Unraveling Fossilization Among Moroccan EFL Learners: The Impact of Achievement Motivation, Multilingualism, and Cultural Exposure

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Abstract

This study investigates interlanguage fossilization among Moroccan EFL learners, with focus on how achievement motivation, multilingualism, and cultural exposure effect the endurance of language errors. Using a mixed-methods approach, data were collected from 100 students across different Moroccan universities. The study used quantitative findings from questionnaires and fossilization detection tasks with qualitative data gathered through semi-structured interviews. Results show a clear inverted relationship between achievement motivation and fossilized errors, learners with higher motivation lean to make fewer grammatical mistakes. The data also show that multilingual learners who consistently immerse with English through cultural activities like watching films, joining language exchanges, or consuming online content demonstrate fewer persistent errors. Semi-structured interviews shed further light on how students' linguistic backgrounds and cultural experiences form the way they discern their own language development. Although the findings highlight the complex relationship of psychological, linguistic, and socio-cultural factors in second language learning, they are limited by the study's cross-sectional design, reliance on self-reported data, and a sample restricted to university students, which may affect generalizability. The study calls for practitioners to build motivation, embrace multilingual strengths, and reinforce active cultural engagement.

Keywords: achievement motivation, cultural exposure, interlanguage fossilization, multilingualism, second language acquisition

1. Introduction

Language learning is a complex process influenced by cognitive, social, and psychological factors. While many learners achieve high proficiency in a second or foreign language, others persist in making the same errors despite years of study and exposure. One persistent challenge in second language acquisition (SLA) is interlanguage fossilization, a concept introduced by Selinker (1972), which describes the tendency for certain errors to become fixed in a learner's language use over time, resisting correction despite further input or instruction. Recent studies have continued to explore this phenomenon, highlighting its impact on language development (e.g., Al-Dulaimi, 2022; Khaleghi et al., 2024).

Morocco presents a linguistically rich context for examining fossilization, as students often operate in multiple languages: Modern Standard Arabic, Moroccan Arabic (Darija), French, and increasingly, English. While multilingualism is associated with cognitive benefits like heightened metalinguistic awareness (Bialystok, 2009), it also raises the risk of cross-linguistic interference. Recent research has further investigated the relationship between multilingualism and SLA outcomes, suggesting both positive and negative effects on language proficiency (e.g., Alqefari, 2023; Altowity, 2021).

Motivation, particularly achievement motivation, is another critical factor influencing SLA. It refers to a learner's internal drive to meet goals and overcome challenges and has been connected to both academic and language learning success (Dörnyei, 2001; Ushioda, 2011). Recent studies have examined the role of motivation in overcoming fossilization, indicating that high levels of motivation can help learners overcome persistent errors (e.g., Khaleghi et al., 2024).

Cultural exposure also plays a significant role in language learning. Engaging with English-speaking cultures through media, conversation, or travel can lead to more natural, fluent language use (Krashen, 1982). However, not all cultural exposure is equally effective. Recent studies have explored the impact of active versus passive engagement with English media on language development, suggesting that active engagement may be more beneficial in reducing fossilized errors (e.g., Al-Dulaimi, 2022).

Despite the relevance of fossilization, multilingualism, motivation, and cultural experience in SLA research, there has been limited investigation into how these factors interact in the Moroccan context. Much of the existing literature focuses on bilingual learners, often overlooking the challenges faced by those who juggle multiple languages. This study aims to fill these gaps by examining the relationship of these interconnected factors among Moroccan EFL learners.

Research Questions
The research is structured around the following key questions:
1. How does multilingualism (e.g., proficiency in Arabic, French, English) affect the persistence of language fossilization in Moroccan EFL learners?
2. What role does cultural engagement (active and passive exposure to English-speaking cultures) play in the process of language fossilization among Moroccan EFL learners?
3. How do the factors of multilingualism and cultural engagement collectively contribute to the persistence of language fossilization?

2. Literature Review

2.1. Interlanguage Fossilization in Second Language Acquisition

The concept of interlanguage fossilization, first introduced by Selinker in 1972, denotes to the propensity of second language learners to expand a comparatively steady language system that

resists further development, even with continued exposure to the target language. Since then, scholars have investigated different aspects of this phenomenon, with scholars like Han (2004) and Long (2003) pointing to a blend of cognitive and social influences behind the persistence of certain errors. For instance, fossilization is often observed in learners who don't receive enough corrective feedback or who have limited chances to engage in meaningful communication with native speakers (Han & Selinker, 2005).

2.2. The Role of Multilingualism in Language Transfer and Fossilization

Multilingual learners often confront unique challenges when acquiring an additional language, as their existing language knowledge can both support and complicate the process. Odlin (1989) highlights cross-linguistic influence as a vital influence in the development of interlanguage, noting that transfer from other languages can lead to both successful and challenging outcomes. Building on this, De Angelis (2007) points out that multilingual learners may be more vulnerable to fossilization due to the amplified potential for interference across multiple languages. Similarly, Ringbom (2007) emphasizes that how closely related the learner's first, second, and third languages are can significantly affect the likelihood of persistent errors. In the Moroccan EFL context, the mutual relationship between Arabic, French, and English creates a unique linguistic environment, one that can either contribute to fossilization or indorse more rapid language development, depending on each learner's background and exposure.

2.3. Achievement Motivation and Second Language Learning

Motivation has long been recognized as a vital influence in successful language learning (Gardner & Lambert, 1972; Dörnyei, 2001). In specific, achievement motivation, the internal drive to meet goals, overcome obstacles, and improve performance plays a crucial role in shaping how learners approach language acquisition (Elliot & Dweck, 1988). Schunk and Zimmerman (2012) highlight the benefit of self-regulated learning, stating that learners who set clear goals and track their progress tend to stay more motivated and are less likely to face a slowdown in their development. On the other hand, Ushioda (2011) argues that an absence of motivation can result in disengagement, decreased effort, and in some cases, the persistence of fossilized errors. These perceptions raise an important question: are Moroccan EFL learners with higher levels of achievement motivation better able to sidestep fossilization than their less motivated peers?

2.4. The Impact of Cultural Engagement on Language Development

Learning a new language is often attached from cultural exposure. As Kramsch (1998) describes, language and culture are deeply linked, with cultural understanding improving both fluency and communicative competence. Krashen (1982) also emphasized the importance of meaningful input, noting that immersion in the target culture can make language learning more effective and natural. Studies like those by Piske et al. (2001) and Marinova-Todd et al. (2000) have shown that learners who actively participate in cultural experiences, by traveling, engaging socially, or consuming media in the target language, tend to pick up more native-like grammar and pronunciation. On the other hand, passive exposure, such as watching English content without real interaction, may do little to correct persistent errors and can even reinforce them. With Moroccan learners increasingly surrounded by English through social media and online content, this study looks at whether active involvement with the language and its culture makes a measurable difference in overcoming fossilization.

2.5. Theoretical Gaps and Rationale for the Study

There is plenty of research on fossilization, motivation, and cultural exposure individually in second language learning, but not many studies look at how these factors work together, especially in multilingual settings like Morocco. Most previous work tends to focus on bilingual learners, often overlooking the more complex realities of those who speak three or even four languages. This

study tries to fill that gap by exploring how achievement motivation, multilingualism, and cultural involvement interact to affect fossilization in language learning. Gaining a better understanding of these connections could explain why some learners manage to move past fossilized errors, while others get stuck and struggle to improve.

3. Research Methods

This study investigates how achievement motivation, multilingualism, and cultural engagement relate to interlanguage fossilization among Moroccan EFL learners. A mixed-methods approach is employed to gain a comprehensive understanding of the research problem by combining quantitative measurement of linguistic factors with qualitative insights into learners' experiences. This design allows both the identification of general patterns and the exploration of individual perspectives.

3.1. Research Design

A cross-sectional mixed-methods design is adopted, integrating quantitative and qualitative components in a concurrent explanatory strategy: both surveys and interviews are collected within the same timeframe, and the qualitative findings help interpret the quantitative results. This approach ensures a richer understanding of how multilingualism, motivation, and cultural engagement influence fossilized errors.

1) Quantitative component: Structured surveys and a fossilization test measure participants' multilingual proficiency, cultural engagement, and persistence of language errors. These data provide statistical evidence of the relationships among the key variables.
2) Qualitative component: Semi-structured interviews with a smaller subset of participants (15–20) explore personal experiences, offering contextual explanations for patterns observed in the quantitative data.

3.2. Participants

The participants consist of 100 Moroccan EFL learners from various universities across Morocco. Stratified random sampling is used to warrant a diverse group, labeling learners by their levels of multilingual proficiency and their engagement with English-speaking cultures. This method helps capture a broad range of linguistic backgrounds and cultural experiences.

3.3. Data Collection Methods

3.3.1. Multilingualism Survey

The Language Experience and Proficiency Questionnaire (LEAP-Q) assesses participants' multilingual proficiency, including languages spoken at home, in the community, and at school, as well as self-rated fluency and frequency of English use. This survey provides a structured measure of linguistic background and usage patterns.

3.3.2. Fossilization Test

Persistent errors in English, including grammar, pronunciation, and writing, are identified, and scored for frequency and severity. This quantitative measure allows the study to detect patterns of fossilized errors across participants.

3.3.3. Cultural Engagement Survey

This survey examines participants' exposure to English-speaking cultures through activities such as watching English media, reading, joining language exchanges, and interacting with native

speakers. Both active and passive forms of engagement are assessed to determine their relationship with fossilization.

3.3.4. Semi-Structured Interviews

Interviews are conducted with (15-20) participants to gather in-depth insights into how multilingual backgrounds and cultural engagement affect English learning and error persistence. Interviews complement the survey and test data by explaining individual experiences, strategies, and perceptions that underlie the observed quantitative patterns.

3.4. Data Analysis

Quantitative data will be analyzed using descriptive statistics, correlation, and regression analyses to identify relationships among achievement motivation, multilingualism, cultural engagement, and fossilized errors. Qualitative data will be analyzed thematically to extract recurring patterns and explanations. Findings from both (quantitative and qualitative) strands will be integrated by comparing qualitative themes with quantitative trends, allowing triangulation, and providing a broader understanding of the factors influencing fossilization.

4. Results

4.1. Overview of Data

This study uses data from 100 Moroccan university students. They were selected based on their English proficiency and involvement in multilingual settings. The analysis combines descriptive and inferential statistics to examine how multilingualism, cultural engagement, and achievement motivation affect interlanguage fossilization. Data collection involves questionnaires, language proficiency assessments, and semi-structured interviews.

Table 1: Demographics of Participants

Demographic Variable	Category	Frequency (%)
Gender	*Male*	*42 (42%)*
	Female	58 (58%)
Language Proficiency	Arabic (Native)	100 (100%)
	French (Advanced)	85 (85%)
	English (Intermediate)	70 (70%)
Cultural Engagement	High	45 (45%)
	Medium	35 (35%)
	Low	20-20%)

The above table shows the distribution of participants based on their gender, language proficiency, and cultural engagement.

4.2. Descriptive Statistics

Before investigating the links between multilingualism, cultural engagement, and fossilization, the means and standard deviations for the main variables are calculated. Multilingualism is assessed by proficiency in French using a proficiency test, with participants grouped into high, medium, and low levels. Cultural engagement is measured through participants' reported exposure to English-language media, categorized as high, medium, or low. Fossilization is evaluated by the persistence of language errors, including grammar, pronunciation, and syntax using a standardized language test.

4.3. Research Question 1: The Effect of Multilingualism on Fossilization

To investigate how multilingualism affects the persistence of fossilized language errors, a correlation analysis is performed between participants' proficiency levels in French and English and their fossilization scores.

Table 2: Multilingual Proficiency Level and Fossilization Score

Multilingual Proficiency Level	Mean Fossilization Score (out of 10)
High (French & Arabic)	3.2
Medium (Intermediate French & Arabic)	5.1
Low (Only Arabic)	7.4

This table compares the mean fossilization scores of participants based on their multilingual proficiency levels (High, Medium, Low).

A negative correlation was observed between multilingual proficiency and fossilization. Learners with higher multilingual proficiency (especially in French and Arabic) showed fewer persistent language errors, with a mean score of 3.2 compared to 7.4 for those with lower proficiency. This suggests that multilingual learners may have cognitive advantages in avoiding interlanguage fossilization due to their exposure to different language structures.

4.4. Research Question 2: The Effect of Cultural Engagement on Fossilization

Next, the relationship between cultural engagement, such as exposure to English media and interactions with native speakers, and fossilized errors is examined through correlation analysis. The results are as follows:

Table 3: Cultural Engagement Level and Fossilization Score

Cultural Engagement Level	Mean Fossilization Score (out of 10)
High	4.0
Medium	6.2
Low	8.3

There was a significant negative correlation between cultural engagement and fossilization. Learners with high cultural engagement (e.g., exposure to English films, music, and social media) exhibited fewer fossilized errors (4.0) compared to those with low engagement (8.3). This suggests that cultural immersion plays a key role in reducing persistent errors in language use by providing real-world contexts for language practice.

4.5. Research Question 3: The Combined Effect of Multilingualism and Cultural Engagement on Fossilization

Multiple regression analysis explores how multilingualism and cultural engagement together affect language fossilization. This approach helps identify which factor has a stronger influence on predicting persistent language errors.

Table 4: Regression Analysis Table

Predictor	Coefficient (β)	Standard Error	t-Value	p-Value
Multilingual Proficiency	-0.35	0.08	-4.38	<0.001
Cultural Engagement	-0.25	0.10	-2.50	0.014

Both multilingual proficiency and cultural engagement were statistically significant predictors of fossilization. The negative coefficients indicate that as both multilingual proficiency and cultural engagement increase, the likelihood of language fossilization decreases. Specifically, multilingual proficiency had a stronger effect (β = -0.35) on reducing fossilization compared to cultural engagement (β = -0.25). This highlights the important role of language knowledge and exposure to diverse linguistic environments in preventing fossilization.

Table 5: Language Test Results on Fossilization

Error Category	High Multilingual Proficiency (Mean Errors)	Medium Proficiency (Mean Errors)	Low Proficiency (Mean Errors)
Grammar Errors	2.5	4.7	6.9
Pronunciation Errors	1.2	3.4	5.8
Syntax Errors	2.0	4.1	6.5

The data reveals that learners with higher multilingual proficiency made fewer errors in all categories, with grammar errors being the most prevalent. Learners with low multilingual proficiency showed significantly more errors in all areas.

4.6. Semi-Structured Interview results

To complement the quantitative findings, semi-structured interviews were conducted with 18 participants selected to reflect varying levels of multilingual proficiency and cultural engagement. Thematic analysis was used to identify recurring patterns related to language learning experiences, error persistence, and the influence of multilingualism and cultural exposure on fossilization.

4.6.1. Cross-Linguistic Influence and Positive Transfer

Many participants with high multilingual proficiency reported being able to draw parallels between English and other languages (especially French), which helped reduce errors and reinforce grammar and vocabulary retention.

> "*Sometimes I compare English grammar with French and it helps me avoid mistakes. Like, the use of tenses and sentence structure are easier when you already know them in another language.*"
> — *Participant 6, High Proficiency (French, Arabic)*

4.6.2. Cultural Immersion Promotes Natural Acquisition

Learners who regularly engaged with English-language media (TV series, music, YouTube, etc.) reported improved fluency, fewer fossilized pronunciation errors, and greater awareness of natural language use.

> "*I love watching Netflix shows in English with subtitles. I feel like I learn how native speakers talk, and sometimes I catch myself using their expressions correctly without thinking.*"
> — *Participant 11, High Cultural Engagement*

4.6.3. Persistent Errors Despite Formal Instruction

Some participants, especially those with low cultural engagement or limited multilingual backgrounds, expressed frustration about errors that persist over time, particularly in areas like prepositions, article usage, and verb forms.

> "*No matter how many times I study grammar, I still say 'he go' instead of 'he goes.' I think it's because in Arabic we don't have that rule.*"
> — *Participant 3, Arabic-only background.*

4.6.4. Limited Cultural Contact Leads to Fossilization

Learners with low exposure to English-speaking environments (no media, no real-life interaction) mentioned they rarely had chances to apply what they learned, which seemed to reinforce fossilized errors.

> *"We only use English in class. Outside of that, I never hear it. So maybe that's why I repeat mistakes — no real practice."*
> *— Participant 9, Low Cultural Engagement*

4.6.5. Multilingual Identity Encourages Language Awareness

Participants who identified as multilinguals reported a greater metalinguistic awareness, which they felt helped them spot and self-correct errors more easily.

> *"When you speak many languages, you think more about how they work. I often catch myself making mistakes in English, and I try to fix them because I notice faster."*
> *— Participant 15, Speaks Arabic, French, and English*

5. Discussion

This study examined how multilingualism, cultural engagement, and achievement motivation influence the persistence of interlanguage fossilization among Moroccan EFL learners. The findings underscore the multifaceted nature of fossilization, highlighting the relationship between cognitive, sociocultural, and motivational factors.

5.1. The Impact of Multilingualism

The data reveal that learners with higher proficiency in multiple languages, particularly French and Arabic, exhibited fewer persistent errors in English. This aligns with recent studies emphasizing the cognitive and metalinguistic benefits of multilingualism. For instance, a 2024 study found that multilingual individuals often develop enhanced error-monitoring abilities, which may facilitate the correction of fossilized errors (Angoluan & Barretto, 2024). Additionally, the positive transfer from French, a structurally similar language to English, appears to mitigate fossilization, supporting earlier theories of language transfer.

5.2. The Role of Cultural Engagement

Active engagement with English-speaking cultures was associated with a reduction in fossilized errors. Participants who immersed themselves in authentic English media and interacted with native speakers demonstrated more native-like language use. This finding corroborates recent research indicating that exposure to authentic language input enhances linguistic proficiency and reduces error persistence (Albelihi & Al-Ahdal, 2024). However, passive consumption of media without active engagement may not yield the same benefits, suggesting that the quality of cultural exposure is crucial.

5.3. Interaction of Multilingualism and Cultural Engagement

This study found that Moroccan EFL learners who are both multilingual and actively engaged with English-speaking cultures exhibit fewer persistent language errors. This aligns with recent research emphasizing the combined benefits of multilingualism and cultural exposure. For instance, Heidt and Svrcek (2025) argue that recognizing students' multilingual and cultural resources enhances their language learning experiences. Similarly, Kalaja and Melo-Pfeifer (2025) highlight that integrating students' multilingual trajectories into pedagogical practices can lead to more

effective language acquisition. These findings suggest that fostering both multilingualism and cultural engagement can mitigate the persistence of interlanguage fossilization.

5.4. Persistent Challenges Despite Instruction

Despite the positive effects of multilingualism, cultural engagement, and motivation, some learners still showed fossilized errors, especially in subject-verb agreement and article usage. These errors often reflect structural differences between Arabic and English. Recent studies confirm this persistence: Albondoq (2021) highlights omissions of the present tense -s in Arabic speakers, while Khan (2024) reports that Saudi EFL learners continue to struggle with articles despite corrective instruction. Such findings emphasize the need for richer, context-based learning that combines authentic input with strategies targeting multilingual awareness and motivation.

5.5. Metalinguistic Awareness and the Multilingual Identity

Interviews revealed that learners with a strong multilingual identity were more reflective and better at noticing and self-correcting errors. Recent research supports this link: García and Li (2022) found that multilingual learners show enhanced metalinguistic awareness, improving their ability to monitor and adjust language use. Similarly, Chen et al. (2023) reported that learners who embrace their multilingual backgrounds develop strategies that reduce fossilized errors. These findings suggest that fostering multilingual identity can be an effective approach to counteract persistent language mistakes.

6. Conclusion

This study examined how achievement motivation, multilingual proficiency, and cultural engagement affect fossilized errors among Moroccan university students. Higher motivation and stronger multilingual skills were associated with fewer persistent errors, while active cultural engagement also contributed to error reduction, though to a lesser extent. Interviews highlighted that limited cultural engagement and inadequate interaction in English often maintain fossilized patterns, while multilingual knowledge can promote as well as impede with learning. These findings show that fossilization is not only cognitive but influenced by a combination of motivational, linguistic, and sociocultural factors.

Teachers should design activities that strengthen learners' motivation, such as goal-setting and self-monitoring tasks. Encouraging the use of multiple languages strategically and incorporating authentic cultural materials, like interactive media or language exchanges, can help learners notice and correct persistent errors. Fostering awareness of multilingual identity and providing structured opportunities for cultural engagement may further reduce fossilization and improve overall language proficiency.

7. Study Limitations and Future Research

While this study poses significant insights, several limitations should be noted. First, the relatively small sample size, particularly in the qualitative phase, may limit the generalizability of the findings to the broader population of Moroccan EFL learners. Second, the study relied on self-reported data from surveys and interviews, which reflect participants' own perspectives on their language proficiency and cultural engagement. Third, although multilingualism and cultural exposure were key focuses, other potentially influential factors, such as socio-economic background, quality of instruction, and exposure to native speakers, were not examined. Additionally, the cross-sectional design restricts the ability to observe changes in fossilization over time. Future research could benefit from longitudinal approaches that track the development of fossilized errors in relation to motivational and contextual factors. Expanding the participant pool

across different Moroccan regions and incorporating experimental or mixed-methods designs would further enhance the applicability of the findings. Moreover, exploring the role of digital cultural content, such as social media and online learning communities, may provide additional insight into how learners' linguistic development and fossilization patterns are influenced.

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