

# Can Duolingo Reduce Speaking Anxiety: A Literature-Based Analysis

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## Abstract

The article investigates whether Duolingo, a widely used mobile language learning application, helps language learners to overcome their speaking anxiety. The research combines discoveries from three fields of study: pedagogical psychology, educational technology research, and second language acquisition theory to assess how Duolingo's design features impact the main causes of speaking anxiety. The study shows that Duolingo provides some anxiety-reducing benefits through its private low-stakes practice space but the system fails to deliver authentic speaking practice and development of actual communicative skills.

**Keywords:** speaking anxiety, Duolingo, mobile language learning, computer-assisted language learning, affective filter, gamification, second language acquisition

## INTRODUCTION

Speaking anxiety represents one of the most pervasive psychological barriers in second language acquisition, affecting learners across proficiency levels and educational contexts [1]. The phenomenon develops through three emotional states which include apprehension and worry and fear, creating a language learning barrier which research studies have shown to hinder effective language acquisition [2]. The anxiety manifests through various symptoms which include physiological responses that show increased heart rate and sweating and cognitive disruptions that create mental blocks and memory lapses and behavioral patterns that lead to speaking opportunity avoidance. Traditional classroom environments because they require students to perform in front of others lead to increased anxiety for students who need perfect results and those who feel anxious about their classmates' assessment of them [3].

The growth of mobile language learning applications during the past few years has created new ways to help students overcome emotional challenges in their language studies. Duolingo, which started in 2011 and now has more than 500 million users worldwide, stands as the most

popular language learning application because it uses gamification, adaptive algorithms, and microlearning methods to help users develop language skills [4]. The application design focuses on making learning materials accessible for all users while keeping students interested and allowing them to choose their own learning paths which educational psychology research shows will help decrease student anxiety.

## METHODOLOGY AND LITERATURE REVIEW

The researchers of this study used systematic literature review methodology to investigate how Duolingo usage affects speaking anxiety levels. The analytical framework draws upon three primary theoretical domains: Krashen's Affective Filter Hypothesis which posits that emotional variables directly influence language acquisition by raising or lowering a metaphorical filter that permits or blocks input processing [5]; self-determination theory as applied to educational technology which addresses how digital learning environments can support or undermine intrinsic motivation and psychological wellbeing [6]; and research on computer-mediated communication (CMC) and its effects on language learner anxiety. The

theoretical foundation for understanding speaking anxiety in second language contexts originates from Horwitz, Horwitz, and Cope's seminal work establishing foreign language anxiety as a distinct phenomenon separate from general anxiety [1]. The research findings show that speaking anxiety negatively affects oral proficiency development which creates a cycle where anxiety stops practice activities that lead to skill acquisition and anxiety responses become more intense because of this cycle [2].

Digital language learning platforms create new anxiety patterns which emerge through multiple different pathways. Research on computer-assisted language learning demonstrates that asynchronous, self-paced environments reduce the immediacy pressure associated with real-time conversation, which enables learners to create their responses without experiencing time-based anxiety that leads to stress reactions [7]. Studies examining learner perceptions of CALL environments consistently report reduced anxiety compared to traditional classroom speaking activities, with participants citing the absence of human observers and the ability to repeat exercises without embarrassment as key anxiety-reducing features [8].

The first benefit of gamification includes its ability to lower anxiety through its system which treats mistakes as standard game elements instead of personal faults while its players receive instant automated feedback which lacks the intense evaluation present in teacher feedback. The system delivers progression through increasing difficulty while its short lesson structure enables students to attain numerous victories which develop their confidence through small accomplishments. The element of competition which includes leaderboards creates additional anxiety for students who experience stress when they need to outperform their classmates, while the need

to sustain streaks creates anxiety about their daily performance [9]. Duolingo uses voice recognition technology for speaking practice evaluation which analyzes pronunciation through its speech-to-text system, allowing students to practice their speaking skills in private. This function theoretically helps students with speaking anxiety because it eliminates the presence of human listeners but keeps all elements which require speaking practice. The method requires careful analysis because it contains multiple major flaws. The algorithmic evaluation system evaluates phoneme and word pronunciation accuracy while it does not measure how well people communicate or their prosodic features or their ability to speak appropriately in various situations [10].

## **RESULTS AND DISCUSSION**

Analysis of the compiled literature suggests a nuanced answer to whether Duolingo can reduce speaking anxiety, requiring distinction between different anxiety dimensions and recognition of the application's scope limitations. Evidence supports the conclusion that Duolingo-type platforms can effectively reduce certain forms of speaking anxiety while potentially leaving others unaddressed or even introducing new anxiety sources. The private, self-paced nature of the application demonstrably addresses evaluation apprehension and social comparison anxiety. Learners who experience severe anxiety in classroom speaking activities report feeling more comfortable practicing pronunciation through the application's voice recognition exercises, as the absence of peer observers and the non-judgmental nature of algorithmic feedback creates a psychologically safer practice environment [7]. This finding aligns with self-determination theory's emphasis on competence support and autonomy provision as anxiety-reducing factors in learning environments. Duolingo's design

allows learners to control their practice pace, repeat exercises without social consequences, and progress according to individual readiness rather than external scheduling pressures, all of which support psychological safety.

However, the anxiety reduction achieved through these mechanisms may represent what could be termed "practice anxiety" rather than "communication anxiety." The former relates to discomfort with language practice activities themselves—fear of making errors, concern about pronunciation accuracy, worry about teacher or peer judgment during practice exercises. The latter encompasses apprehension about authentic communicative situations where meaning negotiation, unpredictable interaction patterns, and real-world social consequences come into play. Duolingo's effectiveness in reducing practice anxiety does not necessarily transfer to communication anxiety reduction, as the application provides limited opportunities for the authentic, synchronous, human-mediated interaction that triggers the most severe speaking anxiety for many learners. The voice recognition exercises, while offering oral production practice, lack the key elements that make real conversation anxiety-inducing: unpredictability, real-time processing demands, social relationship implications, and communicative urgency [10].

Furthermore, research examining long-term effects of exclusive or primary reliance on app-based learning suggests potential anxiety displacement rather than resolution. Learners who develop proficiency through Duolingo but lack parallel experience with human interaction may experience heightened anxiety when eventually required to speak in authentic contexts, having developed linguistic knowledge without corresponding communicative confidence [9]. This phenomenon reflects the distinction between controlled practice

in low-anxiety environments and variable practice that gradually introduces the very elements that trigger anxiety in managed doses. Effective anxiety reduction in language learning requires not only safe practice spaces but also systematic desensitization through progressively challenging communicative experiences, an element that mobile applications struggle to provide.

The gamification elements present additional complexity in the anxiety analysis. While game-based learning can reduce anxiety through playfulness and error normalization, competitive features may introduce performance pressure that resembles traditional classroom anxiety. Learners who become invested in maintaining streaks or ranking highly on leaderboards report experiencing stress and obligation around application usage [4]. This gamification-induced anxiety differs qualitatively from speaking anxiety but still represents an affective barrier that can undermine the learning experience and potentially create associations between language practice and stress.

### **CONCLUSION**

The question of whether Duolingo can reduce speaking anxiety requires a qualified affirmative response with important caveats. The application demonstrates capacity to reduce specific dimensions of speaking anxiety, particularly evaluation apprehension and practice-related stress, through its private, self-paced, non-judgmental learning environment. For learners whose speaking anxiety primarily stems from fear of peer judgment or teacher criticism, Duolingo offers a viable practice space that can build initial confidence and phonological skills without triggering these specific anxiety sources. However, the application cannot comprehensively address speaking anxiety in its fuller sense, as it provides limited authentic communicative practice and may

inadvertently allow learners to avoid rather than overcome the interpersonal interaction elements that constitute the core of communication anxiety. The most pedagogically sound approach likely involves integrated use of applications like Duolingo as supplementary tools for low-anxiety skill building alongside systematic exposure to progressively challenging communicative situations with human interlocutors. Future research should examine longitudinal anxiety trajectories of learners using mixed approaches versus app-only or classroom-only methods, investigate transfer effects from app-based confidence to real-world communicative contexts, and develop hybrid learning models that strategically sequence technological and interpersonal practice opportunities to optimize both skill development and anxiety management.

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