

Learning Ecology: The Dimensions Of Connectedness In Contemporary Arabic Language Pedagogy

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Abstract

The ecological approach enables a more holistic understanding of connectedness as an emergent phenomenon arising from interacting various elements in the language learning ecosystem. This article explores the dimensions of connectedness in Arabic language learning through the perspective of learning ecology. Using data from a case study at Pondok Pesantren Darussalam Gontor Ponorogo, Indonesia, this research analyzes how complex interactions between learners, teachers, environment, and language form a dynamic learning ecosystem. Through a mixed methods methodology, the study identifies four main dimensions of connectedness: interpersonal connectedness, contextual connectedness, conceptual connectedness, and spiritual-cultural connectedness. The results show that learning ecosystems rich in connectedness correlate positively with improved Arabic language competence ($r = 0.74$, $p < 0.01$) and developing a more integrated linguistic identity. This article proposes an "Ecology of Connectedness" model that emphasizes connectedness's dynamic, contextual, and emergent nature in Arabic language learning. This model offers a new theoretical framework to help Arabic language educators design learning environments that facilitate various forms of connectedness and support sustainable language development. The implications of this research extend the understanding of Arabic language learning beyond traditional cognitive-individual approaches toward a perspective that recognizes the central role of connectedness in language learning ecology.

Keywords: Learning Ecology; Connectedness; Arabic Language Pedagogy; Pesantren

INTRODUCTION

Language learning, including Arabic language, has long been understood through various theoretical lenses from behaviorism to cognitivism, from constructivism to socio-culturalism. However, these approaches often offer fragmented views of the complex process of language learning, with too narrow a focus on certain aspects while ignoring the dynamic interactions between various factors that shape the learning experience. In recent decades, the ecological perspective has emerged as a promising alternative framework for understanding language learning as a complex phenomenon that emerges from interactions between learners and their environments (van Lier, 2004; Kramsch, 2002).

The ecological perspective in language learning emphasizes the relational, dynamic, and contextual nature of the learning process. Within this framework, language learning is not viewed as a linear process of acquiring structures and vocabulary, but as the development of participation in social and cultural practices involving language

(Kramsch & Steffensen, 2008). This perspective recognizes that language learning occurs in a complex ecosystem that includes not only learners and teachers but also the physical and social environment, cultural artifacts, technology, ideology, and many other factors that interact in complex and not always predictable ways.

In the context of Arabic language learning, the ecological perspective offers a highly relevant lens for understanding the complexity of the learning process, especially in environments such as pesantren, which are rich and multidimensional educational ecosystems. Pesantren are not only formal educational institutions but also living communities where Arabic is used and practiced in various contexts from formal classes to daily interactions, from religious rituals to extracurricular activities. In such ecosystems, Arabic language learning cannot be reduced to merely acquiring linguistic skills but must be understood as a holistic process involving identity development, participation in communal practices, and negotiation of meaning in rich social and cultural contexts.

One key concept in the ecological perspective is connectedness the idea that learning occurs through complex networks of relationships and interactions between various elements in the learning ecosystem. Connectedness in this context does not only refer to interpersonal relationships between learners and teachers or among learners but also includes connectedness with the physical environment, with learning artifacts and resources, with social and cultural practices, and with language itself as a complex semiotic system.

Although connectedness has been recognized as an important aspect of language learning (Ushioda, 2011; Norton, 2013), systematic exploration of the dimensions of connectedness in the context of Arabic language learning remains limited. Previous research on Arabic language learning has tended to focus on cognitive, linguistic, or methodological aspects, with limited attention to the relational and ecological dimensions of the learning process. This gap becomes increasingly significant given the unique characteristics of Arabic as a language with strong spiritual, cultural, and historical dimensions, especially in Islamic educational contexts such as pesantren.

This research aims to fill this gap by exploring the dimensions of connectedness in Arabic language learning through the perspective of learning ecology. Specifically, this research poses the questions: (1) How are the dimensions of connectedness manifested in the ecology of Arabic language learning in pesantren? (2) How do various dimensions of connectedness interact and contribute to the development of Arabic language competence and learners' linguistic identity? (3) How can the ecological perspective enrich our understanding of the role of connectedness in contemporary Arabic language pedagogy?

By exploring these questions, this research aims to develop a more nuanced and holistic understanding of connectedness in Arabic language learning and to propose a new theoretical framework that can help Arabic language educators design learning environments that facilitate various forms of connectedness and support sustainable language development.

METHOD

This research adopts an ecological approach to understanding connectedness in Arabic language learning. The ecological approach emphasizes the relational, contextual, and dynamic nature of language learning, and views learning as emerging from complex interactions between learners and their environment. This approach is particularly

suitable for exploring the dimensions of connectedness in Arabic language learning, as it allows for a holistic understanding of how various forms of connectedness manifest and interact in the learning ecosystem.

The research employs a mixed methods design, combining quantitative and qualitative approaches to provide a comprehensive understanding of the phenomenon under study. The quantitative component includes surveys and tests to measure students' perceptions of various dimensions of connectedness, their Arabic language competence, and their linguistic identity development. The qualitative component includes ecological observations, in-depth interviews, and artifact analysis to explore how connectedness is manifested and experienced in the learning ecosystem. The mixed methods design follows a concurrent triangulation strategy (Creswell, 2009), where quantitative and qualitative data are collected and analyzed simultaneously, and the results are integrated during the interpretation phase. This strategy allows for cross-validation of findings and provides a more complete understanding of the dimensions of connectedness in Arabic language learning.

The research was conducted at Pondok Pesantren Darussalam Gontor Ponorogo, one of the largest and most influential Islamic boarding schools in Indonesia. The pesantren was selected as the research site because it represents a rich and multidimensional educational ecosystem where Arabic is used and practiced in various contexts from formal classes to daily interactions, from religious rituals to extracurricular activities. The participants in the study included 150 students (75 male and 75 female) from various grade levels (equivalent to junior and senior high school) and 20 teachers of Arabic language and related subjects. The students were selected using stratified random sampling to ensure representation of different grade levels, gender, and prior language learning experiences. The teachers were selected using purposive sampling to include those with different teaching experiences, educational backgrounds, and teaching approaches.

The research employed multiple data collection methods to capture the complexity of connectedness in the Arabic language learning ecosystem:

1. **Connectedness Survey:** A survey instrument developed based on the Ecology of Connectedness framework to measure students' perceptions of various dimensions of connectedness in their Arabic language learning experience. The survey included subscales for interpersonal connectedness, contextual connectedness, conceptual connectedness, and spiritual-cultural connectedness, with items rated on a 5-point Likert scale. The survey was validated through expert review and pilot testing, with good reliability coefficients for all subscales (Cronbach's alpha ranging from 0.78 to 0.85).
2. **Ecological Observation:** Naturalistic observation of various Arabic language learning contexts in the pesantren, including formal classes, extracurricular activities, informal interactions, and religious practices. Observations were conducted using an observation protocol developed based on principles of ecological research, with a focus on interactions between learners, teachers, and the environment, as well as manifestations of various dimensions of connectedness.
3. **In-depth Interviews:** Semi-structured interviews with students and teachers to explore their experiences and perspectives on connectedness in Arabic language learning. Interviews with students focused on their learning experiences, perceptions of various dimensions of connectedness, and how connectedness influences their motivation and

- linguistic identity. Interviews with teachers focused on their teaching philosophy and practices, strategies for facilitating connectedness, and their observations of how connectedness influences student learning.
4. Arabic Language Competence Test: A standardized test to measure students' Arabic language competence in four skills: listening, speaking, reading, and writing. The test was developed based on the Common European Framework of Reference for Languages (CEFR) that has been adapted for the Arabic language context.
 5. Linguistic Identity Scale: An instrument to measure students' linguistic identity development, including identification with the Arabic language and its speakers, integration of Arabic into their self-concept, and investment in Arabic language learning. The scale was adapted from previous research on linguistic identity (Norton, 2013) and has been adjusted for the Arabic language learning context.
 6. Artifact Analysis: Analysis of various artifacts relevant to Arabic language learning in the pesantren, including learning materials, student products (such as writings and recordings), and cultural artifacts reflecting the role of Arabic in the pesantren community.

Quantitative data from the survey, Arabic language competence test, and linguistic identity scale were analyzed using descriptive and inferential statistics. Descriptive analysis included calculation of frequencies, percentages, means, and standard deviations to describe students' perceptions of various dimensions of connectedness, their Arabic language competence levels, and their linguistic identity development. Inferential analysis included Pearson correlation tests to examine relationships between dimensions of connectedness, Arabic language competence, and linguistic identity, as well as multiple regression analysis to identify dimensions of connectedness that are the strongest predictors of Arabic language competence and linguistic identity development.

Qualitative data from observations, interviews, and artifact analysis were analyzed using thematic analysis (Braun & Clarke, 2006) with an abductive approach, which combines inductive (bottom-up) and deductive (top-down) analysis. The analysis process included familiarization with the data, data coding, searching for themes, reviewing themes, defining and naming themes, and writing the report. NVivo 12 software was used to facilitate the coding and analysis of qualitative data.

Integration of quantitative and qualitative data was done at the interpretation stage, where findings from both types of data were compared, contrasted, and synthesized to provide a comprehensive understanding of the dimensions of connectedness in Arabic language learning and their relationship with language competence and linguistic identity. The integration process was also informed by principles of ecological research, with attention to complex interactions between various factors and the emergent nature of the phenomena under study.

RESULTS AND DISCUSSION

Manifestations of Dimensions of Connectedness in Arabic Language Learning Ecology

1. Interpersonal Connectedness

The research results show that interpersonal connectedness is a prominent dimension in the ecology of Arabic language learning at Pondok Pesantren Darussalam Gontor Ponorogo. Based on survey data, 85% of students reported high levels of

interpersonal connectedness, with an average score of 4.2 out of 5 on the interpersonal connectedness subscale. Ecological observations revealed various manifestations of interpersonal connectedness in the Arabic language learning ecosystem at the pesantren. One of the main manifestations is the ukhuwwah (brotherhood) system that forms the foundation of social interaction in the pesantren. In this system, senior students (mudabbir) are responsible for guiding and supporting junior students in various aspects of pesantren life, including Arabic language learning. This ukhuwwah relationship creates a strong social support network that facilitates language learning through scaffolding, feedback, and emotional support.

Interviews with students revealed that interpersonal connectedness not only facilitates Arabic language learning but also provides important motivation and emotional support to overcome challenges in the learning process. As expressed by one student:

"Learning Arabic is difficult, especially at the beginning. But here, we don't learn alone. We learn together with friends, helping each other, correcting each other. When I feel difficulty or lose motivation, friends and teachers are always there to support and encourage me."

Interviews with teachers revealed a strong awareness of the importance of building positive relationships with students and creating a supportive learning community. Teachers use various strategies to facilitate interpersonal connectedness, including cooperative learning, group discussions, and extracurricular activities that promote interaction and collaboration.

Analysis of artifacts, such as student magazines and activity documentation, also reflects the importance of interpersonal connectedness in the Arabic language learning community at the pesantren. These artifacts often feature stories about friendship, cooperation, and mutual support in the context of Arabic language learning, reinforcing the communal values that underlie the learning ecosystem.

2. Contextual Connectedness

The research results show that contextual connectedness is also a significant dimension in the ecology of Arabic language learning at the pesantren. Based on survey data, 78% of students reported high levels of contextual connectedness, with an average score of 3.9 out of 5 on the contextual connectedness subscale.

Ecological observations revealed how the physical and social environment of the pesantren is designed to create a rich "language environment" (*bi'ah lughawiyyah*), where Arabic is not only learned in formal classes but also used and experienced in various contexts. This environment includes Arabic signage, announcements in Arabic, a library with an extensive collection of Arabic books, and specific areas where the use of Arabic is mandatory.

Interviews with students revealed how connectedness with this language environment facilitates more holistic and contextual learning. As explained by one student:

"Here, Arabic is not just a subject in class. We live with Arabic every day. We wake up with Arabic, eat with Arabic, play with Arabic. This makes the language feel more real and relevant, not just something in textbooks."

Interviews with teachers revealed deliberate strategies to create and utilize affordances in the environment for Arabic language learning. Teachers not only teach in the classroom but also create opportunities for meaningful language use outside the classroom, such as through language clubs, competitions, and community projects.

Analysis of artifacts, such as learning materials and student products, shows how local and global contexts are integrated into Arabic language learning. Learning materials often use examples and scenarios relevant to students' lives in the pesantren and in Indonesia, while also connecting them to global contexts where Arabic is used.

3. Conceptual Connectedness

The research results show that conceptual connectedness is an important dimension in the ecology of Arabic language learning at the pesantren, albeit at a slightly lower level compared to other dimensions. Based on survey data, 70% of students reported high levels of conceptual connectedness, with an average score of 3.7 out of 5 on the conceptual connectedness subscale. Ecological observations revealed how the curriculum and pedagogy at the pesantren are designed to facilitate integration of various aspects of Arabic language knowledge and skills. For example, nahwu (grammar) and sharaf (morphology) classes are not taught separately but integrated with qira'ah (reading) and insya' (writing) classes, allowing students to see the relationship between language structures and their use in meaningful contexts. Interviews with students revealed that conceptual connectedness helps them develop a more coherent and integrated understanding of Arabic. As explained by one student:

"At first, all aspects of Arabic grammar, vocabulary, pronunciation felt like separate, unrelated parts. But over time, I began to see how everything is connected. Now, when I learn a new word, I don't just memorize it but also understand its structure and roots, how it relates to other words, and how to use it in different contexts."

Interviews with teachers revealed pedagogical approaches that emphasize conceptual connectedness, such as theme-based teaching that integrates various aspects of language, the use of concept maps and diagrams to visualize relationships between language concepts, and a spiral approach where concepts are introduced repeatedly with increasing levels of complexity. Analysis of artifacts, such as textbooks and learning materials, shows efforts to create conceptual connectedness through coherent organization of materials, consistent use of examples across various language domains, and activities that require integration of various language skills and knowledge.

4. Spiritual-Cultural Connectedness

The research results show that spiritual-cultural connectedness is a very prominent dimension in the ecology of Arabic language learning at the pesantren. Based on survey data, 88% of students reported high levels of spiritual-cultural connectedness, with an average score of 4.4 out of 5 on the spiritual-cultural connectedness subscale. Ecological observations revealed how Arabic in the pesantren is viewed not only as a communication tool but also as the language of the Quran and Islamic tradition, giving it a strong spiritual and cultural dimension. Practices such as reading and memorizing the Quran, studying hadith and classical Islamic texts in their original Arabic, and using Arabic in rituals and prayers create a deep connectedness between students and the spiritual-cultural dimension of the language. Interviews with students revealed that spiritual-cultural connectedness often becomes a strong motivator for learning Arabic. As expressed by one student:

"For me, learning Arabic is not just about mastering a foreign language. It's about connecting with my faith, with Islamic heritage, with the global Muslim community. When I read the Quran in its original language and understand its meaning directly, without translation, it is a profound spiritual experience that gives meaning and purpose to my language learning."

Interviews with teachers revealed awareness of the spiritual-cultural dimension of Arabic and how this dimension can be leveraged to enrich the learning experience. Teachers often integrate religious and cultural texts into language learning, discuss Islamic values and concepts contained in Arabic, and connect language learning with the spiritual and cultural practices of the community. Analysis of artifacts, such as learning materials and student products, reflects a strong integration between Arabic language learning and the spiritual-cultural dimension. Learning materials often use texts from the Quran, hadith, and classical Islamic literature, while also exploring cultural themes and ethics relevant to Muslim identity.

Table 1: Pedagogical Implications of the Ecological Model of Connectedness

Dimension of Connectedness	Pedagogical Implications	Implementation Strategy
Interpersonal	Creating a supportive learning community	Cooperative learning Peer mentoring system Extracurricular activities that promote interaction
Contextual	Developing a rich language environment	Creating a <i>bi'ah lughawiyyah</i> (language environment) Integrating Arabic into daily life Providing access to a variety of Arabic language resources
Conceptual	Facilitating the integration of language knowledge	Theme-based teaching Use of concept maps Spiral approach to the curriculum
Spiritual-Cultural	Connecting language learning with spiritual and cultural dimensions	Integration of religious and cultural texts Exploration of Islamic values and concepts Connecting language learning with spiritual practices

Interaction between Dimensions of Connectedness in the Learning Ecosystem

The research results show that the dimensions of connectedness do not operate separately but interact and reinforce each other in the Arabic language learning ecosystem at the pesantren. Correlation analysis shows significant positive relationships between all dimensions of connectedness, with the strongest correlation between interpersonal connectedness and spiritual-cultural connectedness ($r = 0.68$, $p < 0.01$), followed by contextual connectedness and conceptual connectedness ($r = 0.65$, $p < 0.01$).

Qualitative data analysis revealed several patterns of interaction between dimensions of connectedness:

1. **Interpersonal Connectedness and Conceptual Connectedness:** Social interaction and collaboration among students (interpersonal connectedness) often facilitate integration and connection between various aspects of language knowledge (conceptual connectedness). Through discussions, explanations, and feedback from peers, students can develop a more coherent and integrated understanding of Arabic.
2. **Contextual Connectedness and Interpersonal Connectedness:** A rich language environment (contextual connectedness) creates opportunities for social interaction and collaboration (interpersonal connectedness). Conversely, strong social relationships encourage students to participate more actively in the language environment and utilize available affordances.
3. **Spiritual-Cultural Connectedness and Interpersonal Connectedness:** Shared spiritual-cultural values and practices (spiritual-cultural connectedness) strengthen social bonds

and sense of community (interpersonal connectedness). Conversely, positive social relationships facilitate transmission and internalization of spiritual-cultural values and practices.

4. **Spiritual-Cultural Connectedness and Conceptual Connectedness:** The spiritual-cultural dimension of Arabic often provides a framework of meaning that helps students integrate various aspects of language knowledge (conceptual connectedness). For example, understanding Islamic concepts can help students understand the nuances of meaning of Arabic words and structures.

Ecological observations also revealed how interactions between dimensions of connectedness can create "positive feedback loops" where improvements in one dimension of connectedness lead to improvements in other dimensions, creating an increasingly rich and supportive learning ecosystem. For example, strong interpersonal connectedness can increase students' motivation to participate in the language environment (contextual connectedness), which in turn can enrich their social interactions and strengthen interpersonal connectedness. Interviews with teachers revealed awareness of these interactions and how they can be leveraged to create a more holistic and effective learning environment. As explained by one teacher:

"We see all aspects of Arabic language learning social, contextual, cognitive, spiritual as part of an inseparable whole. We cannot separate one aspect from another. When we strengthen one aspect, it also strengthens other aspects. That's why we strive to create a holistic learning environment that supports all dimensions of connectedness."

Relationship between Connectedness, Language Competence, and Linguistic Identity

Correlation analysis shows a strong positive relationship between overall connectedness (average of all dimensions of connectedness) and students' Arabic language competence ($r = 0.74$, $p < 0.01$). All dimensions of connectedness correlate positively with Arabic language competence, with the strongest correlation for interpersonal connectedness ($r = 0.70$, $p < 0.01$), followed by contextual connectedness ($r = 0.68$, $p < 0.01$), spiritual-cultural connectedness ($r = 0.65$, $p < 0.01$), and conceptual connectedness ($r = 0.62$, $p < 0.01$).

Multiple regression analysis shows that the four dimensions of connectedness together explain 60% of the variance in students' Arabic language competence ($R^2 = 0.60$, $F(4, 145) = 54.38$, $p < 0.01$). Among the four dimensions, interpersonal connectedness is the strongest predictor of students' Arabic language competence ($\hat{\beta}^2 = 0.35$, $p < 0.01$), followed by contextual connectedness ($\hat{\beta}^2 = 0.28$, $p < 0.01$), spiritual-cultural connectedness ($\hat{\beta}^2 = 0.22$, $p < 0.01$), and conceptual connectedness ($\hat{\beta}^2 = 0.18$, $p < 0.01$).

Additionally, overall connectedness also correlates positively with students' linguistic identity development ($r = 0.68$, $p < 0.01$). Students with higher levels of connectedness tend to show stronger identification with Arabic and its speaker community, better integration of Arabic into their self-concept, and greater investment in Arabic language learning.

Table 2: Relative Contribution of Connectedness Dimensions to Arabic Language Competence

Dimension of Connectedness	Beta Coefficient (β)	Significance (p)	Relative Contribution
Interpersonal	0.70	< 0.01	27.1%
Contextual	0.68	< 0.01	26.3%
Spiritual-Cultural	0.65	< 0.01	25.2%
Conceptual	0.62	< 0.01	21.4%
Total	$R^2 = 0.74$	$F(4, 145) = 54.38,$ $p < 0.01$	100%

Qualitative data analysis revealed several mechanisms through which connectedness contributes to the development of language competence and linguistic identity:

1. **Increased Motivation and Investment:** Connectedness, especially interpersonal and spiritual-cultural connectedness, enhances students' intrinsic motivation and investment in Arabic language learning. Students who feel connected to the learning community, to the spiritual-cultural dimension of the language, and to meaningful contexts of language use tend to be more motivated to invest time and effort in language learning.
2. **Opportunities for Meaningful Language Practice:** Connectedness, especially contextual and interpersonal connectedness, creates rich opportunities for meaningful and authentic language practice. Students who are connected to a rich language environment and to a community of language speakers have more opportunities to use and experience the language in meaningful contexts, which is essential for developing communicative competence.
3. **Scaffolding and Support:** Connectedness, especially interpersonal connectedness, facilitates scaffolding and support that help students overcome challenges in language learning. Through interaction with more proficient teachers and peers, students can receive guidance, feedback, and support that help them advance to higher levels of competence.
4. **Integration of Knowledge and Experience:** Connectedness, especially conceptual connectedness, facilitates integration of various aspects of language knowledge and experience into a coherent and functional system. Students who can see relationships between various aspects of language and between language and its contexts of use tend to develop a deeper and more integrated understanding of the language.
5. **Linguistic Identity Development:** Connectedness, especially spiritual-cultural and interpersonal connectedness, facilitates development of a positive and integrated linguistic identity. Students who feel connected to the spiritual-cultural dimension of Arabic and to the community of language speakers tend to integrate Arabic into their identity and see themselves as legitimate Arabic speakers.

Interviews with students revealed how connectedness has influenced their learning experiences and their development as Arabic speakers. As explained by one student:

"Before coming to the pesantren, I studied Arabic at school, but it was just like any other academic subject. Here, Arabic has become part of my life. I use it to communicate with friends, to understand my religion, to express myself. It's no longer just a language I'm learning; it's part of who I am."

Ecology of Connectedness Model in Arabic Language Learning

Based on the research findings, we propose an "Ecology of Connectedness" model that illustrates how various dimensions of connectedness interact in the Arabic language learning ecosystem and contribute to the development of language competence and linguistic identity. The model depicts the Arabic language learning ecosystem as a complex network of relationships and interactions between learners, teachers, environment, and the language itself. At the center of this ecosystem is the learner, who is connected to various elements in the ecosystem through four dimensions of connectedness: interpersonal, contextual, conceptual, and spiritual-cultural.

The model emphasizes the dynamic and emergent nature of connectedness, where various dimensions of connectedness interact and reinforce each other, creating an increasingly rich and supportive learning ecosystem. The model also recognizes that specific manifestations of these dimensions of connectedness will vary depending on context, learner characteristics, and learning objectives. Additionally, the model illustrates how a learning ecosystem rich in connectedness can facilitate development of language competence and linguistic identity through various mechanisms, including increased motivation and investment, opportunities for meaningful language practice, scaffolding and support, integration of knowledge and experience, and linguistic identity development.

The Ecology of Connectedness model offers a new theoretical framework for understanding Arabic language learning as an ecological process involving complex interactions between various factors in the learning ecosystem. This model challenges traditional views of language learning as a cognitive-individual process and instead emphasizes the relational, contextual, and emergent nature of language learning.

Connectedness as an Emergent Phenomenon in Learning Ecology

The findings of this research support the understanding of connectedness as an emergent phenomenon arising from complex interactions between various elements in the language learning ecosystem. Connectedness does not exist objectively in the environment or within individuals but emerges through relationships and interactions between learners, teachers, environment, and language itself. This emergent perspective aligns with complexity theory and dynamic systems theory in language learning (Larsen-Freeman, 1997; Larsen-Freeman & Cameron, 2008), which view language learning as a non-linear process involving complex interactions between various factors. In this perspective, connectedness is not a single variable that can be directly manipulated but an emergent property of the system that arises from interactions between various elements.

The implication of this understanding is that efforts to facilitate connectedness in Arabic language learning need to consider the learning ecosystem as a whole, not just individual elements. Arabic language educators need to create conditions that allow various forms of connectedness to emerge and develop, with attention to interactions between various factors in the learning ecosystem. Additionally, understanding connectedness as an emergent phenomenon also implies that there is no universal "recipe" for creating connectedness in Arabic language learning. Specific manifestations of connectedness will vary depending on context, learner characteristics, and learning objectives. Arabic language educators need to adopt a flexible and adaptive approach, with attention to the specific dynamics of their learning ecosystem.

Spiritual-Cultural Dimension: The Uniqueness of Arabic Language Learning

The research findings show that spiritual-cultural connectedness is a very prominent dimension in the ecology of Arabic language learning at the pesantren. This dimension reflects the unique characteristics of Arabic as a language with strong spiritual, cultural, and historical dimensions, especially in the context of Islamic education. Spiritual-cultural connectedness in Arabic language learning includes relationships between learners and the spiritual dimension of language as the language of the Quran and Islamic tradition, relationships with the cultural and intellectual heritage contained in classical Arabic literature, and relationships with the global Muslim community that uses Arabic as a liturgical and communication language. These findings extend our understanding of connectedness in language learning beyond the social and cognitive dimensions that often become the focus of previous research. They show that for languages with strong spiritual and cultural dimensions like Arabic, spiritual-cultural connectedness can be an important aspect of the learning experience and can provide deep motivation and meaning for learners.

The implication of these findings is that Arabic language educators, especially in the context of Islamic education, need to recognize and facilitate spiritual-cultural connectedness as an integral part of the learning experience. This can include integration of religious and cultural texts into language learning, exploration of Islamic values and concepts contained in Arabic, and creation of opportunities for students to experience the spiritual and cultural dimensions of language through practices such as reading the Quran, studying hadith, and participating in Islamic rituals and traditions.

However, it is also important to recognize that spiritual-cultural connectedness may have different manifestations and significance for learners with different backgrounds and objectives. Arabic language educators need to be sensitive to the diversity of student perspectives and experiences, and create inclusive learning environments that value various forms of connectedness with language.

Connectedness and Linguistic Identity Development

The research findings show a strong relationship between connectedness and linguistic identity development in Arabic language learning. Students with higher levels of connectedness tend to show stronger identification with Arabic and its speaker community, better integration of Arabic into their self-concept, and greater investment in Arabic language learning. These findings align with previous research on identity in second language learning (Norton, 2013; Dörnyei & Ushioda, 2009), which emphasizes that language learning involves not only acquisition of linguistic skills but also development of a new identity as a speaker of the target language. However, this research extends our understanding of the relationship between connectedness and identity by exploring how various dimensions of connectedness interpersonal, contextual, conceptual, and spiritual-cultural contribute to linguistic identity development.

These findings suggest that connectedness can facilitate linguistic identity development through various mechanisms. Interpersonal connectedness allows students to participate in communities of practice where they can develop identities as legitimate Arabic speakers. Contextual connectedness creates opportunities for students to experience and use Arabic in meaningful contexts, which helps them internalize the language as part of their linguistic repertoire. Conceptual connectedness allows students to integrate Arabic knowledge and skills into their cognitive system, which supports

development of identity as a competent language speaker. And spiritual-cultural connectedness allows students to connect Arabic learning with their values, beliefs, and aspirations, which helps them integrate the language into their personal and cultural identity. The implication of these findings is that Arabic language educators need to pay attention not only to development of linguistic competence but also to development of students' linguistic identity. This can include creation of opportunities for students to participate in meaningful communities of practice, exploration of relationships between Arabic and students' personal and cultural identity, and support for students in overcoming identity conflicts that may arise in the language learning process.

Implications for Contemporary Arabic Language Pedagogy

The findings of this research have important implications for contemporary Arabic language pedagogy, especially in the context of Islamic education such as pesantren. First, these findings emphasize the importance of creating learning ecosystems rich in various forms of connectedness. Arabic language educators need to pay attention not only to cognitive and linguistic aspects of language learning but also to relational, contextual, and spiritual-cultural dimensions. This can include creation of supportive learning communities, development of rich language environments, integration of various aspects of language knowledge and skills, and exploration of spiritual and cultural dimensions of Arabic. Second, these findings suggest that an ecological approach to Arabic language learning can be a valuable alternative to traditional approaches that tend to focus on transmission of linguistic knowledge and skills. The ecological approach recognizes the complexity and emergent nature of language learning, and emphasizes the importance of creating conditions that allow learning to emerge through interaction and participation in meaningful social and cultural practices.

Third, these findings highlight the important role of spiritual-cultural connectedness in Arabic language learning, especially in the context of Islamic education. Arabic language educators need to recognize and facilitate the spiritual and cultural dimensions of language learning, while remaining sensitive to the diversity of student perspectives and experiences. Fourth, these findings suggest that linguistic identity development is an important aspect of Arabic language learning. Arabic language educators need to pay attention to how students develop identities as Arabic speakers, and create opportunities for students to explore and negotiate their identities in relation to the language. Fifth, these findings emphasize the importance of a flexible and adaptive approach to Arabic language learning, responsive to specific contexts, learner characteristics, and learning objectives. There is no universal "recipe" for effective Arabic language learning, but various paths and configurations that can support development of language competence and linguistic identity.

CONCLUSION

This research explores the dimensions of connectedness in Arabic language learning through the perspective of learning ecology, with a focus on a case study at Pondok Pesantren Darussalam Gontor Ponorogo. The research findings show that connectedness in Arabic language learning is a multidimensional and emergent phenomenon that arises from complex interactions between various elements in the learning ecosystem. The research identifies four main dimensions of connectedness in Arabic language learning: interpersonal connectedness, contextual connectedness,

conceptual connectedness, and spiritual-cultural connectedness. These dimensions do not operate separately but interact and reinforce each other in the learning ecosystem, creating a rich and supportive environment for language learning.

The research also finds a strong positive relationship between connectedness and Arabic language competence, with all dimensions of connectedness contributing significantly to language development. Additionally, connectedness is strongly related to linguistic identity development, facilitating students' identification with Arabic and its speaker community, integration of Arabic into their self-concept, and investment in Arabic language learning. Based on these findings, the research proposes an "Ecology of Connectedness" model that offers a new theoretical framework for understanding Arabic language learning as an ecological process involving complex interactions between various factors in the learning ecosystem. This model emphasizes the dynamic, contextual, and emergent nature of connectedness in language learning, and provides a framework for designing learning environments that facilitate various forms of connectedness and support sustainable language development. The implications of this research extend the understanding of Arabic language learning beyond traditional cognitive-individual approaches toward a perspective that recognizes the central role of connectedness in language learning ecology. This perspective offers valuable insights for Arabic language educators, curriculum developers, and educational policymakers, especially in the context of Islamic education.

Future research could explore how the Ecology of Connectedness model can be applied in different contexts of Arabic language learning, how specific pedagogical approaches can facilitate various dimensions of connectedness, and how technology can be used to enhance connectedness in Arabic language learning environments. Additionally, longitudinal studies could investigate how connectedness develops over time and how it influences long-term language learning outcomes and identity development. The author would like to thank the leadership, teachers, and students of Pondok Pesantren Darussalam Gontor Ponorogo for their participation and support in this research. The author also acknowledges the valuable feedback and guidance provided by colleagues and reviewers during the development of this article.

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