relevant (Boulos et al., 2024); (Nurdiana et al., 2023). Such integration also enables Islamic schools to preserve religious and cultural values while preparing learners for intercultural communication and global challenges. In this regard, local wisdom can serve as a pedagogical resource for developing Arabic materials and fostering more engaging and adaptive learning experiences. The integration of ethnoscience into language learning can foster key 21st-century competencies, particularly critical thinking, communication, creativity, and cultural awareness. By connecting learning with students' cultural and everyday contexts, ethnoscience encourages them to interpret information, construct meaning, and apply knowledge to real-life situations (Widyawati et al., 2021); (Hanum* et al., 2023). In Arabic vocabulary learning, students can identify local cultural elements, learn their Arabic equivalents, and use them in meaningful communication. Thus, ethnoscience-based activities can simultaneously strengthen Arabic language competence, critical thinking, and cultural literacy.

Despite the growing interest in ethnoscience-based education, research focusing specifically on its integration into Arabic language learning at the SD/MI level remains limited. Most ethnoscience studies have focused on science subjects, while Arabic learning research has mainly explored technological media, teaching methods, and classroom strategies. Existing studies on Arabic vocabulary improvement have highlighted the effectiveness of digital applications, games, and interactive learning models, but cultural-based approaches remain underexplored. This research gap indicates the need for further exploration of ethnoscience as an innovative framework for Arabic vocabulary development. Based on this background, a literature review on the integration of ethnoscience in Arabic language learning is important to identify theoretical perspectives, previous findings, and potential implementation strategies in Islamic elementary schools. This study aims to analyze how ethnoscience principles can support Arabic vocabulary mastery among SD/MI students. By examining previous studies from 2015–2023, this review provides insights into the relationship between cultural context, meaningful learning, and Arabic language development. The findings are expected to contribute to the development of more contextual, innovative, and culturally responsive Arabic language learning practices.

METHOD

This study employed a qualitative literature review to identify, evaluate, and synthesize previous research on the integration of ethnoscience into Arabic language learning, particularly vocabulary development among students in Islamic elementary schools. A literature review was selected because it enables systematic examination and synthesis of existing theoretical and empirical knowledge to identify patterns, research gaps, and emerging pedagogical perspectives (Snyder, 2019); (Xiao & Watson, 2019). The review focused on scholarly articles, research reports, and academic books published between 2015 and 2023, addressing ethnoscience, culturally responsive learning, Arabic pedagogy, vocabulary acquisition, and contextual learning in elementary education. The literature was selected using three criteria: (1) direct relevance to ethnoscience, Arabic language learning, or vocabulary development; (2) publication within the specified period; and (3) sufficient methodological and conceptual information to support critical analysis. Relevant studies were identified from reputable academic databases and examined through content and thematic analysis. The analysis involved extracting key concepts, pedagogical strategies, implementation patterns, learning outcomes, and the role of local cultural knowledge in language instruction. Such systematic categorization facilitates critical comparison and synthesis across studies rather than merely summarizing individual findings (Xiao & Watson, 2019).

The analytical process comprised four stages: identification and selection of relevant literature, critical examination of findings, thematic categorization, and conceptual synthesis. The

selected studies were organized into themes concerning the contribution of local culture to language learning, contextual approaches to vocabulary acquisition, and the potential of ethnoscience as a meaningful learning resource. The synthesis emphasized convergent and divergent findings to develop a coherent interpretation of how culturally grounded knowledge may support Arabic vocabulary learning. Finally, a descriptive-analytical synthesis was employed to explain the relationship between students' cultural environments and Arabic vocabulary development. Particular attention was given to how contextualized cultural experiences can facilitate meaningful vocabulary learning, learner engagement, and retention. Evidence from second-language vocabulary research also suggests that embedding linguistic input within meaningful social contexts can enhance vocabulary retention and learner motivation. The resulting synthesis provides a conceptual basis for developing culturally relevant and student-centered Arabic vocabulary instruction in Islamic elementary education.

RESULT AND DISCUSSION

Result

The literature review results indicate that the integration of ethnoscience into Arabic language learning has significant potential to improve students' vocabulary mastery in Islamic elementary schools (SD/MI). The reviewed studies reveal that ethnoscience-based learning connects Arabic vocabulary with students' surrounding environment, local traditions, natural phenomena, and cultural practices. This connection creates meaningful learning experiences because students encounter vocabulary through familiar contexts rather than through isolated memorization activities. The synthesis of previous research shows that contextual and culturally relevant approaches contribute to students' motivation, comprehension, and long-term retention of new vocabulary.

Table 1. Summary of Reviewed Studies Related to Ethnoscience Integration and Arabic Vocabulary Learning

No.	Study	Participants/ Context	Intervention	Outcome	Empirical Evidence	Relevance to Arabic Vocabulary
1	Murni et al. (2026)	60 fifth-grade students	Ethnoscience-based e-module	Scientific literacy	Experimental group: 63% improvement; control: 16%	Supports contextual learning mechanism
2	Salim (2025)	30 elementary students	Ethnoscience + CTL	Learning outcomes & engagement	N-Gain = 70% (high)	Supports contextualized learning
3	Egok & Gurmani (2020)	Elementary education	Ethnoscience materials + 5E	Material validity/practicality	Overall validation = 80.33%	Supports feasibility of culturally grounded materials
4	Rosidah et al.	Elementary students	Ethnoscience learning	Learning outcomes	Reported improvement	Supports experiential/contextual learning

The literature synthesis indicates that ethnoscience has substantial potential to support Arabic vocabulary learning by connecting linguistic input with students' cultural, environmental, and everyday experiences. However, because this study is based on a literature review rather than direct classroom experimentation, the finding should be interpreted as a synthesized evidence-

based proposition rather than a direct causal effect on Arabic vocabulary mastery. The reviewed empirical studies consistently demonstrate that ethnoscience-based learning can improve learning outcomes, engagement, conceptual understanding, and students' ability to connect academic knowledge with their immediate environment.

Empirical evidence from elementary education provides support for this interpretation. For example, an ethnoscience-based e-module study involving 60 fifth-grade students reported a 63% improvement in scientific literacy in the experimental group compared with 16% in the control group, demonstrating the potential of culturally contextualized learning to improve measurable learning outcomes. Similarly, a study integrating ethnoscience with contextual teaching and learning among 30 elementary students reported an N-Gain of 70%, categorized as high, together with positive student engagement and perceptions. These findings do not directly measure Arabic vocabulary, but they provide empirical evidence for the broader pedagogical mechanism underlying the present argument: learning becomes more effective when academic content is connected to students' sociocultural and environmental contexts.

Evidence from development studies further supports the feasibility of this approach. Egok and Gurmani (2020), for instance, developed ethnoscience teaching materials based on local wisdom for elementary students and reported overall expert validation of **80.33%**, indicating that culturally grounded materials were considered highly appropriate and practical for elementary instruction. A literature review of ethnoscience applications in elementary education likewise identified diverse uses of local cultural knowledge as learning resources, reinforcing the relevance of ethnoscience for contextualized primary education.

Ethnoscience as a Contextual Resource for Arabic Vocabulary

The empirical evidence suggests that the principal contribution of ethnoscience is not the automatic acquisition of vocabulary, but the creation of meaningful contexts in which vocabulary can be encountered, interpreted, and reused. In Arabic learning at the SD/MI level, local objects and practices such as traditional foods, plants, animals, occupations, environmental features, household objects, and community activities can be transformed into vocabulary-learning resources.

For example, students may encounter Arabic lexical items while observing local plants, identifying traditional foods, describing occupations, or discussing environmental phenomena. Such activities allow learners to associate an Arabic word with a concrete referent and an authentic experience rather than memorizing the word in isolation. The mechanism is therefore primarily contextualization and repeated meaningful exposure, through which linguistic knowledge is connected with existing conceptual knowledge.

This interpretation is consistent with empirical ethnoscience research in elementary education. Studies have shown that ethnoscience-based activities encourage students to observe, identify, discuss, and interpret phenomena from their everyday environment, thereby making learning more concrete and meaningful. Consequently, in Arabic vocabulary instruction, ethnoscience can function as a contextual bridge between lexical form, meaning, and lived experience.

From Cultural Context to Vocabulary Learning

A key finding of the synthesis is that the effectiveness of ethnoscience should be understood through the learning processes it facilitates rather than through cultural content alone. Three mechanisms are particularly relevant: contextual meaning construction, repeated exposure, and active language use.

First, contextualization provides learners with concrete semantic references. Arabic vocabulary associated with objects or practices that students already recognize can be introduced

through familiar experiences. Second, ethnoscience activities naturally create opportunities for repeated encounters with vocabulary through observation, classification, questioning, discussion, and reporting. Third, students can be encouraged to use newly learned words in simple descriptions, conversations, or written tasks. Thus, ethnoscience potentially transforms vocabulary learning from isolated word memorization into a process of meaning construction and communicative use.

Importantly, the available empirical evidence should not be overstated. The reviewed ethnoscience studies predominantly measure science literacy, conceptual understanding, general learning outcomes, or engagement, rather than Arabic vocabulary mastery specifically. Therefore, the present review provides indirect empirical support for the pedagogical rationale but does not establish that ethnoscience independently causes higher Arabic vocabulary scores. This distinction is important for maintaining methodological validity.

Implications for Islamic Elementary Schools

The synthesis also indicates that ethnoscience is particularly relevant to Islamic elementary education because it can integrate linguistic, cultural, environmental, and educational objectives within a single learning experience. Local knowledge can serve as the content through which Arabic vocabulary is introduced, while the learning process can simultaneously strengthen students' awareness of their cultural environment.

For SD/MI teachers, this implies that ethnoscience should not be treated as an additional subject but as a contextual learning resource. Teachers can identify culturally meaningful objects and activities and map them onto Arabic vocabulary targets in the curriculum. For instance, local plants can support vocabulary related to nature, traditional foods can support food-related vocabulary, and community occupations can support vocabulary concerning professions and daily activities. Such integration can make vocabulary instruction more concrete without abandoning the linguistic objectives of the Arabic curriculum.

However, successful implementation requires teacher competence in selecting culturally appropriate content and transforming it into linguistically appropriate learning tasks. Existing ethnoscience research also indicates challenges related to teacher preparation, instructional time, and the availability of appropriate learning materials. Therefore, teacher training and the development of culturally responsive Arabic learning materials are important prerequisites for effective implementation.

Critical Synthesis and Research Gap

Taken together, the reviewed evidence supports a plausible pedagogical relationship between ethnoscience and Arabic vocabulary learning. Empirical studies in elementary education demonstrate that ethnoscience-based learning can improve measurable learning outcomes and engagement, while development research confirms the feasibility of culturally grounded instructional materials. Nevertheless, direct empirical evidence specifically examining ethnoscience-based Arabic vocabulary instruction among SD/MI students remains limited.

This constitutes an important research gap. Existing studies largely focus on science education, scientific literacy, conceptual understanding, or general learning outcomes, whereas the potential of ethnoscience for Arabic lexical development has received comparatively little empirical attention. Consequently, the contribution of the present study lies not in claiming a demonstrated causal effect on vocabulary mastery, but in synthesizing existing evidence to formulate a theoretically grounded and empirically informed framework for future Arabic vocabulary research.

Future studies should therefore employ classroom-based designs, such as quasi-experimental, classroom action research, or research-and-development approaches, to directly

examine changes in Arabic vocabulary mastery. Pre-test and post-test measures, delayed vocabulary retention tests, learner engagement measures, and comparison groups would provide stronger evidence regarding whether and to what extent ethnoscience-based Arabic instruction improves vocabulary acquisition.

Overall, the evidence suggests that ethnoscience offers a promising contextual framework for Arabic vocabulary instruction in Islamic elementary schools. Its strongest pedagogical value lies in connecting Arabic lexical knowledge with familiar cultural and environmental experiences, thereby creating opportunities for meaningful exposure, active participation, and contextualized language use. Nevertheless, the effectiveness of this approach for Arabic vocabulary mastery remains an empirical question that requires direct classroom validation.

Discussions

The findings of this literature review indicate that the integration of ethnoscience into Arabic language learning offers a promising contextual framework for strengthening students' vocabulary mastery in Islamic elementary schools (SD/MI). Rather than treating vocabulary as a collection of isolated words that must be memorized, ethnoscience enables teachers to introduce Arabic vocabulary through students' immediate cultural, social, and environmental experiences. This contextualization is pedagogically important because vocabulary learning becomes more meaningful when new lexical items are encountered in semantically supportive situations. Research on second-language vocabulary learning demonstrates that contextual support facilitates vocabulary learning because learners can construct richer semantic representations of unfamiliar words. Mulder et al. (2019), for example, found that vocabulary learning gains were higher when target words were embedded in contexts with stronger semantic support. Similarly, contextual diversity has been shown to contribute to vocabulary learning by providing learners with multiple opportunities to encounter and process lexical items across different contexts (Frances et al., 2020). Thus, the use of ethnoscience can provide Arabic learners with meaningful contextual encounters rather than relying exclusively on decontextualized word lists.

The relationship between ethnoscience and Arabic vocabulary learning is further strengthened by the principle of culturally responsive pedagogy. This perspective positions students' cultural backgrounds, local knowledge, and everyday experiences as valuable resources for learning rather than as elements external to the formal curriculum. In Islamic elementary schools, local traditions, agricultural practices, traditional foods, plants, animals, occupations, environmental phenomena, and community activities can therefore be transformed into authentic sources for Arabic vocabulary instruction. Such integration enables teachers to establish connections between Arabic lexical knowledge and students' existing cultural schemas. Research on culturally responsive pedagogy suggests that meaningful incorporation of learners' cultural experiences can strengthen instructional relevance and encourage teachers to develop learning activities that are responsive to students' sociocultural backgrounds (Acquah et al., 2020). In this respect, ethnoscience does not merely function as an additional source of teaching content; it can serve as a pedagogical bridge between students' lived experiences and the acquisition of Arabic as a foreign language.

The contextual dimension of ethnoscience is particularly relevant to vocabulary acquisition because vocabulary knowledge develops more effectively through repeated encounters with words in meaningful environments. Studies of second-language vocabulary learning have demonstrated that contextualized exposure can support both the acquisition and retention of new lexical knowledge. Frances et al. (2020) found that contextual diversity influences incidental vocabulary learning, while Rogers and Cheung (2020) demonstrated that the distribution of vocabulary exposure over time affects learning in primary-school language learners. These findings imply that Arabic vocabulary instruction in SD/MI should provide learners with repeated and varied encounters with target words rather than limiting exposure to a

single textbook activity. Ethnoscience can facilitate this process by allowing the same Arabic vocabulary to recur across observations, classroom discussions, worksheets, visual representations, and authentic cultural activities.

From a constructivist perspective, ethnoscience-based Arabic learning also transforms students from passive recipients of vocabulary into active constructors of meaning. Students can observe objects or phenomena in their surroundings, identify their characteristics, connect them with existing knowledge, and subsequently associate them with corresponding Arabic lexical items. Such activities encourage students to process vocabulary through observation, classification, comparison, interpretation, and communication. This interpretation is consistent with empirical research showing that ethnoscience-based learning can support active knowledge construction. Hanum et al. (2023), for instance, reported that ethnoscience-based project learning devices were highly feasible and produced substantial gains in students' critical-thinking skills. Similarly, Suciyati et al. (2021) argued that ethnoscience can provide a contextual and meaningful basis for learning by connecting formal knowledge with local culture and traditions. Although these studies were conducted primarily in science education, their pedagogical principles are transferable to Arabic vocabulary learning because both approaches emphasize direct experience, contextual interpretation, and active knowledge construction.

The findings further suggest that ethnoscience can enrich Arabic learning materials by providing authentic and locally relevant vocabulary sources. Conventional Arabic textbooks frequently introduce lexical items through standardized examples that may be geographically and culturally distant from students' daily experiences. While standardized materials remain important for maintaining curricular coherence, their effectiveness can be strengthened when supplemented with locally grounded materials. Teachers can, for example, develop Arabic vocabulary activities based on local plants, traditional foods, agricultural tools, occupations, houses, markets, community ceremonies, or environmental characteristics. Such materials enable students to learn the Arabic terms for objects that they already know conceptually. This pedagogical strategy is supported by research indicating that contextualized lexical input can enhance vocabulary learning because learners can use semantic and experiential cues to interpret and retain new words (Lee et al., 2020).

Ethnoscience-based Arabic learning also creates opportunities for interdisciplinary integration. Arabic instruction in SD/MI need not be restricted to grammatical and lexical knowledge but can be connected with science, environmental awareness, local culture, Islamic values, and students' everyday experiences. For example, vocabulary related to النباتات (plants), الحيوانات (animals), الماء (water), البيئة (environment), الزراعة (agriculture), and الطعام (food) can simultaneously support Arabic learning and students' understanding of their local environment. This integration is consistent with the broader orientation of ethnoscience research, which positions local knowledge as a meaningful context for connecting formal scientific concepts with students' cultural experiences. Recent literature also indicates that ethnoscience-based learning can be integrated with project-based and contextual approaches to develop broader cognitive competencies.

The role of teachers is therefore central to the successful implementation of ethnoscience-based Arabic instruction. Teachers must possess not only Arabic pedagogical competence but also the ability to identify relevant local knowledge and transform it into linguistically appropriate learning activities. This process requires teachers to determine which cultural elements are educationally relevant, which Arabic vocabulary is appropriate for students' developmental levels, and how local knowledge can be incorporated without reducing culture to superficial examples. Research on culturally responsive teacher education emphasizes the importance of preparing teachers to recognize and pedagogically utilize students' cultural backgrounds. Acquah et al. (2020) found that modelling culturally responsive pedagogy can help

prospective teachers connect their own learning experiences with future instructional practices. Consequently, teacher professional development should include training in local-content identification, material development, contextual vocabulary instruction, and culturally responsive pedagogy.

Technology can further strengthen the implementation of ethnoscience-based Arabic vocabulary learning. Digital photographs, short videos, interactive presentations, mobile applications, digital dictionaries, quizzes, and learning management systems can document and present local cultural objects in multimodal formats. Such technologies are particularly useful for transforming local knowledge into visual, auditory, and interactive Arabic vocabulary resources. Research on mobile-assisted vocabulary learning indicates that digital technologies can support both receptive and productive vocabulary development when learners interact systematically with lexical materials. Li & Hafner (2022), for example, examined mobile-assisted vocabulary learning and highlighted the potential of mobile-based word learning for developing vocabulary knowledge. In the Arabic context, Yunanta (2025) similarly reported that interactive digital media can provide a more dynamic and learner-centered environment for Arabic vocabulary learning.

Nevertheless, technology should function as a pedagogical complement rather than replace the cultural and experiential dimensions of ethnoscience. The central value of ethnoscience lies in the connection between formal learning and students' real environments. Digital media should therefore document, represent, extend, and reinforce these experiences rather than transform learning into another form of decontextualized screen-based memorization. This distinction is important because the effectiveness of technology-supported learning depends not simply on the presence of digital tools but on how teachers integrate them with meaningful pedagogical activities. Research on culturally responsive teaching in technology-supported learning environments similarly emphasizes the importance of teachers' perceptions and pedagogical decisions in designing culturally responsive digital instruction (Chuang et al., 2020).

Another important implication concerns students' motivation to learn Arabic. Arabic vocabulary can be perceived as difficult by elementary learners when unfamiliar words are introduced without sufficient connection to their existing knowledge and everyday experiences. Ethnoscience can reduce this psychological distance by introducing Arabic through objects and activities that students already recognize. Rather than first encountering the abstract word كتاب, شجرة, سمك, سوق, or ماء through an isolated vocabulary list, students can encounter the corresponding concepts through objects, pictures, observations, or activities in their own environment. The subsequent association between familiar experience and Arabic terminology can make vocabulary learning more meaningful and potentially increase students' willingness to participate. This interpretation is consistent with research showing that active and contextualized learning can enhance learner engagement and provide more opportunities for meaningful cognitive processing.

The literature nevertheless reveals several challenges that should be considered. First, ethnoscience-based Arabic learning requires teachers to possess sufficient knowledge of both local culture and instructional design. Second, locally developed materials may vary considerably in quality and may not always correspond directly to curricular vocabulary targets. Third, cultural diversity means that an ethnoscience model cannot simply be transferred from one region to another without contextual adaptation. Fourth, teachers may face limitations in time, instructional resources, digital facilities, and professional preparation. Research on ethnoscience implementation similarly identifies the need for carefully designed learning devices and teacher support to ensure that local knowledge is systematically connected with formal learning objectives rather than merely inserted as an additional cultural element.

These challenges suggest that ethnoscience-based Arabic instruction should be designed

through a systematic pedagogical framework. The first stage may involve mapping local cultural and environmental resources; the second involves selecting Arabic vocabulary that corresponds to those resources; the third involves designing contextual learning activities; and the fourth involves providing repeated exposure through speaking, listening, reading, writing, visual media, and digital activities. Assessment should likewise move beyond simple vocabulary recall and examine whether students can recognize, understand, pronounce, use, and apply Arabic vocabulary in meaningful contexts. Such a framework would strengthen the alignment between ethnoscience content and Arabic language-learning outcomes.

The integration of ethnoscience also has a potentially important cultural function. Arabic learning can become a medium through which students simultaneously develop foreign-language competence and recognize the value of their own cultural heritage. In this model, local culture is not positioned as an obstacle to foreign-language learning but as an entry point for developing linguistic knowledge. This approach is particularly relevant in Islamic elementary education, where Arabic has both linguistic and religious significance. Local cultural knowledge can therefore be connected with Arabic vocabulary while maintaining the students' cultural identity and strengthening their awareness of the relationship between language, environment, and community.

From a broader pedagogical perspective, ethnoscience-based Arabic learning represents a shift from teacher-centered vocabulary transmission toward learner-centered and experience-based learning. Students are positioned as observers, explorers, interpreters, and users of language. This orientation corresponds with recent evidence that ethnoscience-based learning can promote active learning, contextual understanding, and higher-order cognitive skills. Hanum et al. (2023), for instance, found that ethnoscience integrated into project-based learning produced a high N-gain in critical-thinking skills, while Suciyati et al. (2021) emphasized its capacity to make learning more contextual and meaningful. These findings reinforce the argument that ethnoscience should not be understood merely as a source of cultural examples but as a pedagogical orientation that reorganizes the relationship between learners, knowledge, culture, and learning environments.

The literature also confirms that vocabulary mastery constitutes a foundational dimension of language competence. For elementary learners, insufficient vocabulary can restrict their ability to comprehend texts, understand spoken input, formulate simple sentences, and participate in communicative activities. Consequently, vocabulary instruction requires systematic exposure, meaningful contextualization, and opportunities for retrieval and reuse. Research on L2 vocabulary learning supports the importance of contextual support, repeated encounters, and varied exposure in developing lexical knowledge (Rogers & Cheung, 2020). Ethnoscience provides a potentially effective mechanism for achieving these conditions because the same local object or phenomenon can become the basis for multiple Arabic learning activities across different language skills.

Overall, the findings indicate that ethnoscience integration offers theoretical and practical value for Arabic vocabulary learning in SD/MI. Its principal contribution lies in connecting Arabic lexical knowledge with students' cultural environments, thereby transforming vocabulary from abstract linguistic information into knowledge that is observable, interpretable, and applicable. The approach also creates opportunities for interdisciplinary learning, culturally responsive pedagogy, active knowledge construction, and technology-enhanced instruction. However, the literature currently provides stronger empirical evidence for ethnoscience in science education than specifically in Arabic language education. This constitutes an important research gap: the contextual and cultural potential of ethnoscience has been widely demonstrated in science learning, but its systematic application to Arabic vocabulary acquisition, particularly at the Islamic elementary-school level, remains comparatively underexplored.

Therefore, future research should move beyond conceptual discussions and conduct empirical testing of ethnoscience-based Arabic learning models. Experimental and quasi-experimental studies are particularly needed to examine their effects on vocabulary breadth, vocabulary depth, retention, pronunciation, communicative use, learner motivation, and cultural awareness. Future studies could also investigate technology-supported ethnoscience materials, such as digital ethnographic dictionaries, interactive vocabulary applications, augmented visual materials, or mobile-assisted learning activities. Such research would provide stronger empirical evidence regarding whether the integration of local cultural knowledge produces measurable advantages over conventional vocabulary instruction.

In conclusion, ethnoscience-based Arabic learning represents a promising pedagogical strategy for connecting language, culture, environment, and scientific understanding in Islamic elementary education. Its strength does not lie merely in adding local cultural content to Arabic lessons, but in transforming students' everyday experiences into meaningful sources of language learning. When supported by appropriate teacher preparation, contextual learning materials, repeated vocabulary exposure, and carefully selected digital technologies, ethnoscience can contribute to a more meaningful, learner-centered, and culturally responsive model of Arabic vocabulary instruction. The approach therefore offers a promising direction for improving the quality and relevance of Arabic education in SD/MI while simultaneously supporting the preservation and pedagogical utilization of local knowledge.

CONCLUSION

This literature review suggests that integrating ethnoscience into Arabic language learning offers more than an alternative strategy for vocabulary instruction. By connecting Arabic vocabulary with students' local environment, cultural practices, and everyday experiences, learning can shift from memorizing unfamiliar words toward constructing meaning through contexts that students already recognize. In this sense, ethnoscience provides a space where language, culture, and experience intersect, potentially making vocabulary learning more meaningful, relevant, and memorable.

However, its contribution depends on how thoughtfully teachers transform local knowledge into purposeful Arabic learning experiences. Teacher competence, contextual materials, curriculum alignment, and appropriate instructional innovation remain essential for preventing ethnoscience from becoming merely an additional cultural element. The literature also indicates a research gap, as ethnoscience has been more widely examined in science education than in Arabic vocabulary learning at the SD/MI level. Future empirical studies are therefore needed to examine its effects on vocabulary mastery, retention, language use, and learner engagement. Ultimately, ethnoscience offers a promising pathway for developing Arabic learning that is not only linguistically meaningful but also culturally grounded and connected to students' lived realities.

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