

Students' Language Production in Duolingo-Based Learning: A Qualitative Study in Mobile-Assisted Language Learning Context

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ABSTRACT

Second language learning is a complex process involving cognitive, linguistic, and social dimensions, particularly within the framework of Second Language Teaching (SLT), which emphasizes a balance between linguistic accuracy and communicative language use. In recent years, mobile-assisted language learning (MALL) has significantly influenced learning practices by enabling flexible access to materials beyond the classroom and increasing learners' exposure to the target language. One widely used application in this context is Duolingo, which provides structured, pattern-based exercises to improve vocabulary and grammatical accuracy. However, previous studies have primarily focused on learning outcomes, with limited attention to how learners produce language after engaging with such exercises. This study aims to analyze students' language production abilities following their interaction with Duolingo. It employed a descriptive qualitative approach with a process-oriented classroom observation design involving two junior high school students learning English as a foreign language. Data were collected through observation checklists, field notes, and students' language output during and after learning sessions, focusing on grammar, vocabulary, fluency, pronunciation, and coherence. The findings indicate that students were able to produce simple and understandable sentences however, their production remained limited and predominantly reproductive, as reflected in grammatical inaccuracies, restricted vocabulary, and reliance on patterns. Although fluency and pronunciation were relatively adequate in familiar contexts, both participants showed limitations in producing varied and coherent sentences independently, highlighting the need to integrate communicative activities.

Keywords: *Language Production, Duolingo, Second Language Teaching.*

INTRODUCTION

Second language learning is a complex process involving cognitive, linguistic, and social dimensions. Within the framework of Second Language Teaching (SLT), language learning aims not only to develop mastery of linguistic forms but also to enable learners to use language communicatively in real-life contexts. This reflects the primary goal of language education: achieving a balance between accuracy and meaningful language use. In recent years, digital technology has significantly influenced language learning practices, particularly through the emergence of mobile-assisted language learning (MALL), which allows learners to access materials flexibly and increase exposure to the target language.

MALL has evolved from simple content delivery to an approach that supports interaction and active participation in language learning (Kukulska-Hulme & Shield, 2008). Mobile technology enables learners to engage with language input in various

contexts, increasing the frequency of practice and exposure (Stockwell, 2013). This flexibility plays an important role in supporting autonomous learning, especially in contexts with limited classroom time. Furthermore, MALL provides opportunities to enhance learner engagement in the learning process (Viberg & Grönlund, (2012).

One widely used application within MALL is Duolingo, which provides pattern-based exercises such as translation, word matching, and sentence construction. These activities reinforce vocabulary and grammatical structures through repetition, reflecting form-focused instruction in SLT. In addition, Duolingo incorporates gamification elements that increase learner motivation and participation (Shortt et al., 2023). However, increased motivation does not necessarily lead to the development of flexible language production. Previous research indicates that app-based learning is more effective in improving receptive skills than productive language abilities (Loewen et al., 2020).

From a second language acquisition perspective, effective learning requires learners to produce language flexibly and contextually. The output hypothesis highlights the importance of language production in language acquisition (Swain, 2005). Furthermore, the concept of formulaic language suggests that reliance on fixed or semi-fixed patterns may limit learners' ability to generate new utterances independently (Wray, 2002). Similarly, Ellis (2015) emphasizes that effective language learning requires a balance between form-focused practice and communicative language use. Without opportunities for free production, learners tend to recognize patterns without being able to use them flexibly in real communication.

Despite the growing body of research on MALL and applications such as Duolingo, most studies have focused on learning outcomes, particularly vocabulary acquisition and grammatical accuracy. Limited attention has been given to how learners produce language after engaging with pattern-based exercises, especially through direct classroom observation in authentic learning contexts.

To address this gap, this study examines students' language production after interacting with Duolingo in a classroom setting. The observation focuses on learners' ability to imitate, modify, and independently produce sentences. This study aims to analyze how pattern-based mobile learning influences students' ability to produce language and whether it supports or constrains flexible language use.

Second Language Teaching (SLT) is a pedagogical process aimed at developing second language competence through structured and communicative approaches. In its current development, SLT not only focuses on the mastery of linguistic forms but also emphasizes learners' active engagement in the learning process. Learner autonomy has become a crucial aspect, as it enables learners to take control of their learning process and enhances the effectiveness of developing language competence in a sustained manner (Little, 2003). This approach positions learners at the center of the learning process (learner-centered), where learning occurs through practice, experience, and direct engagement in language use.

In practice, SLT encompasses two main approaches form focused instruction and communicative language teaching. Form-focused instruction emphasizes structured practice to improve linguistic accuracy, while communicative approaches focus on the use of language in meaningful, real life contexts. Communicative language teaching has been shown to be effective in supporting the development of language production, as it provides learners with opportunities to actively use language in meaningful situations (Littlewood, 2021).

However, form-focused practice remains essential as a foundation for understanding language structures. Therefore, effective language learning requires a balance between linguistic accuracy and communicative language use.

Duolingo is a widely used mobile-based language learning application within the context of mobile-assisted language learning (MALL). The application adopts pattern-based exercises, such as translation, word matching, and sentence construction, which are designed to reinforce vocabulary and language structures. This approach emphasizes repetition and immediate feedback, making it effective in improving linguistic accuracy.

However, pattern-based learning has limitations in supporting flexible language production, as learners tend to rely on pre-existing structures. Research indicates that mobile-based learning applications, including Duolingo, are more effective in developing receptive skills than independent productive language abilities. Learners are generally able to recognize and understand language structures but experience difficulty in producing varied sentences flexibly (Loewen et al., 2020).

These findings suggest that although Duolingo is effective as a language practice tool, its role in developing independent language production remains limited. Therefore, further research is needed to examine how learners produce language after interacting with pattern-based exercises, particularly in terms of imitation, modification, and independent production.

RESEARCH METHODOLOGY

This study employed a descriptive qualitative approach within the framework of Second Language Teaching (SLT) to analyse students' language production after engaging with pattern-based exercises in a mobile-assisted language learning (MALL) context. This approach was chosen to explore language production processes in a natural setting (Creswell, 2017). The research design used was process-oriented classroom observation, focusing on direct observation of language production during learning activities (Cohen et al., 2002; Ellis, 2015).

The participants consisted of two intermediate-level students learning English as a foreign language. They were selected purposively based on their basic English proficiency, familiarity with mobile devices, and limited experience using Duolingo. The small number of participants allowed for in-depth analysis of individual language production.

The study was conducted in a guided learning setting, where the researcher initially acted as a facilitator and subsequently as a non-intervening observer. The primary instrument was a structured observation checklist focusing on language production, including imitation, modification, and independent sentence production. Grammatical accuracy was also observed to assess the correctness of sentence structures (Wray, 2002; Ellis, 2015).

Data collection was conducted in three stages: treatment, observation, and post-task. During the treatment stage, participants were introduced to the Duolingo application. In the observation stage, they completed exercises such as translation, word matching, and sentence construction for approximately 15 minutes. In the post-task stage, participants were asked to produce sentences independently to assess their language production and the transfer from pattern-based practice.

Data were analysed using the interactive model by Miles, Huberman, and Saldaña (2014), including data reduction, data display, and conclusion drawing. To

ensure validity, structured observation indicators and systematic data recording were applied (Creswell, 2017). All participants were informed about the study and participated voluntarily.

FINDING AND DISCUSSIONS

FINDING

The treatment stage was conducted as a preliminary step to introduce the Duolingo application to the participants prior to the observation phase. At this stage, the researcher acted as a facilitator by providing basic instructions on how to use the application, ensuring that all participants had a shared understanding before engaging in the learning activities.

The treatment began with the installation process and an introduction to the main features of Duolingo, including the types of exercises used in this study, such as translation, word matching, and sentence construction. The researcher explained how each activity functions, as well as the feedback mechanisms provided by the application, enabling participants to complete the tasks independently.

A brief demonstration was then provided to illustrate how to complete the exercises, including selecting answers, arranging words into sentences, and responding to on-screen instructions. Participants were given the opportunity to practice using the application with minimal guidance to ensure procedural understanding.

During this stage, the researcher provided assistance only on technical aspects and task instructions, without intervening in participants' language responses. This was intended to preserve the authenticity of the data collected in the subsequent observation stage.

Overall, the treatment stage functioned as a familiarization phase aimed at reducing technical barriers and enhancing participants' readiness. As a result, the data obtained during the observation phase more accurately reflect the participants' actual language production rather than difficulties in using the application.

Table 1. Speaking Performance Analysis of Participants During the Observation Phase.

Aspect	P1 (Participant 1)	P2 (Participant 2)
Grammar	Can form simple sentences fairly well, but still makes mistakes with verb forms, such as "I am go to school".	Demonstrates basic grammar skills, but still makes mistakes with verb forms and tends to mimic the structure of the app.
Vocabulary	Uses appropriate vocabulary to the context, though it remains limited and includes errors such as "Tea or and".	The vocabulary is limited and relies on examples from the app, with little variation in usage.
Fluency	Relatively fluent in speaking familiar sentences, but still shows	Less fluent, appears hesitant, pauses frequently, and

	some hesitation and relies	takes time to think before responding.
Pronunciation	on external assistance. Pronunciation is clear and understandable, though it sounds a bit awkward in some situations.	Pronunciation is fairly clear, but lacks consistency due to factors such as self-confidence and shyness.
Coherence	It can generate two simple sentences, but they are not connected and still rely on the provided pattern.	Able to produce only one sentence without expanding on the idea and showing no effort to develop the concept.

Note: The table summarizes students' language production based on observation checklist, field notes, and language output.

The observation results indicate that the language production abilities of both participants (P1 and P2) remain at a basic level, with varying performance across grammatical competence, lexical repertoire, fluency, pronunciation, and coherence. Overall, their language production is limited to simple sentences with minimal variation.

In terms of grammatical competence, both participants were able to construct basic subject–verb–object sentences; however, they showed inconsistency in verb usage. P1 produced correct sentences such as “*I eat rice every day*” and “*I drink water every day*”, but also incorrect forms such as “*I am go to school*.” Similarly, P2 demonstrated comparable patterns, producing sentences with verb form errors and relying heavily on structures provided by the application. These findings suggest that while both participants understand basic sentence patterns, they are not yet able to apply grammatical rules consistently.

Regarding lexical repertoire, both participants demonstrated limited vocabulary use, largely derived from the application. P1 used contextually appropriate words but made errors in word selection, such as “*Tea or and*.” In addition, incorrect lexical forms, such as using “*go*” instead of “*going*,” indicate limitations in lexical accuracy. P2 used a limited range of vocabulary, including words such as “*tea*,” “*coffee*,” and “*welcome*,” but showed minimal variation across contexts.

In terms of fluency, P1 demonstrated relatively smooth speech in familiar expressions, although minor hesitation and reliance on external support were observed. In contrast, P2 exhibited lower fluency, characterized by frequent pauses, hesitation, and longer processing time before producing responses. P2 also showed inconsistent attention during language production.

For pronunciation, both participants produced generally intelligible speech. P1 showed no major pronunciation errors, although slight awkwardness was observed. P2

also demonstrated understandable pronunciation, particularly for frequently practiced vocabulary, although confidence issues appeared to affect consistency.

In terms of coherence, both participants showed limitations in developing ideas. P1 was able to produce two sentences; however, they

were not logically connected and remained dependent on given patterns. P2 produced only one sentence without further development, showing no attempt to expand ideas.

Overall, the findings indicate that both participants possess basic language production abilities; however, their output remains limited, simple, and lacks structural variation and independent idea development.

DISCUSSIONS

The findings of this study indicate that the use of Duolingo in a mobile-assisted language learning (MALL) context contributes to the reinforcement of linguistic forms but does not optimally support the development of flexible language production. This is reflected in the participants' tendency to produce sentences that rely heavily on previously

learned patterns. Their language output is predominantly reproductive rather than generative, suggesting that pattern-based exercises shape how learners process and produce language.

In terms of grammatical competence, errors such as "I am go to school" indicate that learners have not yet mastered the consistent application of grammatical rules. Although basic sentence structures are understood, appropriate verb usage remains problematic. From Ellis's (2015) perspective, effective language learning requires the integration of form-focused knowledge and communicative use. Without meaningful production practice, learners tend to recognize patterns without being able to apply them accurately in new contexts.

Regarding lexical repertoire, the limited variation in vocabulary suggests a strong dependence on the input provided by the application. Learners tend to reproduce familiar words rather than use them flexibly across contexts. This finding aligns with Loewen et al. (2020), who argue that app-based learning is more effective in developing receptive skills than productive language abilities.

In terms of fluency, the results show that speaking performance is influenced by familiarity with learned patterns. P1 demonstrated relatively stable fluency in familiar expressions, whereas P2 showed more hesitation and pauses. This suggests that fluency reflects reproduction rather than spontaneous production. In addition, affective factors such as confidence and anxiety also influence fluency.

For pronunciation, both participants produced generally intelligible speech, particularly for frequently practiced vocabulary. This indicates that repeated exposure contributes to phonological development. However, inconsistencies influenced by hesitation and lack of confidence suggest that pronunciation is also affected by affective factors, not solely by practice frequency (Shortt et al., 2023).

The most significant limitation was observed in coherence, where both participants were unable to develop ideas beyond isolated sentences. Their production lacked logical connections between sentences. According to Ellis (2015), effective language production involves not only sentence-level accuracy but also the ability to organize meaning across discourse. This limitation suggests that app-based

learning alone does not sufficiently support

discourse-level development.

Overall, the findings indicate that pattern-based exercises in Duolingo promote the development of formulaic language, where learners rely on fixed structures in language production. This supports Wray's (2002) view that formulaic sequences may enhance fluency but limit flexibility. In this context, learners demonstrate the ability to imitate and repeat, but not to modify or generate new structures independently.

These findings imply that the use of Duolingo should be complemented with communicative activities that encourage free and meaningful language production. Language learning should not rely solely on pattern-based exercises but should also provide opportunities for learners to develop ideas, vary structures, and use language in authentic contexts. Without such integration, there is a risk that learners will develop limited and inflexible language production, highlighting the importance of balancing structured practice and communicative use.

CONCLUSION AND SUGGESTION

CONCLUSION

This study demonstrates that the use of Duolingo in a mobile-assisted language learning (MALL) context supports the development of basic language production; however, it does not optimally foster flexible and independent language use. Both participants were able to produce simple sentences with understandable structures, yet they continued to exhibit grammatical errors, particularly in verb forms, as well as limited vocabulary variation.

The findings further indicate that language production tends to be reproductive rather than generative. Participants frequently relied on patterns provided by the application, showed dependence on external support, and demonstrated limited ability to modify sentence structures. In addition, while fluency and pronunciation were relatively adequate when using familiar expressions, performance was still influenced by hesitation and confidence-related factors.

The most significant limitation was observed in coherence, as participants were unable to develop ideas beyond isolated sentences. Their language production lacked logical connections between ideas, suggesting that application-based learning alone does not sufficiently support more complex communicative competence.

Overall, the findings confirm that pattern-based exercises in applications such as Duolingo are effective in reinforcing recognition of language structures but may constrain flexibility in language production if not balanced with communicative practice. Therefore, the use of mobile learning applications should be complemented with activities that promote free language production, enabling learners to develop more varied, contextualized, and communicative language abilities.

SUGGESTION

1. English teachers are encouraged to use Duolingo as a supplementary learning tool and combine it with communicative activities, such as discussions or role-plays, to promote more flexible language production.
2. Students are encouraged to practice using English beyond Duolingo exercises by producing their own sentences and participating in speaking activities to

improve their productive language skills.

3. Future researchers are recommended to conduct similar studies with a larger number of participants, different educational contexts, and longer observation periods to obtain more comprehensive findings on the impact of Duolingo on language production.

4.

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