



THEORETICAL FOUNDATIONS OF ARABIC DICTIONARY COMPILATION: A SYSTEMATIC SOCIOLINGUISTIC LITERATURE REVIEW

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Abstract

This research critically examines the objectives of Arabic dictionary compilation based on theoretical approaches developed from classical to contemporary traditions, analyzing their implications for language learning and documentation. Using a qualitative literature study method, this research analyzes scientific literature published mainly within the last five years, supplemented by relevant classical lexicographical works. The literature selected as the main object of study met three inclusion criteria: (1) directly discusses Arabic dictionaries or lexicography, (2) explains the purposes, users, functions, or structure of dictionaries, and (3) is accessible via open access or verified repositories such as Google Scholar, DOAJ, and arXiv. The selected literature was analyzed using content analysis to identify the classification of dictionary objectives, their relationship with user characteristics and usage contexts, and their relevance to education and translation. Findings show that the orientation of Arabic dictionary compilation has transformed significantly, from normative documentary functions in the classical era to pedagogical instruments and linguistic technology today. A gap nonetheless remains between the theoretical approaches used and users' practical needs. This study offers a theoretical synthesis integrating classical and modern perspectives, emphasizing the need for adaptive, user-oriented dictionary objectives, contributing to more functional, contextual Arabic lexicographical models in the digital era.

Abstrak

Penelitian ini mengkaji secara kritis tujuan pembuatan kamus bahasa Arab berdasarkan pendekatan teoretis yang

berkembang dari tradisi klasik hingga kontemporer, serta menganalisis implikasinya terhadap pembelajaran dan dokumentasi bahasa. Dengan metode studi pustaka kualitatif, penelitian ini menganalisis literatur ilmiah yang terbit terutama dalam lima tahun terakhir, dilengkapi karya leksikografi klasik yang relevan secara historis dan konseptual. Literatur yang dijadikan objek kajian utama diseleksi berdasarkan tiga kriteria inklusi: (1) membahas kamus atau leksikografi Arab, (2) menjelaskan tujuan, pengguna, fungsi, atau struktur kamus, dan (3) dapat diakses secara terbuka atau melalui repositori ilmiah terverifikasi seperti Google Scholar, DOAJ, dan arXiv. Literatur terpilih dianalisis menggunakan teknik analisis isi untuk mengidentifikasi klasifikasi tujuan kamus, keterkaitannya dengan karakteristik pengguna dan konteks penggunaan, serta relevansinya dalam pendidikan dan penerjemahan. Hasil penelitian menunjukkan bahwa orientasi pembuatan kamus Arab mengalami transformasi signifikan, dari fungsi dokumentatif normatif pada era klasik menjadi instrumen pedagogis dan teknologi linguistik pada masa kini. Meski demikian, kesenjangan antara pendekatan teoretis yang digunakan dan kebutuhan praktis pengguna masih tetap ada. Kajian ini menawarkan sintesis teoretis yang mengintegrasikan pandangan klasik dan modern, menekankan pentingnya tujuan kamus yang lebih adaptif dan berorientasi pengguna, sebagai kontribusi bagi model leksikografi Arab yang lebih fungsional dan kontekstual di era digital.

A. Introduction

Language is a complex and dynamic symbolic system that enables humans to communicate ideas, values, and culture from generation to generation.¹ In this context, dictionaries become one of the vital instruments in the documentation, preservation, and dissemination of language.² Historically, dictionary compilation has become an integral part of language codification and standardization efforts, whether in scientific, educational, or cultural contexts. In various linguistic traditions, the role of dictionaries is not only limited to serving as tools for searching word meanings, but also as representations of a community's linguistic knowledge.³

In the Arabic linguistic scholarly tradition, lexicographic activities have very ancient and deep roots, beginning from the early period of Arabic language codification

¹ Bella Tiara Putri and others, 'Budaya Dan Bahasa : Refleksi Dinamis Identitas Masyarakat', *Semantik : Jurnal Riset Ilmu Pendidikan, Bahasa Dan Budaya*, 3.1 (2024), pp. 20–32, doi:10.61132/semantik.v3i1.1321.

² Fitra Hayani, 'Leksikografi Arab (Sebuah Kajian Linguistik Terapan)', *Shaut Al Arabiyyah*, 7.1 (2019), p. 1, doi:10.24252/saa.v1i1.7786.

³ Bella Tiara Putri and others, 'Budaya Dan Bahasa : Refleksi Dinamis Identitas Masyarakat'.

in the 2nd Hijri century. Dictionaries such as Al-'Ayn by Al-Khalil ibn Ahmad and Lisan al-'Arab by Ibn Manzur serve as evidence of how important this activity was in Arab-Islamic civilization. However, along with the development of times and increasing user needs, especially in education and intercultural communication, diversity has emerged in dictionary compilation purposes ranging from normative dictionaries, learner dictionaries, to bilingual dictionaries.⁴ This raises a fundamental question: what is actually the main purpose of dictionary compilation in contemporary contexts, particularly in Arabic, and how is this purpose framed theoretically and implemented applicatively?

This problem becomes increasingly important given the rapid production of digital and printed dictionaries targeting various user segments, including students, teachers, researchers, and translators. Without a strong theoretical foundation regarding their compilation purposes, these dictionaries are prone to experiencing misalignment between lexicographic design and users' real needs.⁵ Therefore, a deep and systematic understanding of the purposes of Arabic dictionary compilation becomes a necessity, so that dictionary development is not only technical in nature, but also based on a theoretically accountable scientific framework.

This study has high relevance in the fields of Arabic lexicography, applied linguistics, and Arabic language education.⁶ Through a comprehensive and critical literature study approach to previous research,⁷ this article attempts to identify and examine various theoretical approaches underlying the purposes of Arabic dictionary compilation, as well as explore their practical implications in language teaching and lexical documentation. Thus, the results of this study are expected to contribute to the development of dictionary models that are more adaptive, functional, and in accordance with the development of contemporary needs.

Based on the background description above, it can be identified that although Arabic dictionary compilation has experienced significant development from classical to contemporary times, the basic purpose of this lexicographic activity has not always been examined explicitly and deeply in scientific literature.⁸ Many studies focus more on technical aspects of dictionary compilation such as entry compilation methods, corpus data sources, and lemma selection but few systematically examine the theoretical dimensions behind why dictionaries are compiled and for whom they are intended. This causes disharmony between the conceptual approach used by dictionary compilers and

⁴ Hayani, 'Leksikografi Arab (Sebuah Kajian Linguistik Terapan)'.

⁵ Ratih Haryati and others, 'Analisis Tipologi Mobile Dictionary "Al-Kamus" Dengan Pendekatan Leksikografi', *Al Mi'yar: Jurnal Ilmiah Pembelajaran Bahasa Arab Dan Kebahasaaraban*, 6.2 (2023), pp. 815–34.

⁶ Maulida Almas Fadhilah, 'Analisis Karakteristik Aplikasi Kamus Arab-Indonesia Karya Tim Ristek Muslim', *Alsina : Journal of Arabic Studies*, 3.2 (2021), pp. 201–18, doi:10.21580/alsina.3.2.5938.

⁷ Nginayatul Khasanah, 'Bahasa Arab Dan Identitas Keagamaan Dalam Kajian Sociolinguistik', *Ulumuddin: Jurnal Ilmu-Ilmu Keislaman*, 14.1 (2024), pp. 27–40, doi:10.47200/ulumuddin.v14i1.2160.

⁸ Fadhilah, 'Analisis Karakteristik Aplikasi Kamus Arab-Indonesia Karya Tim Ristek Muslim'.

users' real needs, especially in the context of learning Arabic as a second or foreign language (L2/FL).⁹

Furthermore, a number of previous studies tend to focus on descriptive analysis of the types and structures of existing Arabic dictionaries, without providing critical evaluation of the objective framework underlying the compilation of these dictionaries.¹⁰ For example, research on learner dictionaries often does not delve into whether dictionary design and features are in accordance with the pedagogical principles underlying their usage purposes. Similarly, bilingual dictionaries are often compiled without considering the balance between communicative and informative functions,¹¹ which can confuse non-native speaker users.

Additionally, in the context of globalization and digitalization, new challenges emerge for the world of Arabic lexicography, namely how to compile dictionaries that not only record word meanings conventionally, but are also able to answer the needs of modern users who rely on speed, context, and interactivity. Unfortunately, there have not been many studies that theoretically evaluate how dictionary compilation purposes are redefined in this digital era,¹² particularly for Arabic.

Considering these gaps, this study comes to fill the scientific void by critically and comprehensively examining various theories and approaches regarding the purposes of Arabic dictionary compilation, both from classical and modern perspectives. This study will also link these theoretical dimensions with the applicative needs of dictionary users in the context of language learning and documentation, so it is hoped to be able to make real contributions to the development of Arabic lexicography that is more functional, relevant, and contextual.

To ensure this research remains directed and focused, the scope of the problem is limited to theoretical studies regarding the purposes of dictionary compilation in the context of the Arabic language,¹³ examined through a literature review approach to classical and contemporary Arabic lexicographical works. This study will not discuss technical aspects of dictionary compilation such as entry layout, typography, or digital dictionary programming, but rather focuses on the theoretical foundations and functional orientation of dictionaries as linguistic products.¹⁴

⁹ Hayani, 'Leksikografi Arab (Sebuah Kajian Linguistik Terapan)'.

¹⁰ Encep Rustandi, 'PERSEPSI DAN PROBLEMATIKA PENGGUNAAN KAMUS DWIBAHASA BAHASA ARAB--INDONESIA TINJAUAN LEKSIKOGRAFI PEDAGOGI', *Al Mi'yar: Jurnal Ilmiah Pembelajaran Bahasa Arab Dan Kebahasaaraban*, 7.1 (2024), pp. 415–36.

¹¹ Humairatuz Zahrah, Wildana Wargadinata, and Nurhasan Abdul Barry, 'Analisis E-Dictionarry "Arab-Indonesia" Yang Tersedia Di Playstore Dengan Pendekatan Leksikologi', *Shaut Al Arabiyyah*, 9.1 (2021), p. 1, doi:10.24252/saa.v9i1.21494.

¹² Muh Kadri, 'Akurasi Makna Dalam Kamus Bahasa Arab Digital', *An Nazhair: Journal of Arabic Education*, 1.1 (2024), pp. 56–64.

¹³ Hayani, 'Leksikografi Arab (Sebuah Kajian Linguistik Terapan)'.

¹⁴ Anis Nurma Sabila and Abdul Muntaqim Al Anshory, 'Telaah Komponen Dan Metode Penyusunan Kamus Hifdz Al-Mufrod (Memorizing Vocabulary): Kajian Leksikografi', *Madah: Jurnal Bahasa Dan Sastra*, 14.1 (2023), pp. 34–47, doi:10.31503/madah.v14i1.538.

The main variables in this study are the purposes of dictionary compilation (as the dependent variable) and user types, usage contexts, and lexicographical orientation (as independent variables). The relationships among these variables are analyzed to reveal how user needs and the communicative purposes of a dictionary influence the design, structure, and content of the dictionary itself.¹⁵ This study also highlights the relationship between lexicographical principles and their application in education, translation, and Arabic language documentation.¹⁶

The problems examined in this study are closely related to lexicography theories that emphasize that dictionary compilation should not merely be driven by documentary interests, but must also consider functional aspects and usage.¹⁷ In modern theory, lexicography is divided into two main branches: descriptive lexicography (which describes language) and prescriptive lexicography (which provides usage norms), both of which have different goal orientations toward users.¹⁸

In the context of the Arabic language, the concepts discussed are also related to the approach of 'ilm al-qāmūs (علم القاموس) in the classical Islamic tradition, which not only documents word meanings but also shapes the theological and cultural understanding of the community. However, in the modern context, the orientation of dictionary compilation has shifted toward practical needs,¹⁹ such as foreign language learning, professional translation, and digital applications.²⁰

Using a content analysis approach to various classical and contemporary literature, this study will build a theoretical synthesis between traditional approaches and modern functional approaches in Arabic dictionary compilation. Understanding this goal orientation becomes crucial in bridging the gap between lexicographical theory and the practice of creating truly effective dictionaries that are relevant to contemporary needs.

The development of Arabic lexicography has undergone significant transformation, particularly in the context of dictionary compilation purposes that are adaptive to modern user needs. Jarrar and Hammouda (2024) through the Qabas project emphasize the importance of integrating lexical data and corpora to support NLP applications, showing a shift in dictionary purposes from mere linguistic reference to

¹⁵ Raodatol Sumirah, 'PENYUSUNAN KAMUS SHAWA'RIYAH KARYA DR. KAMALUDDIN NURDIN MARJUNI (Suatu Analisis Leksikografi)', *Jurnal Sarjana Ilmu Budaya*, 1.1 (Januari) (2021).

¹⁶ Andi Agussalim, Yusring Sanusi B., and Zuhriah Zuhriah, 'Perancangan Kamus Digital Linguistik-Arab Berbasis Windows Dan Android', *Nady Al-Adab*, 16.2 (2019), p. 75, doi:10.20956/jna.v16i2.6657.

¹⁷ Sven Tarp, 'The Third Leg of Two-Legged Lexicography', *HERMES - Journal of Language and Communication in Business*, 21 (2017), p. 117, doi:10.7146/hjlc.v21i40.96785.

¹⁸ Reinhard R K Hartmann, 'Lexicography and Its Interdisciplinary Contacts, with Special Reference to Linguistics and Onomasiology', *Lexikos*, 15.1 (2005), pp. 70–89.

¹⁹ Haryati and others, 'Analisis Tipologi Mobile Dictionary "Al-Kamus" Dengan Pendekatan Leksikografi'.

²⁰ Harith Alani, Christopher Brewster, and Nigel Shadbolt, 'Ranking Ontologies with AKTiveRank', in *The Semantic Web-ISWC 2006: 5th International Semantic Web Conference, ISWC 2006, Athens, GA, USA, November 5-9, 2006. Proceedings 5*, 2006, pp. 1–15.

language technology tools.²¹ Meanwhile, Nurdiana (2023) analyzes the structure of Mu'jam Al Lughah Al Arabiyyah Al Mu'ashiroh, revealing how dictionary components are designed to meet contemporary user needs, reflecting the evolution of dictionary compilation purposes in the modern context.²² Hanifah (2022) traces the origins of Arabic lexicography, showing that the initial motivation for dictionary compilation was to understand meanings in the Qur'an, which later developed into efforts to preserve language and provide systematic linguistic references.²³ In the educational context, Fadilla et al. (2023) highlight the importance of compiling dictionaries that align with curriculum and student needs, showing that dictionary compilation purposes must consider pedagogical aspects to support Arabic language learning at the elementary level.²⁴ Finally, Rizqia et al. (2022) compare digital and print Arabic-Indonesian dictionaries, revealing differences in structure and user preferences, as well as their implications for dictionary compilation purposes that must be adaptive to technological developments and user needs.²⁵

From these various studies, it is evident that the purposes of dictionary compilation in the Arabic language context have evolved from mere linguistic documentation to multifunctional tools supporting learning, technology, and specific user needs. However, there remains a need for more in-depth and systematic study regarding how these purposes are formulated and implemented in dictionary compilation, which becomes the main focus of this research.

Despite this growing body of research, a clear research gap can be identified. First, most existing studies on Arabic dictionaries remain descriptive in nature, focusing on technical aspects such as entry compilation, corpus selection, or component completeness,²⁶ while rarely offering a critical theoretical evaluation of *why* dictionaries are compiled and *for whom*. Second, studies on dictionary users tend to be context-specific and fragmented examining particular user groups (university students, junior high school learners, or translators) in isolation without synthesizing how these varied needs relate to broader lexicographical objectives across classical and modern periods. Third, technology-driven studies advance computational lexicography but rarely engage

²¹ Mustafa Jarrar and Tymaa Hammouda, 'Qabas: An Open-Source Arabic Lexicographic Database', 2024, doi:<https://doi.org/10.48550/arXiv.2406.06598>.

²² Ryan Nurdiana, 'Komponen Mu'jam Al Lughah Al Arabiyyah Al Mu'ashiroh (Studi Analisis Ditinjau Dari Ilmu Leksikografi)', *Tarling: Journal of Language Education*, 7.1 (2022), pp. 97–112, doi:10.24090/tarling.v7i1.8184.

²³ Niken Nur Hanifah, 'The Origin of Arabic Lexicography: Its Emergence and Evolution', *HuRuf Journal : International Journal of Arabic Applied Linguistic*, 1.2 (2022), p. 238, doi:10.30983/huruf.v1i2.4932.

²⁴ Tika Fadilla, Muhamad Zacky Mubarak, and Darsita Suparno, 'The Arrangement of an Arabic Dictionary for Ibtida'iyah Students: A Lexicography Perspective', *LITTERATURA: Jurnal Bahasa Dan Sastra*, 1.2 (2022), pp. 123–40, doi:10.15408/ltr.v1i2.25737.

²⁵ Asa Qubaila Sitta Zidna Rizqia, Aninda Nisa Maylana, and Khabibi Muhammad Luthfi, 'Arabic-Indonesian Dictionary: Comparison of Digital Dictionary and Printed Dictionary', *Al-Ma'Rifah*, 19.1 (2022), pp. 41–52, doi:10.21009/almakrifah.19.01.04.

²⁶ Siti Ghitsna Naili Nasyithoh and others, 'Perspektif Dr. Ali Al-Qasmy Pada Kamus Akbar Bahasa Arab (Indonesia-Arab)', *Shaut Al Arabiyyah*, 9.2 (2021), p. 233, doi:10.24252/saa.v9i2.24202; V Vidiyari and others, 'Pemantauan Status Gizi Balita', *Unknown*, 1.1 (2023), pp. 1–7.

with the conceptual or historical foundations of dictionary purposes, leaving a disconnect between modern NLP-based lexicography and classical theoretical traditions. In other words, no prior study has systematically synthesized the historical evolution, user-based variation, and educational relevance of Arabic dictionary compilation objectives into a single, integrative theoretical framework.²⁷ This research gap is precisely what the present study seeks to address.

The novelty of this research lies in its approach that presents a critical and systematic synthesis of various purposes of Arabic dictionary compilation by emphasizing their connection to specific user needs in contemporary contexts, such as Arabic language education, professional translation, and digitization of lexical resources. Unlike previous research that tends to be descriptive-historical or focuses only on certain types of dictionaries, this study examines the motives, functions, and orientations of dictionary compilation across periods (classical and modern) and across usage contexts. This research also seeks to fill theoretical gaps regarding how dictionary compilation purposes contribute to the effectiveness of dictionary use in academic and Arabic linguistic practice. Thus, this study not only expands the conceptual horizon in the field of Arabic lexicography but also offers a new evaluative framework for understanding the relevance of dictionaries as linguistic tools that are adaptive to changing user needs in the digital era.

Based on the background and problems outlined, this research aims to examine in depth the purposes of dictionary compilation in the Arabic language from evolving theoretical perspectives, both in classical traditions and contemporary approaches. This research is specifically directed to identify and classify types of lexicographical purposes underlying Arabic dictionary compilation, analyze their relationship with usage contexts and user characteristics, and evaluate the compatibility between these purposes and actual needs in the realms of education, translation, and language documentation. By examining theoretical foundations and their practical relevance, this research is expected to contribute to the development of Arabic lexicography that is more directed, functional, and contextual in accordance with contemporary demands.

B. Method

This study employs a qualitative approach using a literature study method (library research), which aims to examine in depth various objectives of Arabic dictionary compilation from classical to contemporary periods²⁸. The data sources in this research consist of scientific journal articles, reference books, proceedings, and other academic publications published in the last five years, with the addition of several classical

²⁷ Serry Sibae and others, 'Advancing Arabic Reverse Dictionary Systems: A Transformer-Based Approach with Dataset Construction Guidelines', 2025 <<https://arxiv.org/abs/2504.21475>>; Wissam Antoun, Fady Baly, and Hazem Hajj, 'AraBERT: Transformer-Based Model for Arabic Language Understanding', 2021 <<https://arxiv.org/abs/2003.00104>>.

²⁸ Agussalim, Sanusi B., and Zuhriah, 'Perancangan Kamus Digital Linguistik-Arab Berbasis Windows Dan Android'.

literatures considered historically and conceptually relevant.²⁹ The literature inclusion criteria include: (1) topics directly discussing Arabic dictionaries or lexicography, (2) containing explanations about the purposes, users, functions, or structure of dictionaries, and (3) available in open access or through verified scientific repositories. Data collection techniques were conducted by searching scientific databases such as Google Scholar, DOAJ, arXiv, and university journal portals, then filtering literature based on thematic relevance and academic feasibility.³⁰

Data analysis was performed using content analysis techniques on the selected document contents, involving processes of theme identification, information classification, and idea synthesis based on the study focus: dictionary compilation objectives, user types, usage contexts, educational orientations, and theoretical frameworks employed. Each literature was analyzed descriptively and comparatively to discover consistent patterns as well as gaps in previous research. The information compilation process was conducted systematically, starting from literature matrix construction, key idea annotation, to the development of responsible scientific narratives free from plagiarism. Through this approach, it is expected that the study results can provide comprehensive, critical, and contributive understanding toward the academic development of Arabic lexicography studies³¹.

C. Results And Discussion

Azzikri and Zukhaira (2019) conducted a Research and Development study to design an Android-based M-Kamus (Mobile Dictionary) application for Arabic research terminology, targeting Arabic Language Education students at Semarang State University. This research collected data through student needs questionnaires, interviews, and expert validation. The results showed that students urgently needed a specialized digital dictionary for research terminology due to limited access to printed dictionaries and the scarcity of relevant electronic dictionaries. The application was developed with key features including search functionality, bookmarks, user guides, and user profiles. Based on expert validation, the application achieved a feasibility score of 86.57, indicating that M-Kamus is suitable for use as a supporting medium in Arabic-language learning and academic writing.³²

The research conducted by Sibae et al. (2025) aimed to develop a Reverse Dictionary (RD) system in Arabic using a transformer-based approach with semi-encoder

²⁹ Yuslam Yuslam, Abdal Chaqil Harimi, and Annisa Juli Anggraeni, 'Arabic Learning in New Normal Era for Students with Visual Impairment at Inclusive Madrasah', *Aphorisme: Journal of Arabic Language, Literature, and Education*, 4.1 (2023), pp. 10–24, doi:10.37680/aphorisme.v4i1.2392.

³⁰ Agussalim, Sanusi B., and Zuhriah, 'Perancangan Kamus Digital Linguistik-Arab Berbasis Windows Dan Android'.

³¹ Yuslam, Harimi, and Anggraeni, 'Arabic Learning in New Normal Era for Students with Visual Impairment at Inclusive Madrasah'.

³² Muhammad Hakim Azzikri, 'Pengembangan M-Kamus Istilah Penelitian Dalam Bahasa Arab Bagi Mahasiswa Pendidikan Bahasa Arab Universitas Negeri Semarang', *LISANIA: Journal of Arabic Education and Literature*, 3.2 (2019), pp. 128–42, doi:10.18326/lisanian.v3i2.128-142.

neural network architecture. This study employed computational experimental methods by comparing various pre-trained embedding models, with datasets developed through high-standard construction and validation processes. The results demonstrated that the ARBERTv2 model achieved the best performance with a ranking score of 0.0644, outperforming multilingual models such as OpenAI and mpnet. The researchers also established eight quality standards for Arabic lexicographic definitions, including semantic clarity, avoidance of synonyms and mere morphological forms, and logical consistency. This research makes significant contributions to the development of Arabic digital lexicographic resources and natural language processing, particularly in meaning-based search and language teaching.³³

Widayat (2019) conducted a descriptive qualitative study of Kitāb al-'Ain, the first dictionary in Arabic lexicographic history compiled by Khalil bin Ahmad Al-Farahidi in the 2nd century Hijri. This research aimed to reveal the compilation methods and contributions of this dictionary to Arabic vocabulary development. The researcher found that this dictionary was compiled based on a phonetic system by classifying words according to articulation points (makhraj) of letters and word structure (bina'), while applying the taqlib al-kalimah method (letter position reversal) to avoid lemma redundancy. As a result, Kitāb al-'Ain not only influenced subsequent generations of phonetic dictionaries but also provided a scientific foundation for the development of lexicology and preservation of fusha Arabic through objective and contextual word arrangement systems.³⁴

Pelealu, Sumiati, and Hermiwati (2023) in their research using library research methods with a descriptive qualitative approach highlighted the importance of digital (computerized) dictionaries in contemporary Arabic language learning. This research demonstrated that digital dictionaries offer significant advantages over printed dictionaries, such as search speed, multimedia features, continuous updates, and interactive elements that support learning effectiveness. Several examples of Arabic digital dictionaries examined include the Arabic-Indonesian Dictionary by Ristek Muslim, Al-Maany Dictionary (Arabic-Indonesian and Arabic-Arabic versions), and Al-Kamus by Ustadz Firanda. The results confirmed that digital dictionaries play a major role in enhancing accessibility, efficiency, and Arabic language learning experiences in the modern era.³⁵

Sulistyaningsih, Wahyudi, and Sert (2024) conducted descriptive qualitative research with a literature review approach to analyze Ibn Duraid's linguistic thinking in compiling the al-Jamharah dictionary and its influence on Arabic lexicography. The research results showed that al-Jamharah was the first dictionary to use a distinctive

³³ Sibae and others, 'Advancing Arabic Reverse Dictionary Systems: A Transformer-Based Approach with Dataset Construction Guidelines'.

³⁴ Prabowo Adi Widayat, 'KITĀBU AL-'AIN: METODE PENGGUNAAN DAN PENGARUHNIA DALAM PERKEMBANGAN KOSAKATA BAHASA ARAB', *Al-Fathin: Jurnal Bahasa Dan Sastra Arab*, 2.1 (2019), p. 95, doi:10.32332/al-fathin.v2i2.1424.

³⁵ Nanda Dzikrillah Pelealu, Sumiati Sumiati, and Hermiwati Hermiwati, 'Dauru Hausabati Al-Ma'ajim Al-Arabiyyah: The Role of The Arabic Digital Dictionary', *Ad-Dhuha*, 5.2 (2024), pp. 56–69.

alphabetical system based on hijaiyah letter order, different from the phonetic makhraj system used by Al-Khalil in Kitab al-'Ain. Ibn Duraid's innovation facilitated lemma searches and encouraged renewal in Arabic dictionary compilation. However, despite its more practical structure, the content and language style of al-Jamharah still largely referenced Kitab al-'Ain, so its influence on Arabic lexicology development was considered limited. This research emphasized the importance of systematic approaches in dictionary compilation and Ibn Duraid's contribution to the history of Arabic lexicographic science.³⁶

Atikah and Fauji (2022) conducted research with a descriptive qualitative approach to examine the effectiveness of using Android-based digital dictionaries in Arabic-Indonesian Translation courses at universities. This research was motivated by students' need for practical and efficient tools in understanding Arabic vocabulary. The research results showed that using digital dictionaries not only facilitated the translation process but also increased students' learning motivation and time efficiency in accessing word meanings. Interactive features, high accessibility, and content updates became major advantages compared to printed dictionaries. This research confirmed that technology integration in Arabic language learning can have positive impacts on students' language understanding and skills.³⁷

Zahrah, Wargadinata, and Barry (2021) conducted qualitative research with a lexicological approach to analyze the quality of "Arabic-Indonesian" digital dictionaries available on Playstore. This research used library research methods with purposive sampling techniques, selecting applications with more than one million downloads as study objects. The analysis results showed that these dictionaries fall into the limited integration category as they combine language and bilingual dictionaries but do not yet meet ideal standards as informative, visual, evolutive, and thematic dictionaries. Despite having advantages in completeness, conciseness, and ease of understanding, these dictionaries still lack accuracy, especially in detailed meaning presentation and visualization. Nevertheless, these dictionaries are still recommended as Arabic language learning references due to their practicality and offline accessibility.³⁸

Saehudin (2023) in his research used library research methods to trace the tradition of dictionary compilation in the Arab world since the transition period from oral to written tradition. This research showed that dictionary compilation was a strategic effort by Arabic linguists to maintain language continuity and purity through systematic vocabulary documentation. Saehudin revealed that the Arabic lexicographic tradition developed with diverse compilation approaches, from phonetic systems as in Kitab al-

³⁶ Sulistya Sulistya, Jarot Wahyudi, and Huseyin Emin Sert, 'Ibn Duraid's Linguistic Thought and Its Influence in Arabic Dictionary', *Journal of Multidisciplinary Sustainability Asean*, 1.2 (2024), pp. 23–33, doi:10.70177/ijmsa.v1i2.1095.

³⁷ Hasnah Atikah and Imam Fauji, 'The Use of an Android-Based Arabic Dictionary in the Arabic-Indonesian Tarjamah Course at the University', *Indonesian Journal of Islamic Studies*, 10 (2022), doi:10.21070/ijis.v10i0.1630.

³⁸ Zahrah, Wargadinata, and Barry, 'Analisis E-Dictionary "Arab-Indonesia" Yang Tersedia Di Playstore Dengan Pendekatan Leksikologi'.

'Ain by al-Farahidi to alphabetical systems as in al-Jamharah by Ibn Duraid. The study results demonstrated that the diversity of systematics in Arabic dictionary compilation not only reflects methodological differences but also reflects scientific sophistication and intellectual dynamics in classical Arabic linguistic history.³⁹

Mivtakh (2022) in his research used descriptive qualitative methods based on literature study to trace the historical emergence of classical Arabic lexicology and figures who played roles in its development. This research found that Arabic lexicology emerged as a response to the phenomenon of lahn (language errors) that arose due to language contact between Arabs and non-Arabs. To preserve language purity, scholars began codifying Arabic vocabulary using the *sima'* (auditory) method, which later developed into *qiyas* (analogy). Important figures discussed include Khalil bin Ahmad Al-Farahidi (compiler of *Kitab al-'Ain*), Abu Mansur Al-Azhari (compiler of *Tahdzib al-Lughah*), Ibn Jinni (al-Khosois), and Ibn Faris (*Maqayis al-Lughah*). The research results showed that the Arabic lexicological tradition developed scientifically and systematically from the 2nd century Hijri, making significant contributions to Arabic linguistics to this day.⁴⁰

Alqahtani, Aldarmaki, and Diab (2019) investigated homograph disambiguation in Arabic through selective diacritics restoration. Using unsupervised data-driven methods, they developed an approach to identify ambiguous words that require diacritics restoration to reduce lexical ambiguity without adding data sparsity. This research was evaluated extrinsically on three NLP applications: neural machine translation (NMT), part-of-speech tagging (POS tagging), and semantic textual similarity (STS). The results showed that selective diacritics approaches, particularly those based on clustering and translation (CL-EM and TR), provided better performance compared to full diacritics restoration or without diacritics, with significant improvements in homograph disambiguation and efficiency in natural language processing.⁴¹

Antoun, Baly, and Hajj (2021) developed AraBERT, a transformer-based language representation model (BERT) specifically designed for Arabic language understanding. Using pretraining methods on a large corpus (~24GB) covering diverse Arabic dialects and applying Farasa-based sub-word segmentation and SentencePiece tokenization, they trained the model using Masked Language Modeling (MLM) and Next Sentence Prediction (NSP) approaches. Evaluation results showed that AraBERT outperformed multilingual BERT (mBERT) and previous models in three main Arabic Natural Language Understanding (NLU) tasks: sentiment analysis, Named Entity Recognition (NER), and Question Answering (QA). Thus, AraBERT became the first Arabic monolingual model to establish new standards for various NLP tasks in Arabic.⁴²

³⁹ Akhmad Saehudin, 'Tradisi Penyusunan Kamus Arab', 2023.

⁴⁰ Balkis Aminallah Nurul Mivtakh, 'The Origin of The Emergence of Arabic Lexicology And Its Characters / Cikal Bakal Munculnya Leksikologi Arab Dan Para Tokoh-Tokohnya', *ATHLA : Journal of Arabic Teaching, Linguistic and Literature*, 3.1 (2022), pp. 37–52, doi:10.22515/athla.v3i1.5139.

⁴¹ Sawsan Alqahtani, Hanan Aldarmaki, and Mona Diab, 'Homograph Disambiguation through Selective Diacritic Restoration', in *Proceedings of the Fourth Arabic Natural Language Processing Workshop* (Association for Computational Linguistics, 2019), pp. 49–59, doi:10.18653/v1/W19-4606.

⁴² Antoun, Baly, and Hajj, 'AraBERT: Transformer-Based Model for Arabic Language Understanding'.

Sven Tarp (2023) from Aarhus University proposed a redefinition of the term "lexicography" in the digital era through a paper titled "A Necessary Redefinition of Lexicography in the Digital Age: Glossography, Dictionography and Implications for the Future." Using conceptual and historical approaches, Tarp reviewed the evolution of glossary and dictionary functions in both traditional and digital contexts. He emphasized that technological advances have expanded the lexicographic domain, particularly through the significant role of glosses small notes originally used by scribes to explain difficult terms which now appear productively across various digital platforms. His analysis results affirmed the need to redefine lexicography by recognizing two main sub-fields: dictionography (compilation of traditional dictionary entries) and glossography (compilation of glosses in digital contexts), both representing new directions in contemporary lexicographic research and development.⁴³

Mustaufiy and Sadat (2020) conducted qualitative research with a case study approach to analyze student preferences regarding dictionary use in Arabic language learning at Islamic Higher Education Institutions (PTKI) in Bima City. Data were collected through semi-structured interviews and analyzed using thematic analysis. Research results showed that the majority of students preferred application-based digital dictionaries due to their practical usage. Additionally, the most preferred dictionary compilation system was the *nutqiyyah* (articulation) system as it was considered easier than root-based systems. The main constraint faced by students was low proficiency in Arabic morphology, which complicated the use of printed dictionaries. This research highlighted the need for learning strategies that enhance students' grammatical competence to optimize dictionary utilization.⁴⁴

Nasyithoh et al. (2021) conducted library research with a descriptive approach toward the *Kamus Akbar Bahasa Arab* (Indonesia-Arab) to assess its compliance with ideal lexicographic standards according to Dr. Ali Al-Qasimy's perspective. This research analyzed the completeness of 27 dictionary components as established by Al-Qasimy, using documentation techniques to obtain data from the dictionary. Research results showed that this dictionary fulfilled 24 of 27 ideal components, including initial sections (objectives, sources, background, usage guidelines), main sections (morphological, syntactic, semantic, derivational information), and final sections (compiler biography, brief history, and formulas). Its deficiencies lay only in the absence of appendices, tables, and maps. Based on the analysis results, this dictionary was deemed highly suitable for use by academics, translators, and Arabic language learners as a representative and practical reference.⁴⁵

⁴³ Sven Tarp and Rufus Gouws, 'A Necessary Redefinition of Lexicography in the Digital Age: Glossography, Dictionography and Implications for the Future', *Lexikos*, 33 (2023), doi:10.5788/33-1-1826.

⁴⁴ M.Pd. Dan Anwar Sadat, M. Pd.I, Ahmad Syagif Hannany Mustaufiy, 'Analisis Preferensi Mahasiswa Terhadap Penggunaan Kamus Dalam Mempelajari Bahasa Arab', *AL-AF'IDAH: Jurnal Pendidikan Bahasa Arab Dan Pengajarannya*, 4.1 (2020), pp. 1–17, doi:10.52266/al-afidah.v4i1.462.

⁴⁵ Nasyithoh and others, 'Perspektif Dr. Ali Al-Qasmy Pada Kamus Akbar Bahasa Arab (Indonesia-Arab)'.

Karomah and Al Anshory (2022) conducted descriptive qualitative research to evaluate the use of pocket dictionaries as learning media for speaking skills (maharah kalam) at SMP Terpadu Al-Chodijah Jombang. This research used observation and interview techniques with teachers and eighth-grade students. Research results showed that the pocket dictionary "Buku Pintar Bahasa Arab untuk Pemula" greatly helped students enrich vocabulary and improve Arabic speaking abilities. Additionally, students considered this dictionary practical and easy to use anytime and anywhere. Teachers also stated that compared to large dictionaries, pocket dictionaries were more effective because students did not need to understand root words first, thus accelerating vocabulary search and strengthening students' memorization.⁴⁶

Research by Harun (2019) analyzed the Kamus Al-Mufied Indonesia-Arab based on Dr. Ali Al-Qasimy's perspective and found that the dictionary had fulfilled 16 of 25 ideal dictionary components, thus considered nearly perfect. Meanwhile, Nasyithoh et al. (2021) evaluated the Kamus Akbar Bahasa Arab (Indonesia-Arab) and concluded that this dictionary had fulfilled almost all standard components except appendices, tables, and maps. Suryadarma and Fakhriroh (2020) as well as Azzahra et al. (2020) suggested using corpus linguistic approaches in specialized dictionary compilation to be more systematic and accurate. Karomah and Al Anshory (2022) demonstrated the effectiveness of dictionaries as learning media for maharah kalam, particularly in practical pocket dictionary form. Meanwhile, Zahrah et al. (2021) analyzed Arabic-Indonesian digital dictionaries on Play Store and stated that these digital dictionaries adequately met lexicographic standards while providing easy access in the industrial revolution era. These various studies provide a strong foundation for the importance of dictionary evaluation and development to be more suitable for contemporary learning needs.⁴⁷

Research by Zahro and Nu'man (2024) used library research methods with descriptive qualitative approaches to examine basic concepts of Arabic translation. The results of this research showed that translation is a complex process encompassing deep understanding of source texts, as well as selection of appropriate meaning equivalents in target languages, considering grammatical, semantic, and cultural aspects. This research also identified various types and models of translation, such as harfiyah, maknawiyah, dynamic, to pragmatic, and detailed translation process stages from analysis to evaluation and revision. It was concluded that good translators must master source and target languages, understand sociocultural contexts, and possess professional attitudes to produce accurate and communicative translations.⁴⁸

⁴⁶ Nilna Karomah and Abdul Muntaqim Al Anshory, 'Penggunaan Kamus Bahasa Arab Sebagai Media Pembelajaran Maharah Kalam Di SMP Terpadu Al-Chodijah Jombang', *Shaut Al Arabiyyah*, 10.2 (2022), pp. 300–310, doi:10.24252/saa.v10i2.34201.

⁴⁷ Sabila and Al Anshory, 'Telaah Komponen Dan Metode Penyusunan Kamus Hifdz Al-Mufrod (Memorizing Vocabularies): Kajian Leksikografi'.

⁴⁸ Fatihatuz Zahro and Muhammad Nu'man, 'Konsep Dasar Penerjemahan Bahasa Arab', *Al-Lahjah : Jurnal Pendidikan, Bahasa Arab, Dan Kajian Linguistik Arab*, 7.1 (2024), pp. 754–58, doi:10.32764/allahjah.v7i1.4219.

Research by Rahmawati and Liana (2021) used Research and Development (R&D) methods with ADDIE models to develop Arabic-Indonesian pocket dictionaries as learning media. This research involved eighth-grade students at Pondok Pesantren Roudhotul Qur'an An-Noer and aimed to improve reading skills. Research results showed that the developed pocket dictionary product was assessed as "sufficiently valid" by material and media experts with scores almost entirely reaching value 4. Usage trials also showed significant effectiveness, evidenced by increased average student scores from 49 (pre-test) to 80 (post-test). These findings showed that pocket dictionaries can become effective and feasible learning media in supporting Arabic language learning, particularly in vocabulary mastery and reading skills.⁴⁹

Research by Nurdiana (2023) used descriptive qualitative methods based on library studies to analyze components of the dictionary *Mu'jam Al Lughah Al Arabiyyah Al Mu'ashiroh* by Ahmad Mukhtar Umar from a lexicographic perspective. Research results showed that this dictionary had sufficiently ideal component structure, consisting of initial sections (such as introduction, compilation methods, and index), main sections (including semantic, syntactic, and foreign word derivation information), and final sections (appendices and contextual expressions). Although not covering all standard components according to Ali Al-Qasimy's theory such as transliteration and explicit number of lemmas this dictionary was still considered representative and relevant for contemporary Arabic language documentation and understanding needs. This research affirmed the importance of combining lexicology and lexicography in realizing functional dictionaries amid modern language development dynamics.⁵⁰

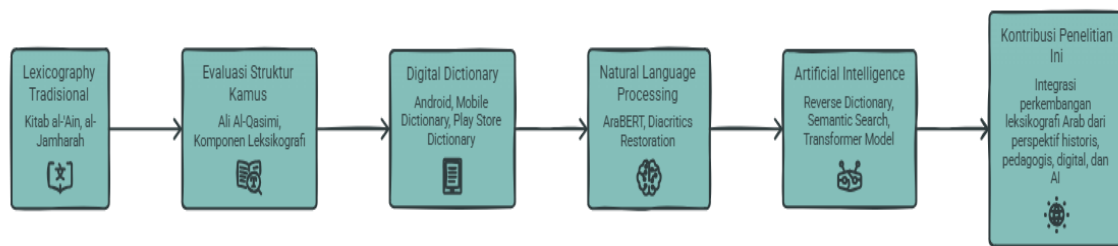
Research by Khairil Malik, Nicolas Habibi, Milki Aan, and Neldi Harianto (2022) used descriptive qualitative methods with synchronic and diachronic approaches to examine semantic changes in loanwords from Arabic in the *Kamus Arab-Melayu al-Marbawi*. Research results showed that loanwords from Arabic experienced various forms of meaning changes in Indonesian, such as grammatical category changes (from masdar to verbs or adjectives), referential changes, meaning narrowing and broadening, and changes from plural to mufrad forms. These findings reflect linguistic dynamics due to Arab-Malay cultural contact and underscore the importance of semantic analysis in understanding foreign vocabulary adaptation in local contexts.⁵¹

⁴⁹ Rina Dian Rahmawati and Ima Liana, 'PENGEMBANGAN KAMUS SAKU ARAB-INDONESIA UNTUK MENINGKATKAN KETRAMPILAN MEMBACA SISWA KELAS VIII DI PESANTREN ROUDHOTUL QUR'AN AN-NOER', *DINAMIKA: Jurnal Kajian Pendidikan Dan Keislaman*, 6.1 (2021), pp. 41–54, doi:10.32764/dinamika.v6i1.1273.

⁵⁰ Ryan Nurdiana, 'Komponen Mu'jam Al Lughah Al Arabiyyah Al Mu'ashiroh (Studi Analisis Ditinjau Dari Ilmu Leksikografi)'.

⁵¹ Khairil Malik and others, 'Semantik Kata Serapan Dari Bahasa Arab Dalam Kamus Arab Melayu', *Titian: Jurnal Ilmu Humaniora*, 6.2 (2022), pp. 264–82, doi:10.22437/titian.v6i2.22030.

Evolusi dan Integrasi Leksikografi Arab



Gambar 1 Bagan

Gambar 1 menunjukkan perkembangan paradigma leksikografi Arab yang mengalami transformasi dari penyusunan kamus klasik berbasis fonetik dan alfabetis menuju leksikografi digital yang memanfaatkan teknologi *Artificial Intelligence*. Pada tahap awal, fokus utama terletak pada sistem penyusunan lema sebagaimana dikembangkan oleh Al-Farahidi dan Ibn Duraid. Selanjutnya, perhatian penelitian bergeser pada evaluasi kualitas kamus berdasarkan standar leksikografi modern. Perkembangan teknologi kemudian melahirkan kamus digital berbasis aplikasi yang meningkatkan aksesibilitas pembelajaran bahasa Arab. Dalam dekade terakhir, kemajuan *Natural Language Processing* melalui model *transformer* seperti AraBERT dan *Reverse Dictionary* menunjukkan bahwa leksikografi tidak lagi hanya berfungsi sebagai dokumentasi kosakata, tetapi juga sebagai sistem pencarian makna berbasis kecerdasan buatan. Berdasarkan sintesis tersebut, penelitian ini menawarkan kerangka konseptual yang memperlihatkan kesinambungan perkembangan leksikografi Arab dari era klasik hingga era AI sebagai kontribusi utama artikel.

1. Evolution of Arabic Dictionary Compilation Purposes: A Historical Review

The compilation of Arabic dictionaries has undergone significant transformation from the classical period to the digital era. In its early history, dictionaries were compiled as a response to the need for language preservation and meaning clarification, as revealed by Widayat (2019) in his analysis of *Kitab al-'Ain* by Al-Farahidi. This dictionary employed a phonetic approach based on letter articulation points (*makhraj*) and functioned as a systematic tool for maintaining the purity of classical Arabic (*fusha*) through scientific classification and meaning contextualization.

The transformation in compilation methods subsequently became evident in *al-Jamharah* by Ibn Duraid, studied by Sulistyaningsih et al. (2024). This dictionary introduced the alphabetical ordering system (*hijaiyah*), which was more user-friendly despite still relying on previous methodological traditions. The study by Saehudin (2023) confirmed that the shift from phonetic to alphabetical systems reflected scientific dynamics and adaptive strategies in addressing the sociolinguistic changes of Arab society.

During the classical period, the primary motivation for dictionary compilation was to preserve language purity from *lahn* (linguistic errors) as explained by Mivtakh

(2022). Scholars such as Al-Farahidi, Al-Azhari, and Ibn Jinni created monumental works to document vocabulary, establishing the foundation of Arabic lexicology.

Entering the modern and digital era, the purpose of dictionary compilation shifted from preservation toward facilitating learning and language processing. Research by Azzikri and Zukhaira (2019) demonstrated that students required practical and thematic digital dictionaries, particularly for research terminology. The Android-based dictionary developed proved feasible and effective in supporting Arabic academic literacy.

Technological development also drove innovation in computational lexicography. Sibae et al. (2025) developed a transformer-based Reverse Dictionary system for Arabic, emphasizing definition quality and semantic meaning search. AraBERT, developed by Antoun et al. (2021), strengthened the role of dictionaries in natural language processing through transformer-based NLP models specifically designed for Arabic.

The important role of dictionaries in learning was also reinforced by research from Atikah and Fauji (2022), as well as Karomah and Al Anshory (2022), which showed that digital and pocket dictionaries greatly assisted students in quickly accessing vocabulary meanings and improving speaking and reading skills. Similar findings were reported by Rahmawati and Liana (2021) through the development of a pocket dictionary using the ADDIE approach, which proved to significantly improve students' reading ability scores.

In the realm of lexicographic quality, Harun (2019) and Nasyithoh et al. (2021) evaluated dictionary component structures based on Ali Al-Qasimy's standards. Both concluded that most modern dictionaries have fulfilled important components such as objectives, methods, morphological and semantic information, although some still lack in visualization and appendices.

Nurdiana (2023) also emphasized the importance of integration between lexicology and lexicography, as seen in Mu'jam Al Lughah Al Arabiyyah Al Mu'ashiroh. Although not yet perfect according to all standards, this dictionary is considered relevant in addressing the needs of modern Arabic language documentation.

Meanwhile, conceptual redefinition was proposed by Tarp (2023), who suggested separation between dictionography (compilation of traditional dictionary entries) and glossography (compilation of digital glosses), underlining the shift in dictionary roles from printed reference tools to interactive, multipurpose digital platforms.

Socially and pedagogically, Mustaufiy and Sadat (2020) revealed that students at Islamic higher education institutions preferred digital dictionaries with nutqiyyah systems as they were considered more practical than root-word systems. Morphological constraints became one of the reasons for this preference shift.

Semantically, Khairil Malik et al. (2022) showed that Arabic loanwords in Malay dictionaries underwent changes in category, meaning, and reference, reflecting processes of cultural acculturation and local adaptation in linguistic structures.

Finally, Zahrah et al. (2021) and Pelealu et al. (2023) examined the quality and accessibility of digital dictionaries available on the Play Store. Although not all met ideal lexicographic standards, these dictionaries still played important roles in Arabic language learning and preservation in the digital era.

2. User Typology and Usage Contexts: Implications for Dictionary Compilation Purposes

Based on analysis of the twenty scientific journals you provided, a scientific narrative description can be constructed regarding user typology and dictionary usage contexts, as well as their implications for compilation strategies and purposes of both printed and digital, general and specialized dictionaries.

Dictionary user typology varies greatly, encompassing students, teachers, researchers, and beginning learners, each bringing unique needs and challenges in dictionary usage. Students, as seen in research by Azzikri and Zukhaira (2019), Atikah and Fauji (2022), and Mustaufiy and Sadat (2020), tend to require practical and quickly accessible digital dictionaries. They utilize dictionaries as primary tools for translation and Arabic language learning in higher education environments, particularly in course contexts such as Tarjamah (Translation) classes. Meanwhile, secondary-level learners such as junior high school students (Karomah & Al Anshory, 2022; Rahmawati & Liana, 2021) prefer simple and easy-to-use pocket dictionaries without needing to understand complex Arabic morphological word structures. They focus more on direct vocabulary comprehension to support speaking and reading skills.

Researchers and academics, as depicted in studies by Zahro and Nu'man (2024) and Mivtakh (2022), require dictionaries that are not only vocabulary-rich but also capable of containing contextual, historical, and semantically profound meanings. In this context, dictionary compilation strategies become more complex, including representative lemma selection, entry arrangement based on phonetic systems (Kitab al-'Ain, Widayat, 2019) or alphabetical systems (al-Jamharah, Sulistyaningsih et al., 2024), and integration of cultural elements as in the study by Khairil Malik et al. (2022). These researchers emphasize the importance of considering semantic aspects, meaning changes, and social functions of language in dictionary compilation, so it can reflect linguistic dynamics occurring due to cultural contact and language development history.

Dictionary usage contexts also greatly influence dictionary design and function. In online learning or mobile learning contexts, as studied by Pelealu et al. (2023) and Zahrah et al. (2021), digital dictionaries proved more effective because they could present meanings quickly, include multimedia elements, and allow access anytime. This context demands dictionaries to be interactive, evolutive, and adaptive to technology. Conversely, in contexts of language preservation and scientific documentation, as in studies by Saehudin (2023) and Sibae et al. (2025), dictionaries are compiled with highly precise systematics and supported by NLP (Natural Language Processing) technology and transformer models such as AraBERT and ARBERTv2 to address meaning disambiguation and semantic-based search.

Differences and similarities in user characteristics and usage contexts produce strategic implications for dictionary compilation purposes. For beginning users, the main objective is to facilitate vocabulary acquisition and accelerate direct meaning search. For advanced and professional users, dictionaries must present rich, structured data capable of meeting specific needs such as academic translation or lexical analysis. This implies different approaches: general vs. specialized dictionaries, printed vs. digital, and traditional vs. technology-based. As emphasized by Tarp (2023), the redefinition of lexicography into two main branches dictionography and glossography becomes highly relevant in responding to user diversity and the continuously evolving digital ecosystem.

Methodologically, these studies employed diverse approaches, ranging from R&D (Azzikri & Zukhaira, 2019; Rahmawati & Liana, 2021), library research (Saehudin, 2023; Nasyithoh et al., 2021), case studies (Mustaufiy & Sadat, 2020), to technological experiments (Sibae et al., 2025; Antoun et al., 2021). Findings from each study consistently showed that dictionary success is determined by how well it can meet user expectations in specific usage contexts. Therefore, ideal dictionary design must be adaptive, responsive to specific user needs, and aligned with technological developments and contemporary linguistic dynamics.

3. Relevance of Dictionary Compilation Objectives to Arabic Language Education Needs

The historical development of Arabic lexicography has undergone a significant shift in orientation from a documentary function toward a more educational and applicative role in contemporary Arabic language learning. This trend is evident from various studies showing that dictionary compilation objectives in educational contexts are now more oriented toward user needs, whether from technological, pedagogical, or linguistic perspectives.

Historically, dictionaries such as *Kitāb al-'Ain* by Al-Farahidi and *al-Jamharah* by Ibn Duraid (Widayat, 2019; Sulistyaningsih et al., 2024) functioned to preserve language purity and classify vocabulary based on phonetic articulation points (*makhraj*) or alphabetical order of Arabic letters. However, in the context of modern education, this focus has evolved. Dictionaries no longer merely present lemmas systematically but must also consider learning functions such as ease of access, user practicality, and support for language skill development.

In the realm of higher education, Azzikri and Zukhaira (2019) developed *M-Kamus Istilah Penelitian* (M-Dictionary of Research Terms) that directly responds to Arabic Language Education students' needs for flexible and user-friendly academic terminology references. Similarly, Atikah and Fauji (2022) emphasized the role of Android-based digital dictionaries in supporting learning and translation efficiency, demonstrating that technology integration has become an urgent demand in current Arabic language education.

Research by Zahrah et al. (2021) and Pelealu et al. (2023) confirms the advantages of online digital dictionaries, particularly in terms of interactivity, search speed, and accessibility. Although there are still shortcomings in visualization quality and

semantic depth, their findings show that dictionary digitalization is highly relevant for supporting rapid and contextual learning access.

In the context of primary and secondary education, Rahmawati and Liana (2021), as well as Karomah and Al Anshory (2022), proved the effectiveness of pocket dictionaries in improving students' reading and speaking skills. Pocket dictionaries are considered more efficient than conventional printed dictionaries because they do not require understanding of root words a capability that often becomes an obstacle among beginner learners.

Several studies also highlight structural and component aspects of dictionaries as indicators of relevance to learning needs. Nasyithoh et al. (2021) evaluated *Kamus Akbar Bahasa Arab* (The Great Arabic Dictionary) and concluded that its complete structure aligns with ideal lexicographic standards and strongly supports academic needs. Nurdiana (2023) also showed that *Mu'jam al-Lughah al-'Arabiyyah al-Mu'ashiroh* has a sufficiently functional component arrangement for documentation and learning.

User preferences regarding dictionary forms and compilation systematics also influence dictionary relevance to educational needs. Mustaufiy and Sadat (2020) showed that students prefer articulation-based digital dictionaries over root word systems due to limited morphological competence. This reflects the importance of dictionary design that considers users' language proficiency levels.

From a theoretical perspective, Tarp's (2023) redefinition of lexicography concepts expands understanding of dictionary compilation objectives. He proposes a division between *dictionography* and *glossography*, which is highly relevant in developing gloss-based digital dictionaries to support contextual and dynamic learning.

The use of machine learning-based technological approaches in dictionary compilation is also becoming a trend, as demonstrated by Sibae et al. (2025) and Antoun et al. (2021), who created intelligent dictionary systems based on transformers and AraBERT for Arabic language processing. This shows that dictionary compilation objectives are now moving toward providing linguistic support that is adaptive to artificial intelligence developments and technology-based educational needs.

Generally, the analyzed literature shows that Arabic dictionary compilation objectives relevant to educational needs are no longer sufficient by merely presenting vocabulary data but must reflect flexibility, pedagogical approaches, and ease of access appropriate to contemporary learner characteristics. Whether in digital, pocket, or academic forms, successful dictionaries are those capable of addressing contemporary learning challenges and supporting effective and contextual Arabic language mastery.

4. Theoretical Review and Identification of Research Gaps in Previous Studies

The development of Arabic lexicography studies in the last five years shows significant improvement, both in digital dictionary development and in historical and conceptual studies. Generally, theoretical approaches used in these studies include user-oriented lexicography theory, ideal lexicographic component theory as developed by Ali Al-Qasimy, classical linguistic historical approaches (phonetic and alphabetical), and

language technology theory based on transformer models and NLP (Natural Language Processing). For example, Azzikri and Zukhaira (2019) developed M-Kamus for Arabic Language Education students with a user-needs-based approach aligned through expert validation, emphasizing functional and pedagogical approaches. On the other hand, Sibae et al. (2025) integrated AI-based digital lexicography approaches with Reverse Dictionary systems for semantic processing based on meaning.

In the realm of lexicographic historical theory, research such as that conducted by Widayat (2019) and Saehudin (2023) used historical-phonological approaches to trace the contributions of classical figures like Al-Farahidi and Ibn Duraid in building the foundation of Arabic dictionary compilation systematics. They highlighted the transition from phonetic to alphabetical systems as a form of evolution in dictionary compilation methods reflecting the dynamics of Arabic linguistic science. However, these approaches generally do not directly relate to contemporary user needs, creating a gap between historical value and practical urgency.

Studies on dictionary users and functionality have also been conducted in various contexts. Atikah and Fauji (2022), as well as Mustaufiy and Sadat (2020), showed that students prefer digital dictionaries due to efficiency and ease of access, but the main weakness lies in the inaccurate use of linguistic features such as morphological structure. This indicates a deficiency in combining grammatical theory and optimal dictionary interface design. Research by Zahrah et al. (2021) also reflects similar phenomena, assessing that most digital dictionaries still fall short of ideal lexicographic standards in aspects of meaning visualization and semantic depth.

From a theoretical aspect, only few studies explicitly develop holistic conceptual models or theoretical frameworks. Most studies, such as those by Nasyithoh et al. (2021) and Nurdiana (2023), only use Al-Qasimy's component list as an evaluation instrument, without developing new models or theories that can map relationships between users, dictionary types, and compilation objectives. Meanwhile, modern digital approaches such as those by Antoun et al. (2021) and Alqahtani et al. (2019) offer advances in artificial intelligence-based language processing but focus more on linguistic technology than theoretical exploration of dictionary functions as lexicographic tools.

Another gap lies in the disconnection between theory and practice in dictionary design. Several studies, such as those by Rahmawati and Liana (2021) and Karomah and Al Anshory (2022), prove the effectiveness of pocket dictionaries in Arabic language learning at the basic level but are not accompanied by theoretical framework development that can be transformed into systemic pedagogical models. Similarly, many local and incidental dictionary developments lack universal theoretical evaluation benchmarks.

Thus, it can be concluded that despite significant advances in Arabic lexicography studies, most theoretical approaches remain partial, descriptive, and not conceptually integrated. There is no apparent comprehensive theoretical model capable of systematically explaining relationships between users, usage contexts, dictionary types, and compilation objectives. This indicates the need for new contributions in the form of theoretical and evaluative synthesis of dictionary compilation orientation,

especially those placing users at the center of modern Arabic dictionary compilation frameworks.

D. Conclusion

This study comprehensively describes the dynamics and developmental direction of dictionary compilation objectives in Arabic through critical review of contemporary and classical scientific literature. Beginning with description and classification of dictionary objectives since the early period of Arabic lexicography, this research confirms that dictionary compilation orientation has undergone significant evolution from originally being a tool for language preservation and guardian of religious text purity, to becoming a functional instrument in learning, translation, and linguistic technology. Analysis of relationships between user types, usage contexts, and dictionary compilation objectives shows that user characteristic diversity such as students, teachers, translators, and digital application users greatly contributes to influencing ideal dictionary structure and function. Evaluation of dictionary roles in Arabic language education and translation reveals that dictionaries not only serve as semantic references but also as pedagogical tools that strengthen linguistic skills and intercultural understanding. However, this study also finds theoretical deficiencies in several previous studies, such as minimal development of integrative conceptual models and limitations in bridging classical lexicographic theory with contemporary user needs. Thus, this study confirms the urgency to develop more holistic and adaptive theoretical approaches to strengthen the scientific foundation in Arabic dictionary compilation that is relevant to contemporary challenges and users' practical needs.

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