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Learning Arabic Speaking (Kalam) through Thorndike's Behaviorism: Pedagogical Implications for AI-Assisted Learning

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Abstract

This study investigates the implementation of Arabic speaking instruction in Thorndike's behaviorism principles (law of readiness, law of exercise, and law of effect) at SMPIT Imam An-Nawawi Pekanbaru and explores their pedagogical implications for AI-assisted language learning. Using a qualitative case study design, the research involved classroom observations, semi-structured interviews, and documentation in Arabic speaking classes. The findings reveal that law of readiness was reflected through verbal stimulation and guided prompting that prepared students' speaking engagement, while law of exercise appeared through repetition, drilling, and repeated speaking interaction that gradually formed students' speaking habits. In addition, law of effect was implemented through positive reinforcement, corrective feedback, and motivational responses that strengthened students' speaking confidence and verbal participation. The study also found that pedagogical mechanisms identified in the classroom, such as repetition, adaptive prompting, corrective feedback, and reinforcement-based interaction, conceptually align with the learning logic used in contemporary AI-assisted language learning systems. The study concludes that Thorndike's behaviorism remains pedagogically relevant in Arabic speaking instruction and offers conceptual insights for the development of AI-assisted Arabic language learning, particularly in speaking habit formation and adaptive verbal interaction.

Keywords: *Thorndike's behaviorism; Arabic speaking instruction; law of exercise; speaking habit formation; AI-assisted language learning*

Abstrak

Penelitian ini bertujuan untuk menginvestigasi implementasi pembelajaran kalam dalam prinsip-prinsip behaviorisme Thorndike (law of readiness, law of exercise, dan law of effect) di SMPIT Imam An-Nawawi Pekanbaru serta mengeksplorasi implikasi pedagogisnya terhadap AI-assisted language learning. Penelitian menggunakan pendekatan kualitatif dengan desain studi kasus melalui observasi kelas, wawancara semi-terstruktur, dan dokumentasi dalam pembelajaran berbicara bahasa Arab. Hasil penelitian menunjukkan bahwa law of readiness tampak melalui verbal stimulation dan guided prompting yang membangun kesiapan berbicara siswa, sedangkan law of exercise terlihat melalui repetition, drilling, dan latihan berbicara berulang yang secara bertahap membentuk speaking habit formation siswa. Selain itu, law of effect diimplementasikan melalui reinforcement positif, corrective feedback, dan respons motivasional yang memperkuat speaking confidence serta keterlibatan verbal siswa dalam pembelajaran. Penelitian ini juga menemukan bahwa mekanisme pedagogis seperti repetition, adaptive prompting, corrective feedback, dan reinforcement-based interaction yang ditemukan dalam pembelajaran memiliki keterkaitan konseptual dengan logika pembelajaran dalam sistem AI-assisted language learning kontemporer. Penelitian ini menyimpulkan bahwa behaviorisme Thorndike masih memiliki relevansi pedagogis dalam pembelajaran berbicara bahasa Arab serta menawarkan kontribusi konseptual bagi pengembangan AI-assisted Arabic language learning, khususnya dalam pembentukan speaking habit formation dan adaptive verbal interaction.

Kata Kunci: *behaviorisme Thorndike; pembelajaran keterampilan berbicara; law of exercise; speaking habit formation; AI-assisted language learning*

Introduction

Speaking skill (kalam) constitutes one of the most essential yet most complex aspects of foreign language learning, including Arabic language education.¹ Within the framework of Second Language Acquisition (SLA), speaking proficiency is not merely associated with mastery of linguistic structures, but also with the ability to produce language spontaneously,² develop fluency, and actively use language in

¹ Kosim, Nanang, Ade Arip Ardiansyah, Hilda Saripatul Hikmah, and Yusuf Ali Shaleh Atha. "The Use of The Task-Base Language Teaching (TBLT) Method to Improve Learning Outcomes of Arabic Language Skills." *Alibbaa': Jurnal Pendidikan Bahasa Arab* 5, no. 2 (July 2024): 144–65. <https://doi.org/10.19105/ajpba.v5i2.14804>.

² Ahmad Kashmiri, Hayat. "Communication Challenges: Saudi EFL Speaking Skills and Strategies to Overcome Speaking Difficulties." *Arab World English Journal*, no. 267 (December 2020): 1–61. <https://doi.org/10.24093/awej/th.267>.

authentic communicative situations.³ Unlike receptive skills such as reading and listening, speaking requires learners to respond directly through rapid, accurate, and sustained language production.⁴ Therefore, the teaching of kalam requires pedagogical approaches that emphasize not only conceptual understanding of language, but also continuous oral practice and habitual verbal engagement.⁵

In the context of Arabic as a foreign language, the development of speaking skills becomes even more challenging because learners generally do not live within a natural Arabic-speaking environment.⁶ Limited language exposure often leads students to experience difficulties in developing speaking confidence, producing spontaneous verbal responses, and maintaining oral fluency in communication. Consequently, kalam instruction cannot rely solely on the delivery of linguistic knowledge, but requires intensive practice, continuous repetition, and systematic language habit formation.⁷

Within the tradition of Arabic language pedagogy, Rusydi Ahmad Thu'aimah emphasizes that kalam instruction fundamentally represents an activity of speaking practice in which learners function as

³ Hanafiah, Waode, Muhammad Aswad, Harlinah Sahib, Abdul Hakim Yassi, and Movahede Sadat Mousavi. "The Impact of CALL on Vocabulary Learning, Speaking Skill, and Foreign Language Speaking Anxiety: The Case Study of Indonesian EFL Learners." *Education Research International* 2022 (January 2022): 1–13. <https://doi.org/10.1155/2022/5500077>.

⁴ Farid, Edi Kurniawan, Mamluatun Ni'mah, and Nur Arifah. "The Teaching of The Speaking Skill Using The Audio-Oral Method for The Students of Islamic Senior High School of Zainul Hasan Genggong Probolinggo." *Mantiq Tayr: Journal of Arabic Language* 1, no. 1 (January 2021): 1–10. <https://doi.org/10.25217/mantiqutayr.v1i1.1197>.

⁵ Milankov, Vesela, Slavica Golubović, Tatjana Krstić, and Špela Golubović. "Phonological Awareness as the Foundation of Reading Acquisition in Students Reading in Transparent Orthography." *International Journal of Environmental Research and Public Health* 18, no. 10 (May 2021): 5440. <https://doi.org/10.3390/ijerph18105440>.

⁶ Nurmala, Mia, Abdul Wahab Rosyidi, Umi Machmudah, Achmad Ja'far Sodik, and Nurul Fadhilah. "Youtube Use As Media In Takallum (Arabic-Speaking) Learning Based On Project-Based Learning At Universitas Pendidikan Indonesia." *Jurnal Onoma: Pendidikan, Bahasa, Dan Sastra* 11, no. 2 (April 2025): 1945–55. <https://doi.org/10.30605/onoma.v11i2.5695>.

⁷ Hamed Sedghi, Soheyly Mohseny nejad, Seyyed Adnan Eshkevari, Pouran Rezaei choshali, and Hossein Talebzadeh. "Identifying the Speaking Proficiency Level of Arabic Learners in Accordance with the International Guidelines of ACTFL for Assessing Proficiency in Foreign Languages." *Research in Arabic Language* 12, no. 25 (January 2020): 1–22.

the primary actors in oral communication.⁸ According to him, speaking proficiency does not develop merely through theoretical explanation, but through learners' active involvement in direct language use. Therefore, teachers should not function as the central producers of language, but rather as facilitators who provide guidance, verbal stimulation, and interactive learning spaces that encourage students to actively use Arabic. This perspective is further reinforced by Mahmud Kamil an-Naqah, who argues that speaking instruction should be adapted to learners' proficiency levels through gradual and structured exercises, ranging from *mubtadi'* (beginner), *mutawassit* (intermediate), to *mutaqaddim* (advanced) levels.⁹ The perspectives of both scholars indicate that kalam instruction heavily depends on habituation, repetitive practice, and continuous reinforcement of verbal responses.

In contemporary language learning, speaking habit formation has become one of the fundamental elements in the development of oral proficiency. Effective speaking ability does not emerge instantly; rather, it develops through repeated practice, routine interaction, corrective feedback, and continuous reinforcement.¹⁰ Repetitive speaking activities assist learners in developing language automatization, enabling verbal responses to emerge more spontaneously and naturally in everyday communication.¹¹ Accordingly, the process of speaking instruction is closely associated with the formation of relationships among stimulus, response, practice, and reinforcement within language behavior development.¹²

⁸ Rusydi Ahmad Thu'aimah. *Ta'lim al-'Arabiyyah Li Ghair al-Nathiqin Biha: Manahijuhu Wa Asalibuhu*. Rabat: ISESCO, 1989.

⁹ Mahmud Kamil an-Naqah. *Ta'lim al-Lughah al-'Arabiyyah Li al-Nathiqin Bi Lughat Ukhra*. Makkah: Jami'ah Umm al-Qura, 1985.

¹⁰ Roziqi, Muhammad Ainur, Murdiono Murdiono, Nur Fuadi Rahman, and Muhammad Arif. "Mapping Of Strategies And Methods For Learning Arabic Speaking Skills." *Ijaz Arabi Journal of Arabic Learning* 8, no. 1 (February 2025). <https://doi.org/10.18860/ijazarabi.v8i1.26939>.

¹¹ Zamzami, Rifa'atus Shoolihah, Nurdyansyah Nurdyansyah, and Taufiq Churrahman. "Implementation of the Arabic Language Habituation Program in Improving Academic Achievement of Students in SMP Muhammadiyah 9 Tanggulangin Boarding School." *Proceedings of The ICECRS* 6 (June 2020). <https://doi.org/10.21070/icecrs2020379>.

¹² Karima, Karimna Isya. "PENERAPAN METODE EDUTAINMENT MELALUI PERMAINAN SIMAK-ULANG-UCAP UNTUK MENINGKATKAN KETERAMPILAN BERBICARA BAHASA ARAB." *ALSUNIYAT: Jurnal Penelitian Bahasa, Sastra, Dan Budaya Arab* 2, no. 1 (May 2020): 58–68. <https://doi.org/10.17509/alsuniyat.v2i1.24072>.

One of the theories strongly associated with the process of habit formation in learning is Edward L. Thorndike's behaviorism theory through the concept of connectionism.¹³ Thorndike argues that learning occurs through the relationship between stimulus and response, which is strengthened through repeated practice and experience.¹⁴ This theory encompasses three major principles that influence the learning process, namely the law of readiness, the law of exercise, and the law of effect.¹⁵ The law of readiness emphasizes the importance of learners' mental preparedness before engaging in learning activities. The law of exercise explains that the relationship between stimulus and response becomes stronger through continuous practice and repetition. Meanwhile, the law of effect asserts that responses receiving positive reinforcement are more likely to be repeated and eventually develop into stable behavioral habits.

Although behaviorism is often regarded as a classical approach and criticized for paying insufficient attention to cognitive and social interaction aspects in modern language learning, behaviorism principles continue to appear in various contemporary pedagogical practices, particularly in speaking instruction.¹⁶ Repetition, drilling, reinforcement, and corrective feedback remain essential components in the development of speaking skills, especially during the formation of fundamental language habits. Even within the development of contemporary AI-assisted language learning, various technology-based language learning systems continue to rely on mechanisms such as adaptive feedback, repetitive practice, and response conditioning to help learners develop

¹³ Ritonga, Nurainun, Sahyoni Sahyoni, Bermawi Munthe, Muhib Abdul Wahab, and Samsul Haq. "The Method of Masrahiyyah Is Based on Local Wisdom According to Behaviorism Theory in Learning Maharah Kalam." *ALSUNIYAT: Jurnal Penelitian Bahasa, Sastra, Dan Budaya Arab* 7, no. 1 (April 2024): 102–12. <https://doi.org/10.17509/alsuniyat.v7i1.67519>.

¹⁴ Inas Dhia Fauziah, Maman Abdurrahman, and Shofa Musthofa Khalid, "Analysis of Early Childhood Vocabulary Learning Using Youtube Based on Thorndike's Behaviorism Theory," *ejurnal.warmadewa.ac.id* (December 31, 2024), <https://doi.org/10.22225/jr.10.3.2024.695-703>.

¹⁵ Novak, Gary. "History of the Behavior Analysis of Child Development." In *The Encyclopedia of Child and Adolescent Development*, 1–11. Wiley, 2020. <https://doi.org/10.1002/9781119171492.wecad049>.

¹⁶ Cervetti, Gina N., Tanya S. Wright, and HyeJin Hwang. "Conceptual Coherence, Comprehension, and Vocabulary Acquisition: A Knowledge Effect?" *Reading and Writing* 29, no. 4 (April 2016): 761–79. <https://doi.org/10.1007/s11145-016-9628-x>.

more automatic language responses.¹⁷ This indicates that behaviorism principles have not been entirely abandoned; rather, they have undergone recontextualization within modern learning environments influenced by technological advancement and digital pedagogy.

This context becomes increasingly significant when applied within Islamic full-day school environments, where Arabic learning is positioned not merely as a formal subject but also as part of daily communicative habituation. SMPIT Imam An-Nawawi Pekanbaru, as an Islamic full-day school, implements Arabic language instruction oriented toward active language use through oral interaction routines, vocabulary repetition, conversational practice, and continuous verbal reinforcement. The extended learning environment, operating from morning until afternoon, enables more intensive patterns of practice and habituation compared to conventional school settings. Within this context, Thorndike's behaviorism principles appear to possess strong pedagogical relevance in shaping students' Arabic speaking habits.

Several previous studies have discussed language learning and speaking skills from various pedagogical perspectives. Castagnaro explains that behaviorism principles maintain a strong relationship with foreign language teaching, particularly through the use of repetition, drilling, and stimulus-response practice in speaking instruction.¹⁸ The study indicates that although communicative approaches have developed within modern language pedagogy, behaviorism mechanisms continue to be employed in foreign language teaching practices to gradually develop learners' verbal responses. In the context of Arabic language learning, Ellis demonstrates that contemporary language pedagogy develops through communicative approaches, digital media integration, and the strengthening of teachers' pedagogical competence.¹⁹ Furthermore, the study conducted by Gundeep et al. on speaking interaction in foreign language learning reveals that speaking habit formation develops through repeated interaction, oral routines, task repetition, and corrective feedback implemented consistently throughout

¹⁷ Kuddus, Khushboo. "Artificial Intelligence in Language Learning: Practices and Prospects." In *Advanced Analytics and Deep Learning Models*, 1–17. Wiley, 2022. <https://doi.org/10.1002/9781119792437.ch1>.

¹⁸ Littlemore, Jeannette, and Graham Low. "Metaphoric Competence, Second Language Learning, and Communicative Language Ability." *Applied Linguistics* 27, no. 2 (June 2006): 268–94. <https://doi.org/10.1093/applin/aml004>.

¹⁹ Ellis, Rod. "Corrective Feedback and Teacher Development." *L2 Journal* 1, no. 1 (April 2009). <https://doi.org/10.5070/L2.V1I1.9054>.

the language learning process.²⁰ These findings indicate that speaking proficiency develops through continuous and gradual verbal engagement within communicative learning activities.

In addition, the development of AI-assisted language learning has increasingly attracted scholarly attention in contemporary language education. Nguyen et al. found that the use of ChatGPT in language learning contributes to the creation of interactive learning experiences and adaptive language support, enabling learners to engage in language practice more flexibly, although a balance between AI utilization and human interaction remains necessary within the language learning process.²¹

Nevertheless, most previous studies have primarily focused on communicative approaches, technology integration, speaking interaction, or AI implementation in language learning, whereas studies specifically investigating the relevance of speaking habits within Arabic language instruction in the formation Thorndike's behaviorism principles remain relatively limited. Moreover, research connecting mechanisms such as repetition, reinforcement, and verbal conditioning with AI-assisted language learning within Islamic full-day school environments has received little scholarly attention.

Based on these conditions, this study aims to investigate the implementation of Arabic speaking instruction (*kalam*) in Thorndike's behaviorism principles at SMPIT Imam An-Nawawi Pekanbaru, particularly through the law of readiness, the law of exercise, and the law of effect. This study not only seeks to describe Arabic speaking instructional practices within the context of an Islamic full-day school, but also attempts to recontextualize the relevance of behaviorism within contemporary Arabic language pedagogy in the era of AI-assisted learning. Accordingly, this study is expected to contribute theoretically to the fields of Arabic language learning and Second Language Acquisition (SLA), while also offering pedagogical implications

²⁰ Singh, Gundeep, Sahil Sharma, Vijay Kumar, Manjit Kaur, Mohammed Baz, and Mehedi Masud. "Spoken Language Identification Using Deep Learning." *Computational Intelligence and Neuroscience* 2021, no. 1 (January 2021). <https://doi.org/10.1155/2021/5123671>.

²¹ Vo, Thi Kim Anh, and Huong Nguyen. "Generative Artificial Intelligence and ChatGPT in Language Learning: EFL Students' Perceptions of Technology Acceptance." *Journal of University Teaching and Learning Practice* 21, no. 06 (April 2024). <https://doi.org/10.53761/fr1rkj58>.

regarding the importance of repetition, reinforcement, and habit formation in the development of Arabic speaking skills within modern learning environments.

Based on the aforementioned background, this study is directed toward addressing two major research questions: (1) how are Thorndike's behaviorism principles implemented in Arabic speaking instruction at SMPIT Imam An-Nawawi Pekanbaru; and (2) what pedagogical implications do Thorndike's behaviorism principles offer for the development of AI-assisted Arabic language learning?

Method

This study employed a qualitative approach using a case study design to investigate the implementation of Arabic speaking instruction (kalam) in Thorndike's behaviorism principles at SMPIT Imam An-Nawawi Pekanbaru. The case study approach was selected to obtain an in-depth understanding of how repetition, reinforcement, and speaking habit formation were implemented within the context of an Islamic full-day school.

The study was grounded in Edward L. Thorndike's behaviorism framework, particularly the principles of the law of readiness, the law of exercise, and the law of effect, which were used as the analytical framework for interpreting Arabic speaking instructional practices. The research involved classroom observations of eighth-grade students during Arabic language instruction, while in-depth interviews were conducted with the Arabic language teacher and several students selected purposively based on their levels of participation and patterns of engagement in Arabic speaking activities. The student participants represented diverse learning characteristics, including highly active and responsive learners, moderately participative learners, and learners who tended to be passive during classroom interaction. Such variation enabled the researcher to obtain a more comprehensive understanding of how Thorndike's behaviorism principles were implemented across different types of student learning behaviors in kalam instruction.

Data were collected through non-participant observation, semi-structured interviews, and documentation. Classroom observations focused on instructional stimuli, speaking exercises, repetition patterns, forms of reinforcement, and students' verbal responses during Arabic speaking instruction. Interviews with teachers and students were conducted to explore their experiences regarding speaking practices, instructional reinforcement, and the formation of Arabic speaking habits.

Documentation in the form of instructional materials and classroom learning activities was used as supporting data to strengthen the findings obtained from observations and interviews.

The data were analyzed using the interactive analysis model proposed by Miles, Huberman, and Saldaña, which consists of data condensation, data display, and conclusion drawing/verification.²² The analysis process was conducted thematically by employing Thorndike's behaviorism principles as an analytical lens for interpreting speaking instructional practices. During the coding stage, data obtained from observations, interviews, and documentation were classified based on patterns of repetition, reinforcement, speaking routines, and students' responses within Arabic speaking activities. This process aimed to identify how speaking habit formation was developed within the context of Arabic language learning in an Islamic full-day school. Subsequently, the categorized data were interpreted to identify pedagogical patterns representing the implementation of Thorndike's behaviorism principles in kalam instruction. To ensure data credibility, this study employed technique and source triangulation by comparing findings from observations, interviews, and documentation in order to ensure the consistency of the research findings.

Results and Discussion

The findings of the observations indicate that Arabic speaking instruction (kalam) at SMPIT Imam An-Nawawi Pekanbaru was implemented within an Islamic full-day school environment that enabled the use of Arabic to occur more intensively and repeatedly in daily learning activities. Arabic language instruction was not limited to formal classroom sessions, but was also reinforced through simple communicative routines established by the teacher throughout the learning process. The teacher consistently used Arabic in greetings, classroom instructions, simple questioning, and vocabulary repetition as part of students' oral communication habituation.

During several observed classroom sessions, the teacher initiated instruction using simple Arabic expressions to which students responded collectively and individually. These activities were consistently conducted at the beginning of each lesson, thereby forming repetitive

²² Matthew B. Miles, A. Michael Huberman, and Johnny Saldaña. *Qualitative Data Analysis: A Methods Sourcebook*. 3rd ed. Thousand Oaks, CA: SAGE Publications, 2014.

interaction patterns. In addition, the teacher encouraged students to use particular expressions when answering questions or interacting during classroom activities. Based on interview findings, students stated that repeated exposure to Arabic expressions gradually helped them become more familiar with understanding and responding to simple Arabic instructions, although they initially experienced difficulties.

The observations also revealed that speaking instruction was implemented gradually through simple exercises before students were asked to engage in longer conversations. The teacher first modeled pronunciation, asked students to imitate collectively, and subsequently continued the practice individually and in pairs. During interviews, the teacher explained that speaking habituation needed to be conducted gradually so that students would not feel burdened when using Arabic in oral activities. This process demonstrates a learning pattern emphasizing habituation and repeated verbal engagement within classroom activities.

Law of Readiness: Verbal Stimulation and Students' Speaking Readiness

The observational findings indicate that the teacher developed students' learning readiness through various forms of verbal stimulation at the beginning of instruction. Classroom activities were initiated with greetings, prayers, apperception activities, and simple questions in Arabic to build students' attention and readiness before engaging in more intensive speaking exercises. On several occasions, the teacher posed simple questions related to students' daily activities using basic Arabic expressions in order to familiarize students with providing spontaneous responses.



Figure 1. Verbal Stimulation and Students' Speaking Readiness

During the observation process, students who received verbal stimulation gradually demonstrated more active responses compared to

situations in which the teacher directly introduced more complex conversational exercises. The teacher also repeated instructions several times using slower intonation to help students better understand and respond to questions. In interviews, several students expressed that they felt more prepared to speak when the teacher first provided examples of simple expressions or questions before asking them to engage in conversations.

Furthermore, the teacher appeared to create a more relaxed learning atmosphere before entering speaking activities. The teacher provided verbal motivation and avoided overly pressuring responses when students made pronunciation errors. According to interview findings, students stated that such an approach helped them feel more comfortable when attempting to speak Arabic in front of the class. These conditions indicate that students' speaking readiness was gradually developed through verbal stimulation and consistent initial interaction throughout the learning process.

Law of Exercise: Repetition and Speaking Habit Formation

The findings reveal that repetition became one of the dominant instructional patterns in Arabic speaking instruction at SMPIT Imam An-Nawawi Pekanbaru. The teacher consistently employed vocabulary repetition, drilling of simple expressions, and conversational exercises as part of speaking instruction activities. Classroom observations showed that the teacher repeatedly asked students to repeat specific vocabulary items and expressions collectively before applying them in conversational practice.



Figure 2 & 3. Repetition and Speaking Habit Formation

The process of repetition was not limited to vocabulary pronunciation, but was also applied in the use of daily expressions throughout classroom instruction. The teacher repeatedly encouraged students to use certain expressions when answering questions, requesting permission, or responding to classroom instructions. In several activities, students were asked to perform simple pair conversations using dialogue

patterns previously modeled by the teacher. These activities were conducted repeatedly with changing partners in order to familiarize students with the expressions being learned.

Based on interview findings, several students stated that repeated speaking exercises helped them remember vocabulary more easily and increased their confidence in speaking Arabic. Students who initially experienced difficulty pronouncing simple sentences gradually became capable of providing more spontaneous responses after participating in repeated exercises across several meetings. The teacher also explained that repetition was used to build students' speaking habits so that they would become accustomed to using Arabic without relying excessively on theoretical memorization.

Observational findings further demonstrated that students who were more frequently involved in repetitive exercises exhibited more active verbal engagement compared to students who rarely provided oral responses. In several situations, students began using certain expressions without waiting for direct instructions from the teacher. These conditions indicate that repetitive practice gradually formed speaking habit patterns throughout the learning process.

Law of Effect: Reinforcement and Students' Speaking Responses

The observational findings indicate that the teacher provided various forms of reinforcement throughout the Arabic speaking instruction process. Such reinforcement was delivered through verbal praise, supportive correction, motivation, and positive responses toward students' efforts when attempting to speak Arabic. The teacher appeared to appreciate students' willingness to speak more frequently than emphasizing pronunciation or grammatical errors directly.



Figure 4. Reinforcement and Students' Speaking Responses

During several learning activities, the teacher expressed simple verbal praise when students were able to answer questions or engage in conversations using Arabic. When students made mistakes, the teacher

tended to provide corrections gradually while maintaining a conducive learning atmosphere. Based on interview findings, students stated that positive responses from the teacher increased their confidence to attempt speaking, even when they were not entirely certain about the correctness of their responses.

In addition to verbal reinforcement, the teacher also provided non-verbal support such as smiles, nods, and attention toward students who actively attempted to speak in class. Observations showed that students who received positive responses tended to participate more actively in subsequent conversational exercises. Conversely, students who feared making mistakes appeared more passive when they did not receive encouragement or reinforcement from the teacher.

Interview findings with the teacher revealed that reinforcement was intentionally provided to maintain students' confidence in speaking Arabic. The teacher explained that the primary focus of kalam instruction at the initial stage was to build speaking habits and confidence before improving grammatical accuracy in greater depth. These conditions demonstrate that reinforcement became an essential component in developing students' verbal engagement throughout the Arabic speaking instruction process.

Discussion

Table of Research Findings

Thorndike's Behaviorism Principles	Classroom Learning Practices	Formation of Speaking Behavior	Pedagogical Interpretation
Law of Readiness	Verbal stimulation, apperception, simple questioning, verbal prompting	Speaking readiness and confidence in responding	Speaking readiness was developed gradually through verbal conditioning
Law of Exercise	Vocabulary repetition, drilling, pair dialogue, routine conversational practice	Speaking habit formation and spontaneous verbal responses	Repetitive practice strengthened the automatization of speaking responses

Law of Effect	Verbal praise, supportive correction, motivation, positive reinforcement	Speaking confidence and students' verbal engagement	Positive reinforcement maintained participation and speaking confidence
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The findings indicate that Arabic speaking instruction (kalam) at SMPIT Imam An-Nawawi Pekanbaru was not merely oriented toward the delivery of Arabic language content, but also toward the formation of speaking behavior through gradual and repetitive conditioning processes. The practices of verbal stimulation, repetition, drilling, and reinforcement implemented by the teacher demonstrated consistent stimulus-response patterns that contributed to students' speaking habit formation.²³ In this context, speaking proficiency developed not solely through the mastery of linguistic theories, but through continuous verbal engagement practiced within daily classroom routines. These findings suggest that speaking skills instruction in Arabic as a foreign language requires oral routines capable of developing students' automatized responses within classroom communication situations.²⁴

The dominance of repetitive practices in kalam instruction demonstrates that the law of exercise functioned as the primary mechanism in the development of students' speaking skills. Vocabulary repetition, dialogue practice, and continuous conversational exercises strengthened students' verbal engagement while simultaneously developing greater confidence in speaking more spontaneously.²⁵ From Thorndike's behaviorism perspective, this process illustrates that the relationship between stimulus and response becomes increasingly stronger when practice is conducted consistently. These findings are consistent with the perspective of Rusydi Ahmad Thu'aimah, who

²³ Mohamed Mokhtar, Mohd Ieruan. "Lower Secondary Students' Arabic Speaking Anxiety: A Foreign Language Literacy Perspective." *International Journal of Education and Literacy Studies* 8, no. 4 (October 2020): 33. <https://doi.org/10.7575/aiac.ijels.v.8n.4p.33>.

²⁴ Abidah, Sa'idatul, and Suci Ramadhanti Febriani. "Application of Clustering Method in Arabic Learning to Improve Speaking Skills for High School Levels." *Tanwir Arabiyah: Arabic As Foreign Language Journal* 2, no. 2 (December 2022): 109–22. <https://doi.org/10.31869/afjl.v2i2.3456>.

²⁵ Ilmiani, Aulia Mustika, Nurul Wahdah, and Mahfuz Rizqi Mubarak. "The Application of Albert Bandura's Social Cognitive Theory: A Process in Learning Speaking Skill." *Ta'lim al-'Arabiyah: Jurnal Pendidikan Bahasa Arab & Kebahasaaraban* 5, no. 2 (December 2021). <https://doi.org/10.15575/jpba.v5i2.12945>.

conceptualizes kalam instruction as a language practice activity requiring learners' direct involvement in oral communication.²⁶ Furthermore, the findings also support Mahmud Kamil an-Naqah's perspective regarding the importance of gradual exercises and verbal habituation in the development of Arabic speaking proficiency.²⁷

In addition to repetition, verbal stimulation and reinforcement also played important roles in developing students' speaking readiness and speaking confidence.²⁸ The teacher did not immediately require students to perform complex conversations, but instead gradually developed speaking readiness through simple prompting, apperception, and verbal responses. On the other hand, positive reinforcement in the form of praise, motivation, and supportive correction helped students maintain their willingness to speak without fear of making mistakes.²⁹ These conditions demonstrate that kalam instruction is not only related to the transfer of linguistic knowledge, but also to the management of students' psychological responses within oral communication processes.³⁰ Thus, the law of readiness and the law of effect appeared to function as pedagogical mechanisms supporting more active and sustained verbal engagement among students.

Interestingly, the pedagogical mechanisms identified in this study demonstrate strong conceptual connections with the development of contemporary AI-assisted language learning. Various AI-based language learning platforms currently operate through adaptive prompting, repetitive interaction,³¹ automated feedback, and

²⁶ Rusydi Ahmad Thu'aimah, 1989.

²⁷ Mahmud Kamil an-Naqah, 1985.

²⁸ Alshehri, Awad, and Abdulrahman AlShabeb. "Exploring Attitudes, Identity, and Linguistic Variation among Arabic Speakers: Insights from Acoustic Landscapes." *International Journal of Arabic-English Studies*, ahead of print, November 5, 2023. <https://doi.org/10.33806/ijaes.v24i2.587>.

²⁹ A. Gazali, Nihayatur Rahmah, Roychan Yasin, Muhammad Ridwan, and Alya Raihana Sari. "Arabic for Specific Purposes in Islamic Higher Education: Systemic Learning Challenges among Non-Pesantren Students." *Alibbaa': Jurnal Pendidikan Bahasa Arab* 7, no. 1 (February 2026): 370–91. <https://doi.org/10.19105/ajpba.v7i1.23592>.

³⁰ Mahmudah, Menik, Nurhanifansyah Nurhanifansyah, and Syarif Muhammad Syaheed bin Khalid. "Psycholinguistic Approaches to Enhancing Arabic Speaking Proficiency through Comic Strips." *Arabiyatuna: Jurnal Bahasa Arab* 8, no. 2 (November 2024): 805–26. <https://doi.org/10.29240/jba.v8i2.11349>.

³¹ Soelistianto, Farida Arinie, Dony Andrasromo, Yusriati Yusriati, Mardiaty Mardiaty, and Aldi Bastiatul Fawait. "The Impact of Adaptive Learning Technology on

reinforcement-based responses in order to develop users' engagement in language learning activities.³² In this context, the behaviorism principles identified in kalam instruction at SMPIT Imam An-Nawawi indicate that the pedagogical logic underlying AI-assisted language learning is also fundamentally constructed through conditioning processes that gradually shape users' responses. In other words, mechanisms such as repetition, guided interaction, and reinforcement have not disappeared in the era of digital learning;³³ rather, they have been reproduced within more adaptive and technology-based learning systems.

The findings of this study suggest that Thorndike's behaviorism should not be understood merely as a classical theory that has lost its relevance in modern language learning. Instead, behaviorism principles continue to function as important foundations in the development of speaking skills, particularly in the formation of speaking habits and students' verbal engagement. Within the context of AI-assisted language learning, mechanisms such as adaptive feedback, speaking drills, and guided responses still fundamentally rely on the principles of repetition and reinforcement to sustain users' oral engagement continuously.³⁴ Therefore, this study demonstrates that behaviorism is not merely a theoretical legacy within language pedagogy, but also possesses conceptual relevance for understanding how AI-based language learning systems are designed to shape users' interaction and responses more effectively.³⁵

Improving Students' Concept Understanding." *Journal of Computer Science Advancements* 2, no. 3 (July 2024): 158–75. <https://doi.org/10.70177/jasca.v2i3.1176>.

³² Zaimah, Nely Rahmawati, Risti Kamila Wening Estu, Syarifatul Fitri Hidayah, Syamsul Hadi, and Aiden Button. "Harnessing Gemini for Arabic Mastery: Educators' and Learners' Views." *Alibbaa': Jurnal Pendidikan Bahasa Arab* 5, no. 2 (July 2024): 166–88. <https://doi.org/10.19105/ajpba.v5i2.14808>.

³³ Kundu, Arnab, and Tripti Bej. "AI in School EFL Learning: A Systematic Review of Impact Pathways for Engagement, Achievement, and Satisfaction." *Journal of Language and Education* 11, no. 4 (December 2025): 131–48. <https://doi.org/10.17323/jle.2025.22083>.

³⁴ Wang, Yiyin, Tiancheng Zhang, Le Yao, and Paul Seedhouse. "A Scoping Review of Empirical Studies on Generative Artificial Intelligence in Language Education." *Innovation in Language Learning and Teaching*, June 5, 2025, 1–28. <https://doi.org/10.1080/17501229.2025.2509759>.

³⁵ Putri, Tarisha, and Sahkholid Nasution. "Gamified Digital Tools in Arabic Language Instruction: The Case of Froggy Jumps in an Indonesian Secondary Islamic School." *Alibbaa': Jurnal Pendidikan Bahasa Arab* 6, no. 2 (August 2025): 412–27. <https://doi.org/10.19105/ajpba.v6i2.21379>.

Accordingly, this study demonstrates that the practices of repetition, verbal conditioning, and reinforcement identified in kalam instruction remain relevant not only within conventional classroom settings, but also within the pedagogical mechanisms employed in modern AI-based language learning systems.³⁶ From this perspective, behaviorism is no longer understood as a purely mechanistic and outdated approach, but rather as a pedagogical foundation that continues to contribute to speaking habit formation within contemporary language learning environments.³⁷

Although this study has demonstrated the relevance of Thorndike's behaviorism principles in the formation of speaking habits within kalam instruction, several limitations remain. The study was conducted within the context of a single Islamic full-day school with relatively specific learning environment characteristics; therefore, the findings cannot be generalized broadly across all Arabic language learning contexts. Furthermore, this study focused on conventional classroom instructional practices and did not directly investigate the implementation of AI-assisted language learning within Arabic language instruction. Consequently, the relationship between Thorndike's behaviorism principles and pedagogical mechanisms within AI-based language learning systems in this study remains at the level of conceptual interpretation. Future studies may develop more in-depth investigations regarding the integration of repetition, reinforcement, and adaptive feedback within AI-assisted Arabic language learning platforms in order to examine how behaviorism mechanisms operate directly within technology-based language learning environments.

³⁶ Zawacki-Richter, Olaf, Victoria I. Marín, Melissa Bond, and Franziska Gouverneur. "Systematic Review of Research on Artificial Intelligence Applications in Higher Education – Where Are the Educators?" *International Journal of Educational Technology in Higher Education* 16, no. 1 (December 2019): 39. <https://doi.org/10.1186/s41239-019-0171-0>.

³⁷ Sapawi, Mior Syazril Mohamed, and Nik Mohd Rahimi Nik Yusoff. "Integrating Technology into the Arabic Language Curriculum: A Systematic Review of Trends, Strategies and Cultural Dimensions." *Social Sciences & Humanities Open* 12 (2025): 101974. <https://doi.org/10.1016/j.ssaho.2025.101974>.

Conclusion

The findings of this study demonstrate that Arabic speaking instruction (kalam), were implemented in Thorndike's behaviorism principles, particularly the law of readiness, the law of exercise, and the law of effect at SMPIT Imam An-Nawawi Pekanbaru through verbal stimulation, repetition, conversational drilling, and positive reinforcement that gradually shaped students' speaking habit formation. The findings further reveal that Arabic speaking skills developed through conditioning processes that strengthened students' verbal engagement, speaking confidence, and the automatization of oral responses within classroom communication activities. In addition, this study indicates that Thorndike's behaviorism principles possess pedagogical implications for the development of AI-assisted language learning, particularly through mechanisms such as adaptive prompting, repetitive interaction, corrective feedback, and reinforcement-based responses, which conceptually demonstrate similarities with the pedagogical logic employed in AI-based language learning systems.

This study was limited to the context of a single Islamic full-day school and did not directly investigate the implementation of AI-assisted learning in Arabic language instruction. Nevertheless, the study suggests that repetition, guided interaction, and reinforcement continue to function as essential foundations in the development of speaking skills within contemporary language learning. Therefore, future studies may further investigate the integration of behaviorism principles into AI-assisted Arabic language learning platforms in order to understand how AI-based adaptive feedback and speaking interaction contribute to the development of students' speaking engagement and speaking habit formation.

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