

## Development of Microlearning-Based Teaching Materials for the Nahwu Awal Course

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### ABSTRACT

**Background:** Among the branches of Arabic linguistics that students need to master is Nahwu (Arabic grammar). Online Nahwu learning has led to a learning loss phenomenon, resulting in varying levels of students' understanding of the material. Some students in the Introductory Nahwu course have demonstrated low comprehension. This was evident when they were unable to answer questions related to the material during online class discussions.

**Purpose:** This study aims to develop microlearning-based teaching materials for the Nahwu Awal course as a strategic alternative to mitigate learning loss.

**Method:** This study employed a Research and Development (R&D) design using the ADDIE model, limited to the product development stage. Data was collected from participants representing the target population through purposive sampling. The research instruments included questionnaires and observation sheets to assess product feasibility. The data were analyzed descriptively to evaluate the quality and validity of the developed product.

**Results and Discussion:** The needs analysis showed that 66.3% of students experienced difficulties in learning Nahwu Awal. In addition, 97.5% of respondents indicated the need for visual and audiovisual microlearning-based teaching materials. The developed product was then validated by subject matter experts and media experts. The validation results indicated that the product was categorized as feasible to highly feasible for use in learning. These LMS-based microlearning teaching materials were considered effective in addressing learning needs and overcoming the limitations of engaging and interactive instructional materials.

**Conclusion and Implications:** Students in the Nahwu Awal course need microlearning-based teaching materials that integrate visual and audiovisual content. The materials are presented as short content segments that gradually explain each learning topic in the LMS. Microlearning-based teaching materials can help overcome learning loss and support more effective learning in the Nahwu Awal course.

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**Keywords:** *Teaching Materials; Nahwu Awal; Microlearning; Students.*

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### ABSTRAK

**Latar Belakang:** Di antara cabang ilmu bahasa Arab yang perlu dikuasai mahasiswa adalah ilmu Nahwu. Pembelajaran Nahwu secara daring menimbulkan fenomena learning loss yang menyebabkan tingkat pemahaman mahasiswa terhadap materi menjadi beragam. Sebagian mahasiswa pada mata kuliah Nahwu Awal menunjukkan pemahaman yang rendah terhadap materi. Hal ini terlihat ketika mereka belum mampu menjawab pertanyaan terkait materi saat diskusi kelas daring.

**Tujuan:** Penelitian ini bertujuan mengembangkan bahan ajar Nahwu Awal berbasis microlearning sebagai alternatif strategis untuk memitigasi learning loss.

**Metode:** Penelitian ini menggunakan desain Research and Development (R&D) dengan model ADDIE yang dibatasi hingga tahap pengembangan produk. Data dikumpulkan dari partisipan yang mewakili populasi sasaran melalui teknik purposive sampling. Instrumen penelitian meliputi angket dan lembar observasi untuk menilai kelayakan produk. Data dianalisis secara deskriptif untuk mengevaluasi kualitas dan validitas produk yang dikembangkan.

**Hasil dan Pembahasan:** Hasil analisis kebutuhan menunjukkan bahwa 66,3% mahasiswa mengalami kesulitan dalam pembelajaran Nahwu Awal. Selain itu, 97,5% responden menyatakan perlunya bahan ajar microlearning berbasis visual dan audiovisual. Produk yang dikembangkan kemudian divalidasi oleh ahli materi dan ahli media. Hasil validasi menunjukkan bahwa produk berada pada kategori layak hingga sangat layak untuk digunakan dalam pembelajaran. Bahan ajar microlearning berbasis LMS ini dinilai efektif dalam menjawab kebutuhan pembelajaran serta mengatasi keterbatasan bahan ajar yang menarik dan interaktif.

**Kesimpulan dan Implikasi:** Mahasiswa pada mata kuliah Nahwu Awal membutuhkan bahan ajar microlearning yang memadukan materi visual dan audiovisual. Materi disajikan dalam bentuk konten singkat yang membahas setiap topik pembelajaran secara bertahap melalui LMS. Bahan ajar microlearning dapat menjadi solusi untuk mengatasi learning loss serta mendukung pembelajaran Nahwu Awal yang lebih efektif.

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**Kata Kunci** *Bahan Ajar, Nahwu Awal, Microlearning, Mahasiswa*

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## INTRODUCTION

Arabic language learning encompasses language skills and their components, namely ‘ilm al-aṣwāt, orthography kitābat al-ḥurūf, ṣarf, nahwu, and mufradāt. [1][2]Click or tap here to enter text. Nahwu is one of the essential components that examines sentence structure in the Arabic language. [3]

Among the branches of Arabic studies that students must master is Nahwu. Learning Nahwu is not the primary goal of Arabic language instruction; rather, it serves as a means to support fluency in Arabic language skills and to minimize linguistic errors. [4] Some of the objectives of teaching

Nahwu are to preserve and protect spoken and written language from errors, and to train Arabic language students to consistently observe, think logically, and think systematically.[5]

Nahwu instruction in the Arabic Language Education Study Program at Jakarta State University is conducted over two semesters, beginning in the second semester and continuing through the third semester. In the second semester, Nahwu is taught in the Nahwu Awal course, which is delivered online.

Over the past three years, the learning process has undergone significant changes due to the COVID-19 pandemic, which accelerated the transformation toward technology-based education. This shift encouraged a transition from face-to-face (onsite) learning to online and blended learning. In the context of Nahwu Awal, the sudden transition from face-to-face learning to online learning during the 2020–2022 period, followed by a blended learning model from 2022 to 2024, was not fully accompanied by adequate teaching materials and adaptive learning strategies. This condition contributed to the emergence of learning loss, namely a decline in students' understanding of Nahwu grammatical concepts, as indicated by their low ability to identify sentence structures and the increased frequency of errors in applying Arabic language rules.[6]

Online Nahwu learning has given rise to the phenomenon of learning loss, namely, a decline in learning outcomes caused by reduced intensity of interaction, practice, and feedback during distance learning. In the context of language learning, learning loss not only affects the decline in concept mastery but also impairs students' gradual, continuous understanding of language structures.[7] This condition has led to varying levels of students' understanding of Nahwu materials. Some students in the Nahwu Awal course have shown low comprehension. This was evident when they were unable to answer questions related to the material during online class discussions.

These problems require solutions through innovation in teaching materials that align with the characteristics of Nahwu learning. Teaching materials, or instructional materials, are a set of knowledge, skills, and attitudes designed to help students achieve predetermined learning outcomes.[8] Teaching materials can be developed by adapting to online learning models and the needs of students experiencing learning loss. Therefore, microlearning has strong potential as a basis for developing Nahwu teaching materials because it can present content in a brief, focused, and easily accessible manner that aligns with students' learning needs.[9]

Microlearning is a learning approach that presents material in short, focused, structured content to facilitate understanding and improve knowledge retention.[10] Developments in information and communication technology have encouraged the use of microlearning in the development of digital teaching materials that are more flexible and adaptive to students' needs.[11] In this context, microlearning-based teaching materials can be designed in various formats, such as text, visual, audio, and audiovisual content, to convey concepts concisely yet meaningfully. With these characteristics, microlearning is relevant for 21st-century learning, particularly for simplifying the delivery of complex material.

Although various studies have demonstrated the effectiveness of microlearning in improving learning outcomes across different fields of study, research on the development of microlearning-based teaching materials for Nahwu learning in higher education remains limited. Previous studies have generally focused on language learning in general or on specific language skills, while studies specifically developing microlearning-based teaching materials for Nahwu Awal to address students' learning loss are still scarce. This gap indicates the need for contextual, interactive teaching material innovations that align with the characteristics of Nahwu content and students' learning needs.

Based on these conditions, this study aims to develop microlearning-based teaching materials for the Nahwu Awal course. Microlearning has been proven to improve knowledge, skills, and learning behavior, and it also has the potential to promote critical thinking and reasoning when designed according to the needs of adult learners.[12] Microlearning-based teaching materials have the potential to serve as a strategic alternative for mitigating learning loss. With the support of digital technology and short learning duration, this approach can become a relevant option for students.

A few studies have shown that microlearning in higher education has significant potential to enhance student engagement, knowledge retention, and learning flexibility, particularly in digital and technology-based learning environments. In addition, studies on the development of Arabic language teaching materials emphasize the importance of media innovation and learning design that are adaptive to students' needs, such as the use of interactive multimedia and digital platforms to improve learning effectiveness. On the other hand, research on Nahwu learning reveals that students often experience difficulties understanding abstract, complex grammatical concepts, which are often taught through conventional methods, thereby affecting their understanding and learning interest.

Nevertheless, studies that specifically integrate a microlearning approach into the development of Nahwu teaching materials in higher education remain limited. Most existing studies still focus on general teaching methods or the development of conventional teaching materials without fully utilizing the potential of microlearning. Therefore, this study seeks to fill this gap by developing microlearning-based teaching materials for Nahwu Awal that are designed in accordance with the characteristics of digital learning and students' needs.

## LITERATURE REVIEW

Nahwu Awal learning is an essential foundation in Arabic language education because it serves as the basis for understanding sentence structure, word functions, and syntactic relationships. Mastery of Nahwu supports students' reading, writing, speaking, and comprehension skills in Arabic texts.[13] [14] In higher education, the Nahwu Awal course plays a strategic role as the initial stage in developing students' grammatical competence. Basic materials such as word classification, i'rab markers, mubtada-khabar, and the patterns of jumlah ismiyah and fi'liyah serve as the foundation for more advanced topics.

However, Nahwu Awal learning often faces challenges because the material is abstract, conceptual, hierarchical, and requires high accuracy. Students are not only expected to understand the theory but also to apply grammatical rules in sentence structure analysis. In practice, learning is still often conducted through lecture-based methods and conventional, text-heavy teaching materials, which are less conducive to gradual understanding. This condition indicates the need for innovative learning strategies that can simplify complex material into a more structured, contextual, and accessible form. Fatahillah and Hafidhoh (2025) emphasize that integrating technology into Arabic language learning can improve access to materials, interactivity, and learning motivation.[15]

Teaching materials are systematically organized resources designed to help learners achieve learning objectives.[8] Theoretically, teaching materials function as learning resources, activity guides, practice tools, and evaluation instruments. Effective teaching materials should be relevant, meaningful, systematic, easy to understand, and engaging. In the digital era, teaching materials have evolved into flexible, interactive, easily accessible, and supportive of independent learning.[16] Akhsan and Muhammadiyah (2022) state that innovation in learning media significantly enhances students' motivation and understanding, especially complex materials.[17]

In Nahwu Awal learning, effective teaching materials should simplify abstract concepts through visualization, contextual examples, gradual exercises, and repetition. Aldhafeeri and

Alotaibi (2022) explain that well-designed digital learning models can enhance participation, motivation, and learning effectiveness.[18] Fatimah et al. (2025) also emphasize that mobile learning-based digital teaching materials provide high flexibility and support independent learning.[19] Studies by Habibullah and Nihayah (2023), Ekawati et al. (2022), and Muhtarromah et al. (2025) show that interactive digital teaching materials, including audiovisual media, flipbooks, and interactive media, are effective in improving students' motivation, engagement, and learning outcomes.[20], [21], [22]

One relevant approach to developing digital teaching materials is microlearning. Microlearning is a learning approach that presents material in small, concise, focused units that can be studied in short time increments. Theoretically, this approach is supported by Cognitive Load Theory, which emphasizes the importance of reducing working memory load, and Chunking Theory, which explains that information presented in small units is easier to understand and remember.[23] A constructivist perspective also supports microlearning by enabling active, gradual, and independent learning.

The main characteristics of microlearning include focusing on a single concept, short duration, flexible access, ease of repetition, and support for self-directed learning. In higher education, this approach is relevant because students need efficient and flexible learning materials. Hutagalung (2025) explains that microlearning is effective in helping students understand complex material through short and focused content.[24] Muali (2025) also shows that integrating microlearning into digital platforms increases student participation in learning.[25] In Nahwu Awal learning, this approach allows grammatical material to be broken down into smaller sub-concepts, such as word types, i'rab markers, and sentence structures, so students can gradually understand the material.

The concept of learning loss has become increasingly important in online learning. Learning loss refers to a decline in learning outcomes caused by limited interaction, guidance, feedback, and access to adequate teaching materials.[6] In Nahwu Awal learning, this issue is particularly serious because the material is hierarchical; failure to understand basic concepts will hinder students' comprehension of more advanced material. Aldhafeeri and Alotaibi (2022) show that the quality of digital learning design greatly affects learning engagement.[18] Therefore, well-designed digital teaching materials are an important factor in minimizing learning loss. In this context, microlearning has the potential to become a solution because the material is presented in a brief, focused, easily accessible, and repeatable format according to students' needs.

University students are categorized as adult learners who have different learning needs from school students. In Andragogy theory, adults need learning materials that are relevant, flexible, contextual, and supportive of independent learning.[26] Fatimah et al. (2025) show that university students are more responsive to digital learning that is flexible and aligned with their learning pace.[19] In Nahwu Awal learning, these characteristics are important because students need time to gradually understand abstract concepts. Therefore, microlearning-based digital teaching materials are highly suitable because they support flexibility, autonomy, and learning effectiveness.

Various previous studies have shown the positive contribution of digital media innovation to learning effectiveness. Octaviani et al. (2025), Taseman (2020), Ashidiqi et al. (2019), and Maulana et al. (2025) emphasize the importance of visual, audio, and interactive media in improving motivation, focus, and understanding of abstract concepts.[27], [28], [29], [30] However, the literature review reveals a research gap. Most studies still focus on primary and secondary education levels and discuss interactive media in general without applying microlearning as the main instructional design. Research on the development of microlearning-based digital teaching materials for Nahwu Awal for Arabic Language Education students is also still very limited. In addition, only a few studies link the development of digital Nahwu teaching materials with efforts

to minimize learning loss and adapt them to the characteristics of adult learners. Given this gap, this study is important for developing microlearning-based digital teaching materials for Nahwu Awal that support gradual understanding, learning flexibility, and the mitigation of learning loss.

## METHOD

This study employed a Research and Development (R&D) approach using the ADDIE model (Analysis, Design, Development, Implementation, Evaluation), focusing solely on the development stage. The ADDIE model was selected because it provides a systematic development framework, starting from needs analysis to the preparation of learning products that are feasible for use.[31] In addition, this model is effective for developing digital teaching materials because it enables continuous revision based on user needs and expert validation.[32] The R&D approach is also relevant for producing educational products that are developed systematically and conceptually validated.[33]

This study focused on developing microlearning-based digital teaching materials for the Nahwu Awal course for students in the Arabic Language Education Study Program at the Faculty of Languages and Arts, Jakarta State University. The product developed was microlearning-based digital teaching materials integrated into a Learning Management System (LMS) and organized into short material units (micro-content) based on CPMK and sub-CPMK. The microlearning approach was chosen because it has been shown to support learning retention, flexible access, and student engagement in digital learning.[9], [34]

The study was conducted in the even semester of 2024/2025. The population comprised 130 second-semester Arabic Language Education students at Jakarta State University enrolled in Nahwu Awal across six classes. All students participated in the needs analysis to identify learning difficulties and material needs. The course lecturer was involved as a supporting informant. In the limited trial (alpha testing), students were purposively selected to represent product users.

Data were collected through needs analysis questionnaires, semi-structured interviews, expert validation sheets, and user response questionnaires. The questionnaires identified students' learning difficulties, online learning experiences, and needs for micro-learning-based materials. Interviews with lecturers supported the needs analysis. Product feasibility was assessed by one Arabic content expert and one digital media expert, while limited trials measured students' perceptions of clarity, accessibility, attractiveness, and usefulness.

The research procedure followed three main ADDIE stages: analysis, design, and development. In the analysis stage, the researchers analyzed curriculum documents, CPMK, sub-CPMK, and Nahwu Awal materials, distributed questionnaires to 130 students, and conducted interviews with the course lecturer. The results of the analysis were used to identify difficult-to-understand Nahwu topics, barriers to online learning, and the need for more flexible teaching materials. This condition aligns with findings that post-pandemic learning still leaves students with learning loss, which affects their understanding of conceptual materials.[35] Based on these results, micro-intended course learning outcomes and micro-content were formulated as the basis for product development.

At the design stage, the researchers defined the structure of microlearning-based teaching materials, including the material flow, topic sequence, learning activities, and the appropriate Medium of Microlearning Object (MeMO). The design was carried out with the principles of short, focused, and easily accessible materials that support independent learning in mind.[34] At the development stage, the researchers developed teaching materials in the form of concise text, infographics, audio, short instructional videos, practice exercises, and formative assessments integrated into the LMS. The initial product was validated by content and media experts to ensure the quality of content, design, and usability.[32] Feedback from validators was used to revise the

product, followed by a limited trial (alpha testing) to obtain initial feedback regarding ease of access, material clarity, and the usefulness of the teaching materials. Data was analyzed using descriptive quantitative and qualitative techniques to assess the level of need, product feasibility, and user acceptance.

**Table 1.** ADDIE Implementation Design in the Development of Microlearning-Based Teaching Materials

Development of Microlearning-Based Teaching Materials for Nahwu Awal					
No.	Guiding Questions	Activities	Methods	Achievement Indicators	
1	What are the micro-learning outcomes and micro-learning content for the Nahwu Awal course?	1) Analyzing CPMK and Sub-CPMK and breaking them down into micro learning outcomes	Content Analysis	1) Description of micro learning outcomes	A
		2) Analyzing the learning materials for each CPMK and Sub-CPMK and breaking them down into microlearning content		2) Description of microlearning content.	
2	What are the learning steps and activities based on the micro learning outcomes and microlearning content for each activity in the Nahwu Awal course?	Designing learning steps and activities based on the micro learning outcomes and microlearning content for each activity.	Library Research	Description of the learning steps and activities based on the micro learning outcomes and micro learning content for each activity.	D
3	What are the types and scripts of Medium of Microlearning Objects (MeMO) in the Nahwu Awal course?	1) Identifying the types of Medium of Microlearning Objects (MeMO) for each activity in the learning steps.	Library Research	1) Developing the script for each MeMO for every activity in the learning steps.	D
		2) A list of Medium of Microlearning Objects (MeMO) types.		2) Scripts for each MeMO for every learning activity	

## RESULT AND DISCUSSION

The implementation of this study consisted of several systematic stages leading to the development of microlearning-based teaching materials for Nahwu Awal learning for Arabic Language Education students, particularly at Jakarta State University. Before developing the product, the researchers first conducted a needs analysis involving students who were the target

users of the teaching materials.

#### a. Needs Analysis of Microlearning-Based Teaching Materials in Nahwu Awal Learning.

Needs analysis was conducted to identify students' difficulties in learning Nahwu Awal and their expectations for appropriate teaching materials. This stage served as the main basis for developing microlearning-based materials for Arabic Language Education students. Through questionnaires, the study explored students' learning experiences, perceptions of the current material's effectiveness, and preferences for additional teaching materials, particularly microlearning, to better understand Nahwu Awal content.

The results of this study are presented in terms of the stages of developing microlearning-based teaching materials for Nahwu Awal, including needs analysis, design, and product development. The design stage included dividing the materials into microlearning units and selecting the appropriate Medium of Microlearning Objects (MeMO). The development stage resulted in LMS-based digital teaching materials that were validated and tested to assess their feasibility, ease of use, and usefulness.

**Tabel 1.** Results of Student Needs Analysis

No	Aspect	Respon Category	Presentage
1	Level of difficulty in understanding Nahwu Awal materials	Often experience difficulties	66,3%
		Rarely experience difficulties	31,3%
		Always experience difficulties	2,5%
2	Perception of the effectiveness of the teaching materials used	Fairly effective	68,8%
		Effective	30,0%
		Ineffective	1,3%
3	Need for additional teaching materials	Needed	97,5%
		No needed	2,5%
4	Experience in using micro-learning-based teaching materials	Have never used	93,8%
		Have used	6,3%
5	Need for microlearning-based teaching material	Needed	100%
		No needed	0%

The results of the needs analysis showed that the majority of students still had difficulty understanding Nahwu Awal materials. A total of 66.3% of respondents reported often experiencing difficulties, 31.3% rarely experiencing difficulties, and 2.5% always experiencing difficulties. These findings indicate that Nahwu Awal learning remains a challenge because the material is abstract, complex, and requires a systematic understanding of syntactic rules. This condition is consistent with previous studies stating that difficulties in learning Nahwu are influenced by the complexity of concepts, less varied teaching methods, and the limited use of interactive learning media. [36]

This finding highlights the need for more adaptive learning strategies and teaching materials that align with students' characteristics.

Students' perceptions of the teaching materials used so far also indicate suboptimal results. A total of 68.8% of students considered the existing teaching materials only effective, 30.0% considered them ineffective, and only 1.3% considered them effective. These data indicate that the available teaching materials have not fully supported students' in-depth understanding of the material. The limitations of adaptive teaching materials can worsen the impact of learning loss, namely the decline in students' understanding and skills due to suboptimal learning during the transition to online learning.[2]

Students' need for additional teaching materials is very high. A total of 97.5% of respondents stated that they needed additional teaching materials to support Nahwu Awal learning. This finding shows that students need learning resources that are flexible, easily accessible, and supportive of independent learning according to their individual learning pace.[35]

Further analysis shows that the use of microlearning-based teaching materials is still very limited. A total of 93.8% of students stated they had never used microlearning-based teaching materials, while 6.3% had. In fact, microlearning has been proven effective in improving learning retention, student engagement, and access flexibility in higher education,[9] as well as reducing cognitive load when studying complex materials gradually.[37]

The most important finding is that all respondents (100%) stated that they needed microlearning-based teaching materials in Nahwu Awal learning. This finding confirms that the development of microlearning-based digital teaching materials is not only relevant but also urgent to address learning difficulties, support independent learning, and mitigate learning loss in higher education.

The data show that students still experience difficulties in understanding Nahwu Awal, while the available teaching materials are considered less effective. This condition confirms the need for additional teaching materials better suited to students' needs. Most students have never used microlearning-based teaching materials, even though they need them. Their preference for audiovisual media, especially video, suggests that interactive teaching materials incorporating visual, audio, and video content can serve as a strategic solution to support Nahwu Awal learning.

#### **b. Development of Microlearning-Based Teaching Materials in Nahwu Awal Learning.**

Microlearning-based teaching materials for Nahwu Awal were developed based on the principles of concise, focused, gradual, and easily accessible content to support students' independent learning. The development began by breaking Nahwu Awal materials into smaller units (micro-content) aligned with the micro-learning outcomes formulated during the needs analysis stage. Each unit addressed one main concept, such as word types, i'rab, or simple sentence structures, so students could gradually understand the material without excessive cognitive load. This approach aligns with the principles of microlearning, which emphasize delivering brief content to improve retention, learning focus, and student engagement.[9]

Each teaching material unit was systematically designed to include learning objectives, core material, examples, short exercises, and formative evaluation. To accommodate students' learning styles, the teaching materials were developed in visual, audio, and audiovisual formats. Visual media such as mind maps and infographics are effective in reducing cognitive load [37] and helping students understand Nahwu structures.[38] Audio supports learning flexibility, while short microlearning-based videos help clarify concepts and improve students' motivation and learning outcomes.[35]

The duration of each content unit was set at 5–10 minutes to align with the characteristics of effective microlearning and to avoid overloading students' concentration. Short duration with a

focus on a single learning objective has been shown to support knowledge retention and independent learning. [25], [35] All teaching materials were integrated into Jakarta State University's LMS to ensure flexible access. The LMS supports structured material delivery, discussion forums, exercises, and online evaluation, while also enhancing accessibility, autonomy, and student engagement. [38]

The course materials above were organized into short pieces of information or “micro-content” displayed on the LMS platform, consisting of visual diagrams and videos with the following details:

**Table 2.** Microlearning-Based Teaching Materials Content

No	Data	Information	Explanation
1	Jumlah Mufidah	Instructional Video Content	The material requires an explanation of basic concepts and usage examples; therefore, a video was selected to provide a more gradual, contextual delivery.
2	Jumlah Ismiyah	Mind-map visual	The material is conceptual and involves relationships between elements (mubtada'-khabar); therefore, visual media were chosen to facilitate concept mapping.
3	Jumlah Fi'liyah	Mind-map visual	The fi'il-fa'il-maf'ul structure is easier to understand through visual schemes that show the relationships among sentence components
4	Harful Jar	Instructional Video Content	The material requires examples of usage in sentences and changes in meaning; therefore, the video helps provide more practical explanations.
5	Az-Zorfu	Instructional Video Content	The concept of adverbials of time and place requires illustrations of usage context; therefore, a video is more effective for demonstration.
6	Idhofah	Instructional Video Content	The idāfah structure requires explanation of word relationship patterns and gradual examples; therefore, the video supports students' analytical process.
7	As-Sifat	Mind-map visual	The relationship between maushūf and şifah is easier to understand through concept diagrams and visual examples.
8	Ad-Dhomir al-Munfashil	Mind-map visual	The material involves the classification of ḍamīr forms; therefore, it is more effectively presented as concept maps to facilitate memorization.
9	Ad-Dhomir al-Muttashil	Mind-map visual	The material requires grouping forms and functions; therefore, visual media help students understand patterns concisely.

10	Nasob fi'lul mudhori'	Instructional Video Content	The material requires a procedural explanation of changes in word endings and their determining factors; therefore, a video was chosen to provide clearer and more gradual explanations.
11	Jazm fi'lul Mudhori'	Instructional Video Content	The rules of jazm require demonstrating analytical steps and providing contextual examples; therefore, a video is more appropriate.
12	Taqdim khobar alal muftada	Instructional Video Content	The material involves the analysis of unusual sentence structures; therefore, the video gradually explains structural variations.
13	Uslub an-Nafyi	Mind-map visual	Negative sentence patterns are easier to understand through diagrams of particle types and their examples.
14	Uslub istifham	Mind-map visual	The material consists of interrogative sentence patterns and question word types, which are more effectively mapped visually to facilitate understanding.

The selection of content formats for microlearning-based teaching materials in Nahwu Awal was based on the material's characteristics, the complexity of the concepts, and students' needs. Conceptual and classificatory materials, such as jumlah ismiyah, ad-ḍamīr, and uṣlūb istifhām, were developed as visual mind maps because they facilitate concept mapping, illustrate relationships among grammatical rules, and reduce cognitive load.[37] In Arabic language learning, visual media are also effective in helping students understand abstract Nahwu concepts more systematically.[38]

Materials that require procedural explanations, gradual analysis, or rule demonstrations, such as naṣb fi'l al-muḍāri', jazm fi'l al-muḍāri', and idāfah, were developed in video format to provide more structured and contextual explanations. Video was chosen because it integrates visual, audio, and practical examples simultaneously, thereby facilitating students' understanding of complex grammatical analysis.[39] Microlearning-based videos have been shown to improve retention, focus, and motivation,[9] as well as help students understand Arabic language structures more concretely.[40]

This content format selection strategy is aligned with the principles of microlearning, namely dividing material into small units that focus on a single learning objective, are easily accessible, and do not overload students' cognitive capacity. [37], [38] As adult learners, university students tend to need learning materials that are flexible, concise, and adaptable to their own learning pace.[41] Therefore, the combination of visual mind maps and short videos in Nahwu Awal teaching materials not only addresses the need for content that aligns with the material's characteristics but also supports independent learning, enhances student engagement, and helps mitigate difficulties in understanding complex Nahwu concepts.

#### a. Learning Materials in the Form of Images/Mind Maps.

The presentation of Nahwu Awal materials in visual form was designed as part of the microlearning-based teaching materials product, based on the results of the student needs

analysis, which showed that most students had difficulty understanding Nahwu Awal materials and needed more engaging, easier-to-understand teaching materials. The visual materials were developed as mind maps, infographics, and concept summaries, with simple, structured designs and contrasting colors to help students focus on key concepts. The selection of this visual format was based on the principles of microlearning, which emphasize delivering information in a concise, focused, and easily processed manner within a limited time.[37]

Pedagogically, visual materials were specifically selected for topics that are conceptual in nature and involve relationships between elements, such as jumlah ismiyah, ad-ḍamīr, and uṣlūb istifhām. This format allows students to map the relationships between Nahwu rules more systematically and reduces cognitive load when studying complex materials.[38] Thus, the visual materials in this product were not only designed to attract students' attention but also to address the learning needs identified during the analysis stage and to support the effectiveness of independent learning in the context of digital learning.

The following is an example of visual material presentation for the topic of jumlah ismiyah:



Picture 1. Learning Materials of Jumlah Ismiyah

Visual materials enrich learning by presenting information in a more concrete, accessible manner and reducing dependence on abstract verbal explanations.[42] Visual media help improve understanding and information retention and reduce verbalism, especially in complex materials.[43] In Nahwu Awal learning, visualizations such as mind maps, infographics, and concept diagrams play an important role in helping students understand the relationships between grammatical rules and structures more systematically, thereby supporting more effective and meaningful learning.[38]

#### b. Learning Materials in the Form of Video (Audiovisual).

Video-based learning materials are a form of audiovisual media used to present Nahwu Awal content. These materials consist of visual explanations of specific Nahwu topics, including theoretical and other necessary explanations, examples, and audio narration. Video materials serve as short content segments within the microlearning-based teaching materials designed to increase students' interest in learning Nahwu Awal. The following is an example of Nahwu Awal learning material presented in video form.



**Picture 2.** Dzharaf Teaching Materials

Video materials in Nahwu Awal learning are important in helping students understand Arabic sentence structures in a visual, interactive, and contextual manner. Video facilitates students' understanding of grammatical rules such as *jumlah ismiyah*, *jumlah fi'liyah*, *mubtadā'*, and *khobar*, while also increasing the flexibility of learning access anytime. [44] Research shows that Nahwu instructional videos are valid, feasible, and effective in improving students' motivation and understanding. [9] Therefore, video is an appropriate format for presenting procedural, complex Nahwu materials in a microlearning context.

Microlearning-based teaching materials delivered through a Learning Management System (LMS) allow students to study independently while lecturers act as facilitators. The LMS provides high flexibility because the materials are presented in small, structured units focused on a single competency, thereby supporting learning effectiveness and efficiency. [44] In this context, lecturers not only deliver the material but also guide students, provide feedback, and support students' self-regulation. Research shows that microlearning in higher education significantly improves retention, learning outcomes, and student engagement. [9] The integration of microlearning with self-regulated learning strategies has also been proven to encourage learning awareness, reflection, and student autonomy. [40] Therefore, microlearning-based teaching materials delivered through an LMS serve as an effective medium for supporting Nahwu Awal learning, as they are flexible, interactive, and adaptive.

## CONCLUSION AND IMPLICATIONS

This study aimed to develop microlearning-based teaching materials for Nahwu Awal to address students' learning difficulties and the impact of learning loss following online learning. The results of the needs analysis showed that 66.3% of students often experienced difficulties in understanding Nahwu Awal materials, 68.8% considered the teaching materials used to be less than optimal, 97.5% needed additional teaching materials, and all respondents (100%) stated the need for microlearning-based teaching materials. These findings indicate a clear need for teaching materials that are more flexible, engaging, and aligned with the characteristics of students as adult learners. Based on these results, this study successfully developed microlearning-based digital teaching materials integrated into an LMS in the form of visual materials, audio, and short videos arranged gradually according to Nahwu Awal topics. The developed product was considered feasible by subject-matter and media experts and received positive responses in the limited trial, particularly regarding material clarity, ease of access, and visual appeal.

This study implies that microlearning-based teaching materials can serve as a strategic alternative to support Nahwu Awal learning that is more adaptive, interactive, and student-centered. However, this study was limited to the product development stage and a small trial; therefore, its effectiveness in improving learning outcomes has not yet been experimentally tested.

Future research is recommended to examine the product's effectiveness on a larger sample and to add interactive features to further optimize Arabic language learning in higher education.

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