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Analysis of Arabic Language Acquisition among Students of Pondok Modern Darussalam Gontor from the Perspective of Lev N. Landa's Landasmathic Theory

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Abstract

Language acquisition is a natural process through which learners develop language competence by interacting with their linguistic environment. In Darussalam Gontor Islamic Modern Boarding School, Arabic language acquisition occurs through the integration of both natural and structured language environments. This study aims to examine the Arabic language acquisition process of Gontor students from the perspective of Lev N. Landa's Landasmathic Learning Theory. A qualitative case study approach was employed, with data collected through interviews, observations, and document analysis to provide a comprehensive understanding of students' language acquisition experiences. The findings indicate that the students' acquisition process corresponds closely to the seven stages of Landasmathic Learning Theory, including independent language exploration, recognition of grammatical concepts, self-definition of linguistic terms, mental processing, development of sentence analysis strategies, independent practice, and fluent oral communication in Arabic. Furthermore, the study reveals that Darussalam Gontor Islamic Modern Boarding School has long implemented instructional practices that reflect the principles of Landasmathic Learning Theory, even before the theory was formally introduced by Landa. These findings provide valuable pedagogical insights for Arabic language educators and offer a theoretical basis for designing technology-enhanced Arabic learning environments and digital instructional models that support learners' cognitive development and language acquisition.

Keywords: Arabic Language Aquation, Landasmathic Learning Theory, Arabic Educational Technology

Introduction

Arabic occupies a significant position in Islamic education, serving not only as a means of communication but also as the primary medium for understanding the fundamental sources of Islamic teachings (Azhar Arsyad, 2010). Consequently, many Islamic educational institutions in Indonesia have sought to develop effective Arabic language learning systems to enhance students' linguistic competence. One of the institutions widely recognized for its success in creating an Arabic-speaking environment is Darussalam Gontor Islamic Modern Boarding School. In this institution, Arabic is not merely taught as a formal subject in the classroom but is also implemented as the language of daily communication through various language programs, including *ilqā' al-mufradāt*, *muḥādathah*, *muḥāḍarah*, Language Week, and a comprehensive language environment that continuously encourages the use of Arabic (Abdullah Syukri Zaekasyi, 2005). This integrated system has positioned Gontor as one of the leading models of Arabic language education that combines formal instruction with continuous language immersion in students' daily lives.

From a linguistic perspective, it is important to distinguish between *language learning* and *language acquisition*. Language learning refers to a conscious and structured process that typically occurs through formal instruction, including the teaching of Arabic grammar (*naḥw* and *ṣarf*), guided practice, and systematic assessment (Mauluddiya Saniyatul Iskaq dkk., 2026). In contrast, language acquisition is a natural process that develops through continuous interaction within a linguistic environment, enabling learners to use the language without relying exclusively on explicit knowledge of grammatical rules (Achmad, 2023). Within the educational context of Darussalam Gontor Islamic Modern Boarding School, these two processes occur simultaneously. Students acquire explicit linguistic knowledge through formal classroom instruction while simultaneously developing communicative competence through intensive social interaction within the boarding school environment.

Although language acquisition is commonly regarded as a natural process, it actually involves a series of complex cognitive operations through which learners receive, process, organize, store, and apply linguistic information (Robert E. Slavin, 2018). Students' ability to comprehend new vocabulary, recognize grammatical patterns, construct meaningful sentences, and communicate spontaneously in Arabic demonstrates the existence of systematic mental processes underlying language acquisition (Makhiulil Kirom, 2025). Therefore, understanding Arabic language acquisition requires more than examining the influence of language environment or instructional methods; it also necessitates an analysis grounded in learning theories capable of explaining how learners cognitively process linguistic information.

One theoretical perspective that offers a comprehensive explanation of this process is Landamathics Learning Theory, developed by Lev N. Landa. This theory is based on the assumption that learning fundamentally consists of systematic and structured information processing through sequential mental operations. According to Landa (1998), knowledge is not acquired randomly but through specific cognitive procedures that enable learners to understand, organize, and apply newly acquired information effectively (Landa, 1998). Landamathics Learning Theory describes learning as a sequence of interconnected stages, including concept discovery, recognition of grammatical concepts, self-definition of concepts, development of mental operations, formulation of analytical procedures, independent practice, and the automatization of knowledge application (Landa, 1998). Consequently, the theory provides a comprehensive framework for explaining how information gradually develops into functional competence.

The principles of Landamathics Learning Theory are highly relevant to the Arabic language learning system implemented at Darussalam Gontor Islamic Modern Boarding School. The immersive language environment encourages students to progress gradually from vocabulary and expression recognition, grammatical understanding, and analytical language skills to active communication in Arabic (Wahab, 2014). These characteristics suggest a close correspondence between the stages of Arabic language acquisition experienced by Gontor students and the information-processing stages proposed in Landamathics Learning Theory. Therefore, this theoretical framework provides a valuable perspective for understanding how students systematically acquire Arabic within an immersive boarding school environment.

Previous studies on Arabic language learning in Islamic educational institutions and modern boarding schools have primarily focused on instructional methods, language environments, learning motivation, and factors influencing students' language achievement. While these studies have successfully explained many factors contributing to the effectiveness of Arabic language programs, particularly in Gontor, research specifically examining Arabic language acquisition through the perspective of Lev N. Landa's Landamathics Learning Theory remains limited. This gap is particularly significant because the theory offers a systematic explanation of the cognitive processes involved in receiving, processing, internalizing, and automatizing linguistic knowledge. Addressing this gap constitutes the primary rationale for conducting the present study.

This study is expected to contribute both theoretically and practically. Theoretically, it enriches the field of Arabic language acquisition by introducing the perspective of Landamathics Learning Theory, which has rarely been applied in Arabic language education research. Practically, the findings are expected to provide Arabic language teachers, educational administrators, and curriculum developers with a more comprehensive understanding of the stages through which students acquire Arabic, thereby supporting the design of instructional practices that align with learners' cognitive development. This study is limited to analyzing the Arabic language acquisition process of students at Darussalam Gontor Islamic Modern Boarding School from the perspective of Lev N. Landa's Landamathics Learning Theory. It does not aim to evaluate the effectiveness of the institution's language programs or measure students' language proficiency; rather, it seeks to identify and analyze the stages of Arabic language acquisition experienced by students according to Landa's theoretical framework.

Based on the preceding discussion, this study addresses the following research question: How does the Arabic language acquisition process of students at Darussalam Gontor Islamic Modern Boarding School correspond to the stages proposed in Lev N. Landa's Landamathics Learning Theory? Accordingly, the objective of this study is to analyze the stages of Arabic language acquisition experienced by Gontor students through the perspective of Landamathics Learning Theory. It is expected that the findings will provide a deeper understanding of Arabic language acquisition and contribute to both the theoretical development of Arabic language acquisition studies and the practical improvement of Arabic language education in Islamic educational institutions.

Theoretical Framework

Arabic Language Acquistion

Language acquisition is defined as the natural process by which a person develops linguistic competence through meaningful exposure to language and active involvement in the communication of their social environment (Rod Ellis, 1997). This process differs fundamentally from formal language learning because it occurs subconsciously without relying on explicit instruction regarding

grammatical rules. Through continued exposure, learners gradually internalize linguistic patterns until they can eventually produce language spontaneously and intuitively in real communicative contexts.

Within the framework of language acquisition, Stephen Krashen's input hypothesis plays a crucial role. This theory emphasizes that language acquisition occurs optimally when learners receive comprehensible linguistic input that is slightly above their current level of competence. (i +1) (Stephen D. Krashen, 1985). In the context of second language acquisition, full communicative competence cannot be achieved by relying solely on rote vocabulary memorization or the mastery of rigid grammatical structures; rather, it requires rich exposure, meaningful practice, and adequate cognitive processing of the input (Stephen D. Krashen, 1982).

The acquisition of Arabic as a second or foreign language possesses unique characteristics due to significant typological, morphological, and phonological differences from the learner's native language. The cognitive information-processing involved when learners receive, store, and produce Arabic language structures entails mental mechanisms that operate systematically. (Routledge, 2013). Students are expected not merely to memorize the rules of *nahwu* and *sharf* in a static manner, but to internalize patterns of word inflection *(tashrif)* and sentence construction so that they can be employed automatically and spontaneously in any oral interaction. (Zoltán Dörnyei, 2009).

Arabic Language Environment

In the context of language acquisition, a natural language environment refers to a situation where the target language is used spontaneously as a tool for everyday communication during intensive social interaction (Zoltán Dörnyei, 2009). In this environment, the learners' primary focus is on the meaning of the message being conveyed, rather than on the formal accuracy of linguistic forms. Learners acquire linguistic structures unconsciously through direct engagement in social activities.

An artificial language environment is characterized by instructional interventions consciously designed to facilitate language acquisition (Stephen D. Krashen, 1985). This encompasses formal classroom instruction, structured grammar exercises, periodic evaluations, and the use of technology-based learning media. The environment aims to provide a foundation of explicit knowledge regarding linguistic rules.

Pondok Modern Darussalam Gontor integrates natural and built environments simultaneously and sustainably. On one hand, students receive formal instruction in grammar within the classroom (Routledge, 2013). On the other hand, Gontor creates a total linguistic ecosystem outside the classroom through mandatory programs such as *ta'lim mufrodat* (vocabulary study), *muhadatsah* (conversation practice), *muhadoroh* (public speaking), and *Language Week*. (Zoltán Dörnyei, 2009). This integration compels student to continuously transform formal knowledge into everyday communication skills.

In the implementation of Landasmathic-based learning, the thinking process is broken down into the following systematic stages:

1. ***Independent Discovery of the Concept***: Students are guided to observe objects or phenomena in order to discover the essential characteristics of the concept.
2. ***Figuring out the Term***: Determining or associating the appropriate scientific term to represent a discovered concept.
3. ***Framing the Concept's Logicallt Correct Definition*:** Formulating an operational definition that encompasses all the key characteristic features of the concept.

4. ***Independent Discovery of a System of Mental Operational*:** Students identify the sequence of mental actions they must perform in their minds to apply the definition to a new object.
5. ***Formulation of the Discovered Method*:** Formulating and explicitly writing down steps or mental instructions on a writing medium or board.
6. ***Learning Through Practicing*:** Students practice the instructional steps sequentially using various example objects to test the validity of their reasoning.
7. ***Internalization and Automatization*:** External instructions are replaced by self-instruction, eventually shifting to simultaneous, instantaneous, and automated parallel processing that operates without cognitive load.

(Lev N. Landa, 1998)

Lev N. Landa's Landasmathic Learning Theory

Landasmathic Theory—originally known as the Algoritmico-Heuristic Theory (AHT) of performance, learning, and instruction—was developed by Lev N. Landa as a general instructional design framework for teaching general methods of thinking. Rooted in cognitive psychology and cybernetics, the theory views the learning process as an activity involving the systematic management of information within the brain. The term "Landasmatics" was proposed by Professor Berkowitz of CUNY to describe the broad scope of Landa's theory, which focuses not only on problem-solving but also on methods of knowledge acquisition and the development of mental qualities such as intelligence and self-regulation (Landa, 1998).

The fundamental concept of Landasmathics rests on the premise that expert performance is grounded in structured mental operating systems functioning within the mind. The theory distinguishes between a method as a system of actions (Ms) and a method as an instruction or prescription (Mp). Landasmathics focuses on transforming explicit external instructions into automated internal mental operations through practice. Knowledge is not acquired haphazardly but rather through logical thinking—utilizing both algorithms and heuristics—that enables learners to accurately understand, organize, and apply information. The ultimate goal is to foster Reliable, Scientific Concept-Congruous (RSCC) generalizations in learners (Landa, 1998).

In language learning, Landasmathic is applied by mapping grammatical rules onto flowcharts or operational logic diagrams. Learners do not merely memorize linguistic definitions; instead, they are taught how to trace specific features within words or sentences. For instance, when determining a word's function within a sentence, learners are trained to follow a mental sequence of instructions: "Does this word fall under the category of *ism* (noun)? If so, does it carry the *marfu'*?" This instructional approach transforms declarative linguistic knowledge into operational procedural skills.

Method

This section provides a comprehensive overview of the methodological approaches and procedures employed to examine the cognitive mechanisms of Arabic language acquisition based on Landasmathic theory at Pondok Modern Darussalam Gontor. The following explanation covers the research design, participants, instruments, and data collection techniques, as well as data analysis methods and measures to ensure the accountability and validity of the research findings.

Research Design

This study employs a qualitative approach with a single-case study design. This design choice is based on the unique characteristics and depth of the Arabic language ecosystem implemented at the research site features not found in other general educational institutions. The study was conducted

at the main campus of Pondok Modern Darussalam Gontor. Field data collection and contextual observation were carried out intensively over a four-month period, from May to August 2025.

Participants

Participants in this study were divided into two main categories: interview respondents and subjects of observation. Purposive sampling was employed to select interview respondents in order to obtain in-depth data. The six interviewees comprised one representative from the student care division, one language supervisor from the Language Advisory Council team, one academic staff member *Kulliyyatul Mua'llimin Al-Islamiyyah*, two fifth-year student dormitory administrators, and one sixth-year student from the language promotion division Central Language Improvment. Meanwhile, for the purpose of observing the environment and language-related activities, the research subjects included all students of Pondok Modern Darussalam Gontor.

Data Collection and Instruments

The data for this study were derived from two sources: primary and secondary. Primary data were obtained directly from the field through in-depth interviews and observations, while secondary data were sourced from the *pesantren's* internal documents, including the KMI curriculum book, *ta'lim mufrodat* materials, and student class schedules. The primary instrument in this study was the researcher acting as the planner, data collector, and analyst supported by structured instruments in the form of interview scripts and observation guide sheets.

Data Analysis

Data analysis was conducted interactively and continuously, following the Miles and Huberman data analysis model. This analysis process comprises three stages:

1. **Data Reduction:** The process of selecting, focusing, simplifying, and abstracting raw data obtained from interviews and field observations.
2. **Data Presentation:** Organizing the condensed information into a logical narrative, matrix, or flowchart so that patterns are easily understood.
3. **Drawing Conclusions:** Formulating the meaning of the presented data and re-verifying it in the field to obtain a valid conclusion.

To ensure academic accountability and data validity, this study employs triangulation techniques, encompassing both source triangulation and technique triangulation.

Findings and Discussion

This study aims to analyze the stages of Arabic language acquisition among students at Pondok Modern Darussalam Gontor through the perspective of Lev N. Landa's Landasmathic Theory. Based on field observations and in-depth interviews with language program administrators, teachers, and students supported by an analysis of the Gontor language program documents it was found that the Arabic language acquisition process unfolds through a series of stages that align with the conceptual framework developed by Landa. These stages do not occur in isolation; rather, they are interconnected, forming a progressive development of language proficiency that spans from initial exposure to the language to the eventual establishment of automatic communication skills.

Research findings indicate that the Arabic language learning system at Pondok Modern Darussalam Gontor does not merely emphasize the mastery of linguistic content through formal classroom instruction; it also fosters a language environment that enables students to internalize Arabic through communicative practice, thereby ensuring a continuous process of language acquisition. From the perspective of Landasmathic Theory, this environment allows learners to progress systematically through stages of information processing ranging from concept discovery,

term recognition, and the formulation of conceptual definitions to the development of mental operations, the formulation of thinking methods, and the practical application of those methods culminating in internalization that results in automatic language proficiency.

Based on the results of data reduction and categorization, all field findings can be mapped to the seven stages of the Landasmathic Theory. Although the frequency of occurrence varied for each stage, all stages were successfully identified through observational and interview data. A summary of the relationship between the theoretical stages and the field findings is presented in the following table.

Tabel 1. Alignment of Lev N. Landa's Landasmathics Theory Stages with Arabic Language Acquisition among Students at Pondok Modern Darussalam Gontor

Step of Lev N. Landa's Landasmathics Theory	Field Findings	Data Source
Independent Discovery of the Concept	Students are exposed to Arabic through a language environment before grasping formal grammatical rules.	Observation, Interview
Figuring out the Term	Students begin to recognize terms related to *Nahwu* and *Sarf*, as well as linguistic concepts, after gaining experience in using the language.	Interviews, Documents
Framing the Concept's Logically Correct Definition	Students begin to understand and explain linguistic concepts based on formal instruction and practical experience.	Interview
Independent Discovery of Mental Operations	Students develop the ability to analyze sentence structures and understand language patterns independently.	Observation, Interview
Formulation of the Discovered Method	Students develop personal study strategies, such as noting down vocabulary, listening to conversations, reading, and practicing sentence analysis.	Interview
Learning Through Practicing	Students apply what they have learned through daily communication, conversation practice *muhadatsah*, public speaking *muhadharah*, and the boarding school's various language programs.	Observasi, Wawancara
Internalization and Automatization	Final-year students are capable of using Arabic spontaneously in both formal settings and informal conversations, without relying on memorized rules.	Observation, Interview

As shown in Table 1, the Arabic language acquisition process at Pondok Modern Darussalam Gontor demonstrates a gradual and systematic progression. The initial stage is dominated by students' interaction with the linguistic environment through natural activities. Subsequently, this experience is enriched through formal instruction, enabling students to explore linguistic concepts, develop mental operations for language analysis, and formulate learning strategies tailored to their individual characteristics, ultimately allowing them to use Arabic spontaneously in daily life. These findings indicate that the Arabic language acquisition process at Gontor does not occur haphazardly but follows a pattern of cognitive development aligned with the principles of Landa's Landasmathic Theory.

The following discussion elaborates on each of these stages in greater detail, linking field findings, Landa's Landasmathic theory, and various prior studies on Arabic language acquisition and environment-based language learning.

1. Independent Discovery of the Concept

The first stage of Lev N. Landa's Landamatics Theory**,** Independent Discovery of the Concept, emphasizes that learners acquire an initial understanding of a concept through direct experience before receiving formal explanations. In the context of Arabic language acquisition at Pondok Modern Darussalam Gontor, this stage is reflected in students' early exposure to Arabic through an immersive language environment. From the moment they enter the boarding school, students are encouraged to use Arabic in both academic and non-academic settings, allowing them to recognize recurring linguistic patterns through authentic communication before learning grammatical concepts such as *nahwu* and *sharf*.

Observational and interview findings consistently demonstrate that the immersive language environment plays a central role in facilitating this process. Daily activities—including *ta'lim mufrodat*, *muhadatsah*, *muhadharah*, language programs, and student organization activities provide continuous opportunities for students to use Arabic. Interviews with the Language Advisory Council (LAC) and the Central Language Improvement (CLI) division reveal that the primary objective of the language program is to cultivate habitual language use rather than immediate mastery of grammatical theory. Students gradually develop linguistic competence through repeated exposure, structured vocabulary instruction, corrective feedback, and consistent language policies supported by rewards and educational sanctions.

Students' experiences further illustrate how concepts are acquired through practice before formal instruction. Both fifth- and sixth-year students explained that they initially learned Arabic by observing, imitating, and repeatedly using expressions employed by teachers and senior students, despite having little understanding of the underlying grammatical rules. Their comprehension of *nahwu* and *sharf* developed only after formal classroom instruction, while continuous language practice enabled them to recognize linguistic patterns and gradually integrate Arabic into their daily communication. These experiences demonstrate that conceptual understanding emerges naturally from authentic language use before theoretical explanations are introduced.

From the perspective of Landa's Landamatics Theory, these findings confirm the essential characteristics of the Independent Discovery of the Concept stage, in which learners independently identify conceptual patterns through authentic experiences before concepts are formally defined. The findings also complement Krashen's Comprehensible Input Hypothesis by showing that meaningful language exposure functions not only as linguistic input but also as the basis for the cognitive processes through which learners construct initial conceptual understanding. Thus, Arabic language acquisition is shaped not only by the quantity of language exposure but also by the cognitive processes that occur as learners interact with a language-rich environment.

From the perspective of Arabic language education, these findings suggest that the effectiveness of the language environment at Pondok Modern Darussalam Gontor lies not merely in the frequency of language activities but in its systematic design, which enables

students to discover linguistic concepts independently before receiving formal explanations. This stage provides the cognitive foundation for the subsequent stages of Landa's Landamatics Theory, including concept formation, analytical thinking, and automatic language use. Furthermore, these findings have important implications for technology-enhanced Arabic language learning, suggesting that digital learning environments should provide meaningful exploratory experiences through conversational simulations, artificial intelligence, and other interactive platforms that allow learners to construct linguistic concepts through authentic language use before receiving explicit instruction.

2. Figuring out the Term

The second stage in Lev N. Landa's Landamatics Theory is Figuring out the Term, which refers to the stage at which learners begin to recognize and associate the concepts they have discovered with the appropriate scientific terminology. After acquiring initial experience through direct interaction with the learning object, learners no longer understand patterns merely intuitively but also begin to recognize the names, classifications, and functions of these concepts within a structured body of knowledge. In the context of Arabic language learning at Pondok Modern Darussalam Gontor, this stage is reflected when students begin to recognize linguistic terms such as *jumlah fi'liyyah*, *jumlah ismiyyah*, *fi'il*, *ism*, and other concepts in *nahwu* and *sharf* after they have already used these language forms in their daily communication.

The observational findings indicate that students are not introduced to grammatical terminology at the beginning of language learning. Instead, they are first accustomed to using various Arabic expressions in their daily activities through the language environment program. Once they have acquired sufficient language experience, classroom instruction begins to introduce the linguistic terms that they have previously used in practice. For example, students who are already accustomed to saying expressions such as *ijlisū murattaban* later learn that this expression belongs to the category of *jumlah fi'liyyah* during *nahwu* lessons. Consequently, grammatical terminology is not introduced as an entirely new concept but rather as a label for language patterns that students have already recognized through practical use. These observational findings demonstrate that the process of naming concepts occurs after learners have developed sufficient language experience, which is consistent with the indicators of the second stage in Landa's Landamatics Theory.

The interview data reveal a similar pattern. Several participants explained that students generally find it easier to understand *nahwu* and *sharf* terminology because they have already experienced using the language forms being studied. Teachers therefore do not need to begin their explanations from completely abstract situations but instead simply relate new terminology to examples that are already familiar to students through their daily language use. One participant stated that when a teacher introduces the term *jumlah fi'liyyah*, most students have actually recognized the sentence pattern, even though they were previously unfamiliar with the grammatical label. This finding suggests that the introduction of terminology functions primarily as reinforcement of concepts that have already developed through language experience rather than serving as the starting point of learning.

From the perspective of Lev N. Landa's Landamatics Theory, the Figuring out the Term stage plays a crucial role because it serves as a bridge between intuitive experience and structured scientific knowledge. Landa argues that a concept is more easily understood when learners first recognize its characteristics through experience and then associate those characteristics with the appropriate terminology. The findings of this study indicate that this pattern is naturally implemented within the Arabic language learning system at Gontor.

Students do not memorize grammatical terminology independently of language practice; instead, they learn it as a conceptual representation of the experiences they have already acquired. Consequently, *nahwu* and *sharf* function not merely as subjects to be memorized but as cognitive tools for organizing learners' existing language experiences.

These findings also demonstrate a close relationship with constructivist theory in language learning. From a constructivist perspective, new knowledge is more readily understood when it is connected to learners' prior experiences or existing cognitive schemas. In the context of this study, grammatical terminology acquires meaning because it is linked to the authentic language experiences that students gain while interacting within the language environment. Consequently, the process of learning terminology is not mechanical but rather becomes an integral part of the gradual construction of knowledge. These findings further reinforce the view that grammar instruction is more effective when it is preceded by authentic language use.

From the perspective of Arabic language education, these findings suggest that mastery of linguistic terminology should not be positioned as the primary objective of language learning. Instead, such terminology becomes more meaningful when it is introduced after learners have gained experience using the language in authentic communicative contexts. This approach not only facilitates conceptual understanding but also reduces learners' tendency to memorize grammatical rules without understanding their practical application. Furthermore, these findings have important implications for the development of technology-enhanced Arabic language learning media.

3. Framing the Concept's Logically Correct Definition

The third stage in Lev N. Landa's Landamatics Theory is Framing the Concept Definition, in which learners not only recognize the terminology of a concept but are also able to construct a logical understanding of its conceptual meaning. At this stage, concepts that were previously recognized only through their names or terminology begin to be understood in terms of their characteristics, boundaries, and logical relationships with other concepts. Consequently, learners no longer merely know the terminology used but also begin to understand why a particular phenomenon is classified under a specific concept.

Based on the observational findings, this stage becomes evident when students are able to explain the fundamental meaning of the *nahwu* rules they have learned. For example, after recognizing the term *jumlah fi'liyyah*, students begin to understand that it refers to a sentence that begins with a *fi'il* (verb). This understanding extends beyond simply recognizing the name of the rule and develops into the ability to explain the essential characteristics of the concept. In other words, students begin to construct an initial conceptual definition of linguistic phenomena based on the learning experiences they have previously acquired.

Nevertheless, compared with the preceding stages, the indicators of the third stage did not emerge prominently in the field data. The interview findings indicate that the processes of recognizing terminology and constructing conceptual definitions often occur almost simultaneously during classroom instruction. When teachers introduce a *nahwu* term, they typically explain its conceptual meaning and defining characteristics at the same time. As a result, the distinction between the Figuring out the Term stage and the Framing the Concept Definition stage becomes relatively subtle in the context of Arabic language learning at Pondok Modern Darussalam Gontor. This suggests that although these two stages are conceptually distinct in Lev N. Landa's Landamatics Theory, their implementation in an intensive Arabic language learning environment does not always demonstrate a clear separation.

From the perspective of Landa's Landamatics Theory, this condition can still be understood as part of learners' cognitive development. Landa explains that once a concept has been recognized through appropriate terminology, learners begin to organize their learning experiences in order to construct a logical definition of that concept. In the present study, this process did not occur through the memorization of formal definitions, as is commonly found in traditional grammar instruction. Instead, conceptual definitions were developed through the integration of students' communicative experiences with the conceptual explanations provided during formal instruction. Consequently, the resulting definitions represent the integration of empirical experience and theoretical knowledge.

These findings demonstrate that, within the context of environment-based Arabic language learning, the construction of conceptual definitions is a dynamic process. Students do not develop conceptual definitions through cognitive activities that are isolated from language practice; rather, they construct them through continuous interaction between authentic language use and reflection on the grammatical principles they learn. This explains why the third stage appears less distinct than the other stages. The highly active language environment causes the processes of concept naming and conceptual definition formation to develop simultaneously, making them difficult to distinguish empirically even though they are theoretically regarded as two separate stages.

4. Independent Discovery of Mental Operation

The fourth stage in Lev N. Landa's Landamatics Theory is Independent Discovery of Mental Operation, which refers to the stage at which learners begin to develop the mental operations required to process the concepts they have already understood. At this stage, learners no longer merely recognize terminology or explain the definition of a concept; instead, they begin to use the concept as a cognitive tool for analyzing various new situations. In the context of Arabic language learning, these mental operations become evident when students begin to identify sentence patterns, compare language structures, and determine the relationships among sentence components without relying entirely on the teacher's explanations.

The observational findings indicate that after acquiring an understanding of the fundamental concepts of *nahwu*, students begin to develop the ability to analyze language structures independently. For example, when encountering various sentence forms during classroom activities and daily communication, students no longer merely memorize whether a sentence belongs to *jumlah fi'liyyah* or *jumlah ismiyyah*. Instead, they begin to investigate why a sentence belongs to a particular category. They identify the presence of the *fi'il*, determine the position of the object, and understand the relationships among sentence elements based on the conceptual understanding they have previously developed. Consequently, the learning process shifts from merely recognizing concepts to using those concepts as instruments for linguistic analysis.

The interview findings reveal that this process develops through the integration of formal instruction and language practice within the boarding school environment. During *nahwu* lessons, teachers not only provide examples of grammatical rules but also encourage students to analyze various sentence structures found in classical texts, conversations, and expressions used in everyday communication. Meanwhile, daily language use in the dormitory provides students with opportunities to reexamine the results of their analyses in authentic communicative situations. Errors that occur during communication become valuable sources of reflection, helping students refine their thinking about the structure of the Arabic language.

From the perspective of Lev N. Landa's Landamatics Theory, these findings indicate that learners have entered the stage of developing mental operations. Landa argues that meaningful knowledge does not end with the ability to identify a concept but develops into a series of mental procedures that enable learners to solve new problems. In this study, these mental procedures are evident when students automatically analyze sentence structures before using them in communication. This process occurs internally within the learners' cognitive system and is therefore not always directly observable. Nevertheless, it can be identified through the explanations students provide when describing grammatical rules or correcting errors in language use.

These findings demonstrate a substantial cognitive progression compared with the previous three stages. Whereas the stages of Independent Discovery of the Concept, Figuring out the Term, and Framing the Concept Definition primarily focus on acquiring conceptual knowledge of language, the fourth stage marks the point at which this knowledge begins to function as a foundation for reasoning. Students no longer simply recognize that a sentence belongs to *jumlah fi'liyyah*; they are also able to explain why it is classified as such based on its defining characteristics. This ability indicates that linguistic concepts have undergone cognitive internalization and have become intellectual tools for understanding the Arabic language.

These research findings also provide an important perspective on the teaching of *nahwu* in Islamic boarding schools. Traditionally, *nahwu* instruction has often been regarded as a process of memorizing definitions and grammatical rules. However, the findings of this study demonstrate that when grammar instruction is supported by an active language environment, *nahwu* develops into an instrument for fostering analytical thinking skills. Consequently, grammar instruction is no longer merely a mechanical process but becomes an integral part of the development of higher-order thinking skills (HOTS).

5. Formulation of the Discovered Method

The fifth stage in Lev N. Landa's Landamatics Theory is Formulation of the Discovered Method, which refers to the stage at which learners begin to formulate procedures or cognitive strategies for solving problems independently. After understanding concepts and developing mental operations, learners no longer rely entirely on examples provided by the teacher but instead begin to construct their own approaches to applying these concepts in different situations. In the context of Arabic language acquisition at Pondok Modern Darussalam Gontor, this stage is evident when students begin to develop their own analytical strategies for understanding sentence structures and applying *nahwu* principles in various linguistic contexts.

The observational findings indicate that students gradually formulate simple procedures for analyzing Arabic sentences. For example, when encountering a sentence, they first identify the *fi'il*, then determine the presence of the *fa'il*, and finally conclude whether the sentence belongs to the category of *jumlah fi'liyyah*. These procedures are not always taught explicitly by the teacher but instead develop through learning experiences, analytical practice, and habitual use of Arabic in everyday life. Consequently, students gradually develop their own "thinking algorithm" that enables them to understand linguistic structures in a more systematic manner.

From the perspective of Lev N. Landa's Landamatics Theory, this condition indicates that knowledge has evolved into a method that can be applied repeatedly across similar situations. Landa emphasizes that successful learning is demonstrated not only by the ability

to understand concepts but also by the ability to formulate procedures that can be reused when encountering comparable problems. The findings of this study reveal that Gontor students not only understand *nahwu* principles but also begin to develop cognitive strategies that facilitate the independent analysis of various sentence structures. This serves as an indicator that the learning process has progressed from conceptual understanding toward the development of more systematic thinking skills.

These findings also demonstrate that the language environment makes a substantial contribution to the development of such learning strategies. Continuous language exposure provides students with opportunities to test, refine, and improve their analytical methods through authentic daily communication. Therefore, the cognitive strategies that emerge are derived not only from formal classroom instruction but also from sustained language experiences within the boarding school environment.

The implications of these findings suggest that Arabic language instruction should not be limited to the delivery of concepts and grammatical rules but should also provide opportunities for learners to develop their own learning strategies. In the context of educational technology, this principle can be implemented through the development of interactive learning media that encourage learners to formulate analytical procedures independently, such as sentence structure identification exercises, linguistic problem-solving simulations, and adaptive feedback systems. In this way, technology functions not merely as a medium for practice but also as a tool that supports learners in constructing systematic cognitive procedures, as proposed in Lev N. Landa's Landamatics Theory.

6. Learning Through Practicing

The sixth stage in Lev N. Landa's Landamatics Theory is Learning Through Practicing, which refers to the stage at which the methods or procedures that learners have developed are repeatedly applied in various real-life situations. At this stage, learning is no longer centered on understanding concepts or formulating cognitive strategies but rather on consistently applying these strategies until they gradually develop into well-established skills. In the context of Arabic language acquisition at Pondok Modern Darussalam Gontor, this stage is reflected in students' habitual use of Arabic as a medium of communication in their daily lives, both within academic settings and beyond the classroom.

The observational findings indicate that students actively apply the language rules they have learned in a wide range of communicative activities. The use of Arabic is not limited to classroom instruction but also extends to *muḥādathah* (conversation practice), *muḥāḍarah* (public speaking), dormitory conversations, student organization activities, and informal interactions with peers and teachers. At this stage, students begin to test the cognitive methods they have previously developed. When they make mistakes, they receive corrective feedback from teachers and peers, after which they refine their language use in subsequent interactions. This continuous cycle of practice, feedback, and improvement gradually strengthens their Arabic language proficiency.

From the perspective of Lev N. Landa's Landamatics Theory, practice serves a broader function than mere repetition. It provides a means of evaluating the effectiveness of the cognitive procedures developed during the previous stage. The findings of this study demonstrate that students do not simply repeat the use of Arabic mechanically; rather, they continuously evaluate whether the sentence structures they produce conform to the grammatical principles they have learned. Consequently, every communicative activity

becomes an opportunity not only to reinforce but also to refine the cognitive procedures that have already been established.

These findings further demonstrate that the language environment plays a decisive role in the successful implementation of the practice stage. The high intensity of Arabic language use provides students with abundant opportunities to apply their knowledge in a variety of communicative contexts. The more frequently a grammatical rule is used, the stronger the connection becomes between learners' conceptual knowledge and their practical language skills. This condition explains why Arabic language learning at Gontor relies not only on formal classroom instruction but also on the language environment as a continuous space for authentic practice.

The implications of these findings suggest that successful Arabic language acquisition cannot be achieved solely through the mastery of theoretical knowledge but also requires sustained opportunities for practice in authentic communicative situations. Therefore, the development of educational technology should not focus exclusively on delivering instructional materials or grammar exercises but should also provide practice environments that enable learners to actively use Arabic. Features such as conversational simulations, artificial intelligence–based chatbots, and virtual communication environments may serve as effective alternatives for expanding learners' opportunities to practice, thereby ensuring that the language acquisition process continues in a sustained manner in accordance with the principles of Learning Through Practicing in Lev N. Landa’s Landamatics Theory.

7. Internalization and Automatization

The final stage in Lev N. Landa’s Landamatics Theory is Internalization and Automatization, which refers to the stage at which all previously acquired cognitive procedures are no longer performed consciously but have become internalized as skills that are executed automatically. At this stage, learners no longer depend on lengthy analytical processes when dealing with a problem because the concepts, procedures, and strategies acquired during the previous stages have become an integral part of their cognitive competence. In the context of Arabic language acquisition at Pondok Modern Darussalam Gontor, this stage is reflected in students' ability to use Arabic spontaneously in a wide range of communicative situations without consciously recalling the rules of *nahwu* or *sharf*.

The observational findings indicate that senior students are able to communicate fluently in Arabic across various activities, including discussions, speeches, everyday conversations, and organizational programs. While speaking, they no longer appear to consciously analyze sentence structures as they did during the earlier stages. Instead, they are able to select appropriate vocabulary, construct sentences, and respond to their interlocutors rapidly and appropriately according to the communicative context. This ability demonstrates that cognitive processes which were once carried out consciously have gradually developed into automatic language skills.

The interview findings further support these observations. Several students explained that during the early stages of learning, they had to spend considerable time thinking before speaking Arabic because they were still trying to recall vocabulary and grammatical rules that they had learned. However, after spending several years in a language-rich environment and continuously using Arabic in various activities, this process became increasingly natural. They no longer consciously thought about *nahwu* rules while speaking but instead expressed their ideas directly in Arabic according to the communicative situation they encountered. This

transformation indicates that continuous practice has resulted in the internalization of Arabic language proficiency.

From the perspective of Lev N. Landa's Landamatics Theory, this condition indicates that the learning process has reached its ultimate objective. Landa argues that effective learning leads to the automatization of cognitive procedures, enabling learners to apply their knowledge without engaging in complex analytical processes each time they encounter similar situations. The findings of this study demonstrate that the Arabic language learning system at Gontor successfully guides students toward this stage through the integration of formal instruction, an immersive language environment, and continuous opportunities for authentic practice. Consequently, students' Arabic language proficiency is not merely the result of memorizing grammatical rules but rather the outcome of a gradual process of cognitive internalization.

These findings have important implications for the development of Arabic language education. The success of language learning should not be measured solely by learners' ability to explain grammatical rules but also by their ability to use Arabic spontaneously in authentic communication. Therefore, the development of educational technology should be directed toward creating learning environments that provide learners with repeated and meaningful communicative experiences. The integration of technologies such as artificial intelligence, virtual language immersion, and adaptive conversational systems has the potential to support this process of internalization by providing broader opportunities for authentic language practice. In this way, technology not only assists learners in studying Arabic but also facilitates the development of automatic language proficiency, as described in the Internalization and Automatization stage of Lev N. Landa's Landamatics Theory.

Conclusion

This study demonstrates that the process of Arabic language acquisition at Pondok Modern Darussalam Gontor proceeds through seven stages that are consistent with Lev N. Landa's Landamatics Theory, beginning with the independent exploration of language and culminating in the development of internalized and automatic language proficiency. These findings contribute to the field of Arabic language acquisition by showing that an immersive language environment facilitates the gradual cognitive development of learners in accordance with the framework of Landa's Landamatics Theory. Nevertheless, this study has certain limitations, as it employed a qualitative case study approach within a single educational institution, limiting the generalizability of its findings to other educational contexts. Despite this limitation, the results may serve as a valuable reference for teachers, curriculum developers, and educational administrators in designing Arabic language instruction that places greater emphasis on meaningful language experience, sustained practice, and the systematic development of learners' cognitive abilities. Furthermore, the stages of Landa's Landamatics Theory have the potential to serve as a conceptual foundation for the development of technology-enhanced Arabic language learning media. Future research is therefore recommended to examine the applicability of this model across diverse educational settings and to develop instructional designs or artificial intelligence–based learning applications that accommodate the stages of language acquisition proposed in Lev N. Landa's Landamatics Theory.

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