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### Mobile-Assisted Language Learning Apps: The Analysis of Duolingo's Content Using ACTFL Standarization

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#### Abstract

*The Duolingo application offers foreign language learning, specifically Arabic, to learners worldwide. Although effective, the material within it must meet international language learning standards. This research aims to assess the suitability of Duolingo's material in accordance with the international standards set by ACTFL. This study employs a descriptive qualitative approach, with primary data consisting of Duolingo's materials and secondary data comprising relevant literature. Both data sets are analyzed using Milles and Hubberman's theory. The results indicate that Duolingo complies with the international standards established by ACTFL, covering proficiency levels from Distinguished, Superior, Advanced, Intermediate, to Novice. Each proficiency level ensures that learners can learn a foreign language gradually and systematically according to their language abilities.*

**Keywords:** Duolingo, material analysis, MALL, ACTFL

#### Abstrak

Aplikasi Duolingo hadir menyajikan pembelajaran bahasa asing, khususnya bahasa arab, bagi seluruh pembelajar di dunia. Meski efektif, namun materi di dalamnya haruslah sesuai standar pembelajaran bahasa internasional. Penelitian ini bertujuan untuk mengetahui standar kelayakan materi yang ada di dalamnya sesuai dengan standar internasional ACTFL. Penelitian ini menggunakan pendekatan kualitatif deskriptif, dengan data primer berupa materi Duolingo dan data sekunder berupa literatur relevan lainnya. Kedua data tersebut dianalisis menggunakan teori Milles and Hubberman. Hasil penelitian menunjukkan bahwa Duolingo telah memenuhi standar internasional yang ditetapkan oleh ACTFL yang meliputi Tingkat Kemahiran Distinguished, Superior, Advanced, Intermediate, Novice. Masing-masing tingkat kemahiran memastikan bahwa pembelajar dapat belajar bahasa asing secara bertahap dan sistematis sesuai dengan kemampuan kebahasaannya.

**Kata Kunci:** Duolingo, analisis materi, MALL, ACTFL

#### INTRODUCTION

The rapid advancement of technology has had a significant impact on the education sector. Numerous media and innovations have emerged as a direct result of technological development (Akmaliyah et al., 2021). Additionally, the integration

of technology in education has shifted the paradigm of the learning process, both inside and outside the classroom, particularly in Arabic language learning. Arabic language education practitioners have gradually moved from classical teaching concepts towards modern, technology-driven learning (Shiddiq et al., 2024).

One notable phenomenon of technology integration in Arabic language learning is the widespread use of Android-based learning applications. The ease of access to various applications, which can be independently installed via the Google Play Store, has made their development unstoppable. These applications offer a variety of tools and features (Zubaidi, 2020). The inclusion of gamification elements in these apps makes the language learning process highly enjoyable for students, especially beginners. Examples of such applications include Kahoot, AlifBee, LingoDeer, and Duolingo, which will be the focus of this paper.

Duolingo is an Android-based application that incorporates gamification content for learning not only Arabic but also other languages like English, French, Mandarin, and more. Developed by an American technology company and introduced in 2012, this app is designed to be accessible from both smartphones and desktops via the domain [duolingo.com](https://www.duolingo.com) at no cost. Since its meteoric rise during the COVID-19 pandemic, Duolingo has not only become a language learning app but also offers language certification recognized by over 5000 institutions worldwide.

However, language learning applications with gamification elements must meet content suitability standards (Muassomah & Abdullah, 2021). The content provided must adhere to the rules of foreign language learning. It is crucial to ensure that the materials taught in the Duolingo app align with international language learning curricula and standards. This ensures that the learning process through the app remains high-quality and academically accountable. Therefore, this paper employs the ACTFL (American Council on the Teaching of Foreign Languages) standards, an internationally recognized standard among linguistic experts. Established in 1986 and revised several times, most recently in 2012, ACTFL standards help researchers assess and ensure that Duolingo's content aligns with globally recognized language education goals.

For example, the material presented must be based on acknowledged linguistic and pedagogical principles and developed by experts in the field. This is crucial because language learning often presents numerous challenges, including learning difficulties, motivation, and material suitability. While several researchers have examined Duolingo from various perspectives, none have specifically analyzed its content, particularly for Arabic language learning.

In his research reviewing over 300 pieces of literature on Duolingo, Mitchell noted that this application is the most popular type of MALL (Mobile-Assisted Language Learning) app worldwide (Shortt et al., 2023). The gamification elements implemented, such as XP, leveling, daily challenges, and leaderboards, create a competitive environment that motivates users to continuously progress through learning stages (Xiangying Jiang, 2022). Wily Mohammad also stated that the integration of technology and content in Duolingo successfully psychologically encourages users to master the language they are learning (Mohammad & Maulidiyah, 2023). In the United Arab Emirates, Abdelghany studied over 150 students and found that Duolingo not only significantly improved the learners' language skills but also stimulated users to master other languages (Abdelghany,

2022). However, Shawn Loewen and his colleagues discovered in their research that there are elements of motivational disparity and frustration in some cases of learning with Duolingo, despite the positive correlations found (Loewen et al., 2019).

Therefore, it becomes important to measure the content standards presented in Duolingo, and ACTFL can serve as a primary foundation in providing a comprehensive framework of eligibility standards. This paper can have a significant impact on Arabic language education practitioners by providing content standards for MALL (Mobile-Assisted Language Learning), specifically the Duolingo application, that align with internationally recognized standards.

## **METHOD**

### ***Research Design***

This research employs a qualitative approach to explore the content presented in the Duolingo application. The data obtained is then processed by analyzing it according to internationally recognized standards set by ACTFL.

### ***Data Collection Technique***

The researcher gathered data by summarizing the content presented in the Duolingo application, both in its mobile and desktop versions. Additionally, the researcher identified data from literature, including research papers and books that focus on Duolingo. The researcher also identified data taken from the latest revised ACTFL guidelines.

### ***Data Analysis Technique***

The data analysis technique in this research begins with collecting primary data sourced from the Duolingo application and the latest ACTFL guidelines. This is followed by collecting secondary data sourced from relevant literature that discusses Duolingo, including journals and books. Once all the data is collected, the researcher classifies the data according to the research problems. In the next stage, the researcher presents the data and analyzes the findings according to ACTFL standards. In the final stage, the researcher draws conclusions from the analysis results. Thus, it can be identified that the researcher adopts the theory of Milles and Hubberman in this study (Larosa & Iskandar, 2021).

## **RESULT AND DISCUSSION**

### ***Duolingo***

Duolingo is the most popular language learning application in the world. On its official page in the [Google Play Store](#), Duolingo is favored by over 500 million users worldwide, boasting a 4.8-star rating from 25.1 million users. With its iconic green bird logo, Duolingo is designed to be accessible from both smartphones and PCs.

The main mission of this application, which first appeared in 2012, is to provide learners worldwide with the broadest possible space to personalize their learning (ROUMEN VESSELINOV & JOHN GREGO, 2012). According to its official website, Duolingo explains that each individual has their own way of learning; thus, the learning design in Duolingo can be freely customized by the user. Moreover, Duolingo is designed to make language learning, which is generally tedious (Khuluq & Imamah, 2024), more fun and enjoyable. The presentation of material at each

level, designed to resemble a game, makes learning more enjoyable and allows learners to absorb the material more effectively. The ease of accessibility, which can be reached by users worldwide, makes Duolingo popular among various groups, from school-level learners to global stars and Hollywood celebrities. On its official website, Duolingo states that true equality is when everyone has the same opportunity to learn the world's languages without spending a penny. This certainly encourages individuals to obtain the best language learning experience through their smartphones.

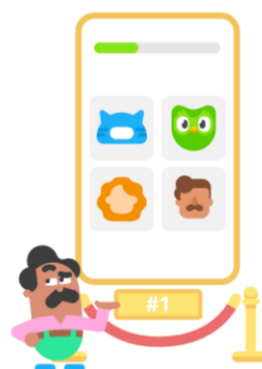
### **Start Page Duolingo**

The Duolingo interface is available in two versions: mobile and desktop. Both versions can be synchronized if the user logs in with a Google account. The mobile and desktop versions are integrated into the system, ensuring that users do not have to worry about their learning progress not being synced. Duolingo also provides a language preference that users can change to their desired language, making them more familiar with the language they are learning. This is part of Duolingo's commitment to offering comprehensive and enjoyable learning materials. Language Learning which is packaged with enjoyable materials and methods can enhance learning effectiveness (Jamil & Agung, 2022).

When a user accesses the Duolingo mobile app, the start page directs them to either begin learning from the start or continue previous lessons by syncing their Google account. However, on the desktop version's homepage, users will find promotional information explaining that Duolingo is the best app for learning foreign languages. At the top, there is a banner stating, "Free, Fun, Effective." Duolingo aims to convey that learning a foreign language with this app will be enjoyable, free of charge, and highly effective. Duolingo consistently advocates that language learning should be fun, allowing learners to continuously develop their competencies without worrying about becoming bored with the material (Husna et al., 2024).

**free. fun. effective.**

Learning with Duolingo is fun, and **research shows that it works!** With quick, bite-sized lessons, you'll earn points and unlock new levels while gaining real-world communication skills.



Following that, there is a message stating "Backed by Science." Duolingo strives to assure users that the materials and content provided have been tested by experts in linguistics, media, design, and engineering. As a result, all materials are presented automatically, yet they still meet the requirements for effective foreign language courses and adhere to international proficiency guidelines. This alignment between material and learner proficiency levels significantly impacts the achievement of the primary learning objectives (Ilmiani et al., 2021).



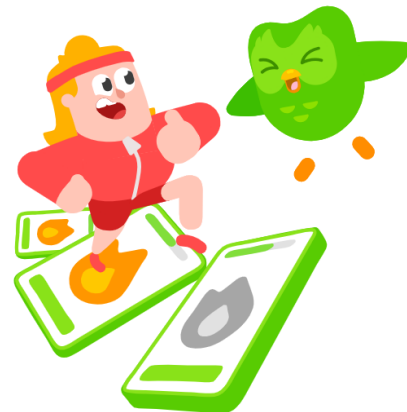
## backed by science

We use a combination of research-backed teaching methods and delightful content to create courses that effectively teach reading, writing, listening, and speaking skills!

Next, there is the phrase “Stay Motivated.” With this slogan, Duolingo emphasizes that language learning cannot rely solely on theoretical material but must also be practiced regularly. Practice should not be a one-time activity, as language acquisition requires continuous habituation (Nisa’ & Murtadho, 2023). Therefore, Duolingo designs its materials and content in a system very similar to a game, making the learning process enjoyable and far from tedious (عبد الحكيم عبد الرحمن حسين, ٢٠٢٤). Additionally, to encourage users to regularly engage in light language exercises, Duolingo provides reminders that notify users to keep practicing the language they are learning.

## stay motivated

We make it easy to form a habit of language learning with game-like features, fun challenges, and reminders from our friendly mascot, Duo the owl.



Finally, there is the phrase “Personalized Learning.” Duolingo explains that its language materials are integrated with Artificial Intelligence (AI). This means that the content presented to each user is tailored to their individual language level. In other words, beginners (*mubtadi*) will receive content specifically for beginners, intermediate learners (*mutawassith*) will receive content tailored to their level, and advanced learners (*mutaqaddim*) will receive advanced material.



## personalized learning

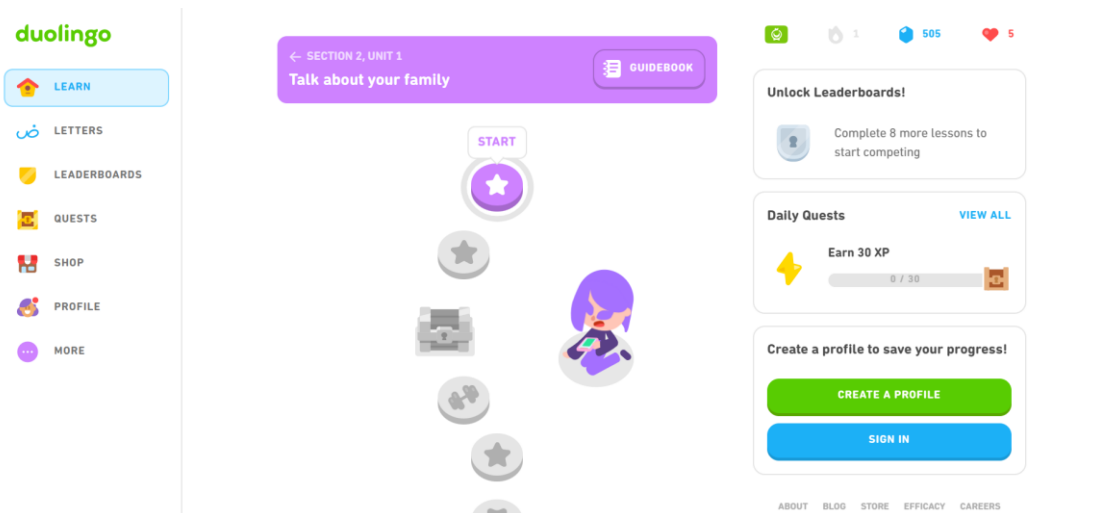
Combining the best of AI and language science, lessons are tailored to help you learn at just the right level and pace.

And at the bottom, there is the phrase “Learn Anytime, Anywhere,” which indicates Duolingo's commitment to providing the best foreign language learning experience anytime and anywhere. With easy access, the habit of practicing the language directly using Duolingo can help build comprehensive linguistic constructs. In research presented by Zamzami, the habitual use of a foreign language in daily activities can effectively help increase vocabulary and linguistic spontaneity, thereby automatically enhancing a learner's language proficiency (Zamzami et al., 2020).

**learn anytime,  
anywhere**

### ***Dashboard Duolingo***





Language learning is often considered one of the most tedious tasks because learners are required to understand grammatical disciplines and rules (Riqza & Muassomah, 2020). Furthermore, if vocabulary is still very limited, it is not impossible for a learner to give up and be reluctant to continue language learning. Therefore, recently, there have been many developments in Arabic language learning integrated with technology and packaged in the form of gamification. The main goal is to keep learners motivated to continuously improve their language skills (Hasanah et al., 2021).



In the Duolingo application, developers strive to provide users with the best preferences for learning foreign languages. If you look at its dashboard, both the mobile and desktop versions, Duolingo presents menus that users can access for each lesson. The left sidebar displays the main menu consisting of (1) Learn, which functions as the main menu leading to the learning material;

#### Right to left

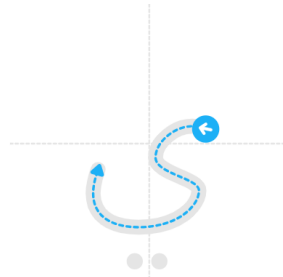
Take a moment to go over these letters:

	d, like in "dish"
	aa, between "hat" and "father"
	uu, like in "boo"
	ii, like in "bead"

Did you know Arabic is written from right to left? Notice where the letter د (d) shows up in دا (daa) vs. اد (aad).

(2) Letters, this menu leads to a page where users can learn the Arabic alphabet. The system automatically provides brief explanations of each letter, including how to pronounce them, what they sound like, and exercises for writing the letters.

## Trace the character



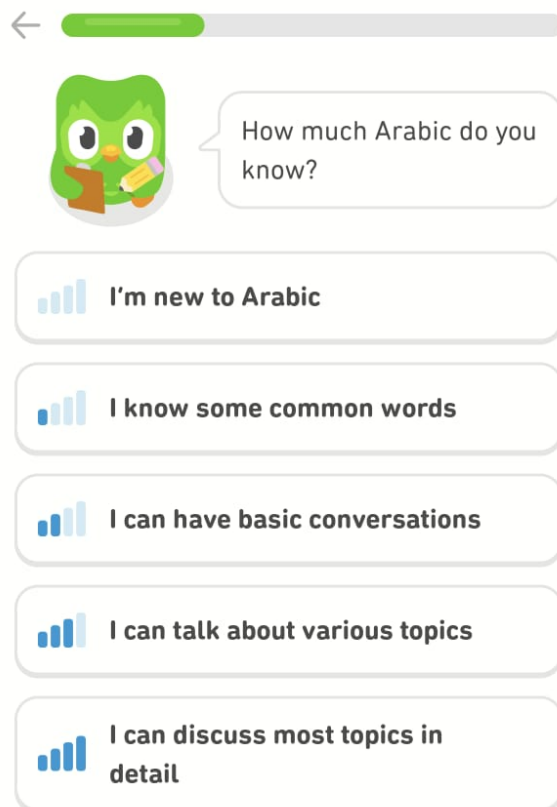
There is a unique aspect that caught the researcher's attention, which is the explanation of the Arabic alphabet. For example, the system explains the pronunciation of the letter *ي* with the description "like in dish," and the pronunciation of the letter *ي* with the description "like in boo," and so on. Duolingo provides explanations as simple as possible so that users who are completely new to learning Arabic can easily identify the Arabic letters as a foundation for learning the language. (3) Leaderboard, a menu that provides information about the rankings of all users who are learning Arabic at each level. (4) Quests, a menu that provides daily missions or challenges. (5) Shop, offering options to purchase items such as hearts, gems, etc., similar to conventional games. (6) Profile, a menu for managing user data. (7) Settings, a menu that provides optional preferences that can be changed at the user's discretion, such as dark or light mode, animations, sound effects, etc.

### **Duolingo Content**

Mahyudin explains in his paper that in learning Arabic, a learner must follow the curriculum designed by the teacher (Mahyudin Ritonga et al., 2021). Beginner learners are always introduced to the Arabic alphabet first, followed by the introduction of simple vocabulary that can be practiced immediately. After that, learners will practice the four Arabic language skills: listening/*maharah istima'*, speaking/*maharah kalam*, reading/*maharah qiroah*, and writing/*maharah kitabah* (Wan Ab Aziz Wan Daud et al., 2022).

In the application, Duolingo developers provide five learner levels that can be chosen before starting the lessons. Level 1 is named "I'm new to Arabic," which is the lowest level. Level 2 is named "I know some common words," intended for beginners who already know some Arabic vocabulary. Level 3 is named "I can have basic conversations," for intermediate learners who can have simple conversations in Arabic. Level 4 is named "I can talk about various topics," for advanced learners who can express themselves on a variety of topics in Arabic. Level 5 is named "I can discuss most topics in detail," which is the highest level in the Duolingo app, aimed at advanced learners who want to hone their skills in exploring Arabic further.





Generally, the construction of materials at each level has similarities, but the content is different and tailored to each level. As stated by Lewicka, the level of language proficiency must match the materials taught to achieve the primary goal of language learning optimally (Lewicka Magdalena & Waszau Anna, 2017). Duolingo's content focuses on practical everyday conversations, and the sequence of materials is adjusted to ensure that users can engage in active daily communication. The material structure can be seen in the table below:

**Table 1.**  
**Construction of Distribution of Duolingo Application Material Section 1**

Section	Unit	Material
1	1	Pair letters and sounds
	2	Identify Names
	3	Refer to Places
	4	Talk about your house
	5	Describe Things
	6	Describe People
	7	Say where you are from
	8	Describe possessions
	9	Talk about countries
	10	Use basic phrases

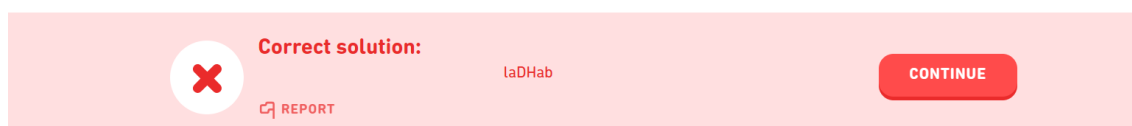
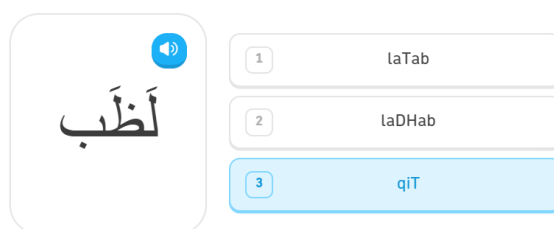
11	Form feminine adjectives
12	Identify professions
13	Describe universities
14	Form questions
15	Describe your family
16	Introduce your self

In Table 1, it can be seen that each section has 16 units. Each unit contains one material starting from matching to self-introduction. The difficulty level of the materials varies, providing challenges that match the user's skill development. Each unit is designed to introduce a new concept or skill, which is then reinforced through practice and repetition. Users begin with simple exercises like matching sounds, letters, words, or phrases, aimed at building basic vocabulary. This progressive and structured approach helps learners understand the material easily (Albantani & Madkur, 2019). As users progress through the units, they are introduced to more complex grammar structures and higher communication skills.

For instance, in the first unit, users are tasked with matching letter sounds and basic words with audio and visual aids to help them build visual associations and a basic understanding of the material. In subsequent units, such as describing, storytelling, and explaining, users must form simple sentences or answer basic questions about the presented material. The learning material gradually becomes more complex, covering aspects like verb usage, adjectives, and more intricate sentence structures.

This tiered approach not only helps learners gradually and systematically master a new language but also maintains their motivation by providing clear and measurable achievements (Deiri, 2023). Duolingo uses an algorithm to personalize each user's learning experience, adjusting the difficulty level based on individual progress and performance. Additionally, the immediate feedback system provided by the app allows users to recognize their mistakes and correct them in real time.

**What sound does this make?**



This approach helps reinforce learning and ensures that learners do not just memorize but truly understand and can use the language they are learning.

**Table 2.**  
**Construction of Distribution of Duolingo Application Material Section 2**

Section	Unit	Material
2	1	Talk about your family
	2	Discuss clothing
	3	Describe your house
	4	Name personal items
	5	Describe an office
	6	Refer to food
	7	Describe a picture
	8	Talk about your hobbies
	9	Identify the weather
	10	Discuss geography
	11	Use prepositions
	12	Express a problem
	13	Count from 0 to 10
	14	Discuss geography
	15	Greet people
	16	Talk about what you do

In Table 2, it is evident that Section 2 contains more complex material compared to Section 1. This indicates that the Duolingo app uses a step-by-step learning approach to progressively enhance learners' language skills. Section 1 serves as a basic introduction, focusing on foundational vocabulary, simple phrases, and basic sentence structures. The goal is to build a strong foundation in the language being studied, ensuring that learners understand basic concepts before moving on to more complex material. Section 2, on the other hand, introduces more complicated concepts and advanced language skills, including the use of verbs in various situations, more complex sentence structures such as feminine and plural forms, the use of present tense verbs in specific contexts, the use of verbal nouns, instrumental nouns, place nouns, and time nouns in particular situations, as well as more in-depth and interactive conversation exercises.

The material in Section 2 is designed to develop learners' abilities to communicate more effectively and accurately in the language being learned, in this case, Arabic. In addition to vocabulary enrichment, learners are also encouraged to deepen their understanding of grammar and develop more dynamic and flexible communication skills. By mastering these learning objectives, as stated by Aqeela in her paper, a learner can immediately practice Arabic in real-life situations (Aqeela et al., 2023).

Each of the two sections, with 16 units each, is provided with an introduction that can guide the learner's focus on new material, called a "Guide Book." This feature is similar to the vocabulary reinforcement commonly done by teachers before lessons begin. The "Guide Book" menu is crucial for learners to pay attention to, ensuring that the learning process can proceed more effectively.

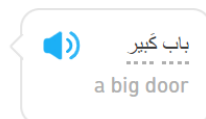
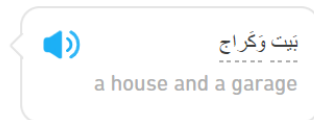
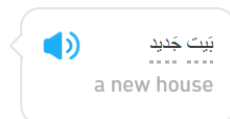


## Unit 4 Guidebook

Explore grammar tips and key phrases for this unit

### KEY PHRASES

#### Talk about your house



### ***Duolingo dan American Council on the Teaching of Foreign Language (ACTFL)***

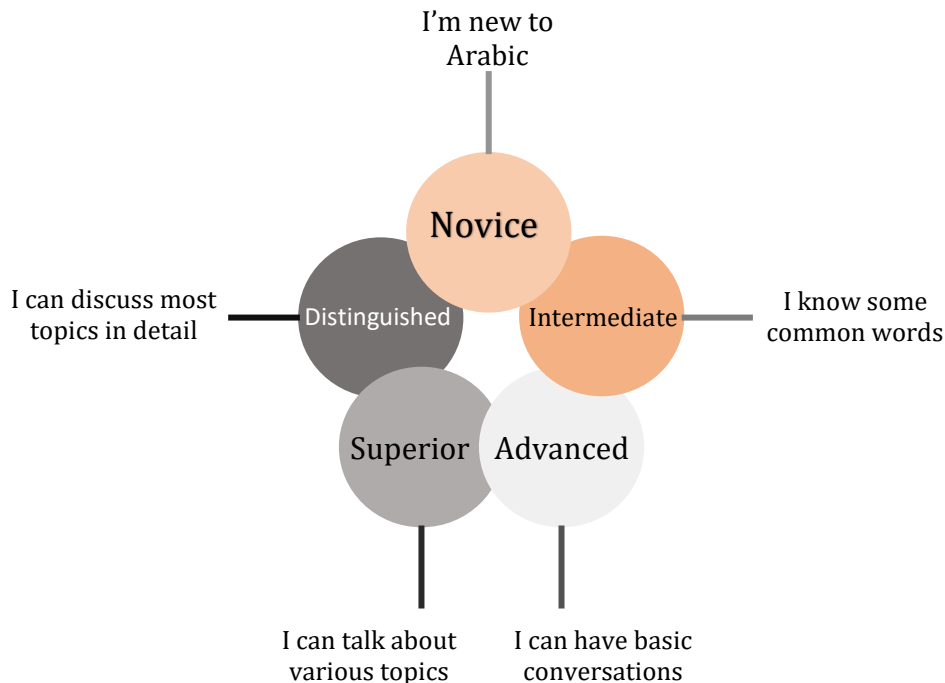
The ACTFL guidelines are used by official language courses worldwide as a reference or standard to measure foreign language proficiency (Hasanah et al., 2021). There are five main levels in ACTFL that form a hierarchy for each language proficiency area, including listening, speaking, reading, and writing. These levels are: (1) Distinguished; (2) Superior; (3) Advanced; (4) Intermediate; and (5) Novice. Each proficiency level is further divided into three sub-levels: High, Mid, and Low.

Table 3.  
Language Proficiency Level Standards According to ACTFL

Level	Sub-level	Description
Distinguished	High	Ability to use language exceptionally well in various situations, including complex and unfamiliar ones. Can adjust speech style according to the audience
	Mid	Almost the same ability as Distinguished High but with slightly less flexibility in highly complex situations
	Low	Ability to use language very well but may have difficulty in some very specific or technical situations

Superior	High	Ability to communicate effectively and with high fluency in various situations. Can discuss abstract and complex topics
	Mid	Ability to communicate effectively in most situations and can explain and debate clearly
	Low	Ability to communicate effectively in more structured situations but may have difficulty with highly complex or abstract topics
Advanced	High	Ability to speak fluently about various topics, though there may still be minor grammatical errors. Can communicate well in unstructured situations
	Mid	Ability to communicate well about familiar topics and can discuss opinions and experiences in detail
	Low	Ability to communicate about familiar topics but may struggle with more complex or unusual topics.
Intermediate	High	Ability to communicate about known topics with longer and more detailed sentences. Can handle some unstructured situations
	Mid	Ability to communicate with simple sentences about known topics and can combine simple sentences
	Low	Ability to use simple phrases and sentences to talk about known topics but with limitations in vocabulary and grammar
Novice	High	Ability to use learned phrases and sentences in very familiar situations. Can understand and create basic sentences
	Mid	Ability to use learned words and phrases to express basic ideas. Limited ability in very structured situations
	Low	Ability to recognize basic learned words and phrases but very limited in spontaneous communication

From Table 3, it can be identified that the material in the Duolingo application meets the ACTFL standards. Each ACTFL proficiency level is represented by the user level names in the Duolingo application.



From the chart above, it can be identified that Level 1 on Duolingo, named "I'm new to Arabic," is equivalent to Novice; Level 2, named "I know some common words," is equivalent to Intermediate; Level 3, named "I can have basic conversations," is equivalent to Advanced; Level 4, named "I can talk about various topics," is equivalent to Superior; and Level 5, named "I can discuss most topics in detail," is equivalent to Distinguished.

From the discussion presented, it can be concluded that the Duolingo application is a foreign language learning app that adheres to international standards according to ACTFL. Therefore, Duolingo can be a medium to help anyone learn, not only Arabic but also other world languages, with enjoyable and proven effective materials.

The app, which has garnered the titles of Editor's Choice and Best of The Best from Google Play, offers various learning levels tailored to the user's abilities, ranging from beginner to advanced. With an engaging and interactive gamification approach, Duolingo makes the process of learning Arabic more engaging and enjoyable. Users can learn at their own pace and level of linguistic knowledge.

Duolingo's success in meeting ACTFL standards demonstrates that the material presented, from the lowest to the highest levels, is not only enjoyable but also of high quality and in line with international language education standards. With each learning level designed to meet specific ACTFL criteria, Duolingo users can ensure they receive structured and comprehensive education. For example, at the "I'm new to Arabic" level, equivalent to the Novice level, users are taught the basics of Arabic, which helps build a strong foundation for language skills. When

users reach the "I can discuss most topics in detail" level, equivalent to Distinguished, they are expected to have mastered language skills at a very high level, enabling them to communicate effectively in various complex situations.

This certainly proves that Arabic language learning on the Duolingo app is adaptive. Users or learners can systematically learn language skills from the simplest to the most complex. Besides the adaptive content, Duolingo is also adaptable in its usage. Learners can choose to work on tasks or gamified materials from Duolingo whenever they can, without having to follow a rigid schedule like conventional language courses.

The structured learning aligns with language learning theories, namely Krashen's Input Hypothesis and Task-Based Learning Approach. Krashen's Input Hypothesis emphasizes the importance of exposure to comprehensible input that is slightly above the learner's current language ability, encouraging them to learn naturally (Gong, 2023). Duolingo, with its structured level system, provides gradual input appropriate to the user's ability development, ensuring that learning occurs progressively and continuously.

Moreover, the Task-Based Language Learning approach, which emphasizes learning through the use of language in various real-life tasks (Mulyadi et al., 2021), is also applied in Duolingo. Users do not just learn vocabulary and grammar separately but apply them in various exercises resembling real-life situations. Duolingo helps users not only memorize but also practically and contextually use the language. This effectively and naturally enhances their communication skills, adhering to the main principles of modern language learning theories.

## CONCLUSION

Among the many foreign language learning applications available, Duolingo can be the primary choice for anyone seeking effective and enjoyable learning. Since its inception in 2012, Duolingo has met international foreign language learning standards set by the American Council on the Teaching of Foreign Languages (ACTFL). Each proficiency level in the Duolingo application represents the standards set by ACTFL; Distinguished for the highest level or "I can discuss most topics in detail"; Superior for the level below or "I can talk about various topics"; Advanced for the intermediate level according to Duolingo or "I can have basic conversations"; Intermediate for the next level or "I know some common words"; and Novice for the lowest level or "I'm new to Arabic". With these proficiency levels, Duolingo ensures that every learner can study languages progressively according to their language skills. With a well-planned structure and the use of ACTFL standards, Duolingo not only offers easy access and an enjoyable learning experience but also guarantees high-quality learning. Furthermore, the results of this study can serve as an academic trigger for Arabic language education practitioners to develop more effective, progressive, and accelerated learning methods.

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