"Lon Ureung Aceh Check!": Social Media Gamification for Acehnese Language Maintenance among Digital Natives

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Abstract

The use of the Acehnese language among Acehnese youth has declined significantly due to globalization, reduced intergenerational transmission, and the dominance of national and global languages in everyday and digital communication. This paper proposes the use of local language gamification on social media as an innovative approach to maintain local languages among younger generations who are known as digital natives. The project integrates game-like interaction through an Instagram quiz filter that combines visual play with speech recognition. Conceptually developed using Meta Spark AR Studio, the design challenge users to pronounce Acehnese words correctly in order to advance through fun, culturally themed levels. The gameplay consists of three levels: everyday expressions (e.g., Peu haba?, Haba get, Jeut), polite phrases (e.g., Teurimong geunaseh, Meu'ah), and cultural idioms (e.g., Phui tuleung, Pajoh jalo toh kapai). Correct pronunciation allows a virtual object to pass through a hole, accompanied by traditional Acehnese sound effects. The design emphasizes accessibility, engagement, and the promotion of cultural identity, demonstrating how lightweight interactive filters can function as tools for micro-learning and community-based language maintenance. Overall, this study highlights the potential of AI-supported gamified media as a creative, low-barrier strategy for preserving and promoting minority languages in the digital era.

1. Introduction

The rapid digitalization of communication has fundamentally reshaped how younger generations acquire, use, and value language. 'Digital natives', or those born and raised in the era of smartphones, apps, and social platforms, are highly proficient in navigating global digital cultures. However, they are also increasingly detached from local linguistic traditions. It has been reported that minority languages are declining at alarming rates as global languages dominate educational, economic, and digital domains (UNESCO, 2021). Indonesia, despite being home to more than 700 local languages, faces significant challenges in maintaining linguistic diversity, particularly among youth who predominantly use Indonesian or English, both in online and offline spaces (Lauder, 2019).

Acehnese language, the native language of Acehnese people in Sumatra Island, Indonesia, is no exception. Urban youth in Aceh show a decreasing tendency to speak or even understand the language (Idaryani & Fidyati, 2022a), which signals a weakening intergenerational transmission.

At the same time, social media platforms continue to evolve into powerful cultural and educational spaces. Platforms such as Instagram, TikTok, and YouTube offer multimodal, gamified, and socially engaging content that shapes how young people learn, create, and express identity (Baureh & Neman, 2025; Jian et al., 2025). The rising trend of gamification, defined as the use of game elements such as points, rewards, levels, and challenges in non-game contexts, has shown positive outcomes in learning motivation and user participation (Deterding et al., 2011). When combined with the affordances of social media, gamification can transform everyday interactions into opportunities for micro-learning, reinforcement, and community-based participation.

This paper explores the potential of social media gamification as a strategy for local language maintenance, focusing on the design of an Instagram-based interactive quiz filter featuring Acehnese vocabulary and pronunciation tasks. The concept leverages Instagram's augmented reality (AR) capabilities, particularly those enabled through Meta Spark AR Studio, to create a lightweight, engaging game played through face filters and speech recognition. By embedding vocabulary tasks into visually appealing, culturally themed animations, the project aims to promote Acehnese language awareness and encourage youth participation in language revitalization efforts. In doing so, it contributes to emerging discussions on how digital platforms can support the preservation of minority languages in ways that resonate with digital natives' everyday practices.

1.1 Literature Review
The Decline of Local Languages Among Youth

Intergenerational transmission, where older speakers pass a language on to younger generations, is widely considered the most important factor in whether a language thrives or declines (Caminal et al., 2018; Litaay, Rahawarin, 2023). When everyday language use at home breaks down, especially across generations, linguistic vitality quickly erodes. In Indonesia and elsewhere, this breakdown is frequently linked to urbanization, formal schooling, socio-economic change, and dominant language pressures.

In contemporary Indonesia, most families speak Indonesian (Bahasa Indonesia) or, increasingly, English within domestic and educational settings because these languages carry perceptions of modernity, educational advantage, and economic opportunity (Asmi et al, 2022; Idaryani & Fidyati, 2022b; Pramuniati et al., 2025). As a result, many local languages are no longer used consistently at home, even when parents still understand them. This is a pattern observed in Acehnese communities where parents default to Indonesian when speaking with their children, reducing youth proficiency in the local language over time (Idaryani & Fidyati, 2022a, 2022b).

Recent Indonesian research aligns with this trend, showing that regional languages face steep decline among Generation Z and younger groups, particularly in urban contexts where national and global languages dominate social life and media consumption. Surveys suggest younger speakers increasingly prefer Indonesian or mixed language forms, leaving less space for local voices in everyday communication. A study even noted a significant reduction in the everyday use of regional languages across provinces, with language proficiency among youth declining substantially due to schooling and media influence favoring dominant languages (Samuel, 2025).

Scholars also noted that cultural and technological factors reinforce this shift. Digital media often prioritizes national or global languages rather than regional languages, which further marginalizes local speech communities (Kasiyarno & Apriyanto, 2025; Putra et al., 2025).

Apilianty and Aiqah (2024) also found that the language style on social media has significantly influence youth perception about local languages. The use of slangs, code mixing, code switching, and jargons in popular languages such as English have lowered their motivation to learn or use local languages because the social media language style is considered more trendy, relevant, expressive, and inclusive.

Without strategic interventions that resonate with youths' interests and digital habits, these declines are likely to continue. It has been argued that preserving linguistic diversity requires not only documentation and formal curricula, but creative, youth-focused strategies that embed local languages into the digital spaces where young people already live and socialize (Astuti et al., 2025; D.R. & Susanti, 2025).

Digital Natives and Learning Through Social Media

Today's youths, often called digital natives, integrate social media into nearly every aspect of daily life. These platforms are not merely entertainment venues; they have become sites of learning, identity formation, and cultural negotiation. Social media excels at multimodal communication, combining text, audio, visuals, and interactive feedback, aligning closely with how younger users prefer to engage and learn. Prior research on digital platforms highlights that youth use these spaces to pick up vocabulary, cultural norms, and expressive skills through memes, short clips, interactive challenges, and community interactions (Baureh & Neman, 2025).

What makes social media especially relevant for language work is its user-generated nature. Young people are not passive recipients. They create trends, remix content, and invent new linguistic forms. This dynamic environment supports informal learning pathways, where users absorb and experiment with language features outside formal classroom contexts. For example, interactive features such as hashtags, duet challenges, and audio clips on platforms like TikTok and Instagram encourage active participation, which often incorporate creative word play, local slang, and cross-cultural linguistic blends that resonate with digital native identities (Turnip et al., 2025).

However, some research also highlights a downside: digital spaces tend to amplify dominant languages and informal hybrid forms (e.g., slang or code-mixing) (Akbar et al., 2025; Umaroh, 2025), which can diminish engagement with less widely used local languages unless content is intentionally created to valorize and circulate them. What is more worrying is that the locals did not see such shift in communication patterns as a threat, but more as a result of language creativity.

This dual nature makes social media a critical but complex arena for language revitalization. It can widen reach and visibility but also inadvertently reinforce language hierarchies and even further communication pattern change unless strategically harnessed for local contexts.

Gamification and Micro-Learning

Gamification, which refers to the use of game-like elements in non-game contexts, has gained traction in education because it increases motivation, supports sustained engagement, and reinforces repetition, all of which are key ingredients in language learning (Hamari et al., 2019). When learning is structured as an interactive challenge with instant rewards, learners often persist longer and feel psychologically invested in progress.

Micro-learning (short, highly focused learning episodes) fits naturally with how modern learners consume digital content. Short quizzes, daily vocabulary prompts, bite-sized explanations, and flashcards align with social media usage patterns, which favor rapid, continuous interactions rather than long, sustained study sessions. Dinihari et al.'s (2025) research on micro-learning shows that breaking content into small chunks enhances retention and reduces cognitive overload, making it especially effective for mobile and leisure contexts.

In Indonesia, Pardede & Prizilla (2025) has conducted research on gamified language interfaces, such as UI/UX designed for local language learning apps. They discovered that youth respond positively to game elements that reflect their lived experience, such as story-based levels, rewards, and visually appealing design tailored to their cultural context.

Importantly, gamification on digital social platforms does not just entertain, but also embeds learning into habitual behavior. Users absorb vocabulary in the course of daily browsing, rather than viewing language

practice as separate from leisure or social interaction. This seamless blend of play and learning has made gamification a cornerstone of many contemporary language learning tools.

Augmented Reality (AR) and Language Learning

Augmented Reality (AR) overlays digital content on the real world, which creates interactive and contextually rich experiences that enhance engagement. In education, AR has been found to foster learner motivation, positive attitude, learning satisfaction, learning effectiveness, increase recall, and provide immersive contexts for practicing language skills such as grammar, reading comprehension, and vocabulary acquisition (Punar Özçelik et al., 2022; Marrahi-Gomez & Belda-Medina, 2023).

Recent developments on AR with user-friendly authoring AR toolkits such as Meta Studio, have democratized AR design, enabling educators and communities to build interactive filters and lenses without prior programming knowledge (Dengel et al., 2022). It accommodates a wide range of media formats, including static and animated 3D models, 2D visuals, 360-degree images and videos, audio files, and HTML5-based content such as applications and mini-games. The platform enables object animation through functions such as movement, scaling, rotation, and rigging, and it also supports collaborative project development (Inglobe Technologies, 2021).

These AR tools allow learners to see, hear, and interact with language elements in playful ways, for example, associating words with real-world objects, receiving spoken feedback, and progressing through narrative learning experiences.

Despite promising applications in foreign and second language education, research exploring AR's role in local language preservation is limited. Most studies have been conducted in formal language classrooms or involve commercial learning platforms. However, early work suggests that AR's immersive quality can be particularly effective with younger learners, who are accustomed to visual and experiential learning formats.

In the context of heritage languages, AR can provide situated learning moments, associating words with cultural artifacts, gestures, and environments that carry cultural meaning, not just lexical content. This feature is especially valuable when younger speakers lack daily opportunities to engage with elders or traditional cultural contexts.

Social Media as a Tool for Language Preservation

Global efforts to document and revive minority languages increasingly rely on digital platforms for dissemination and engagement. Initiatives across regions have harnessed platforms such as YouTube, TikTok, Instagram, and others to promote indigenous and regional languages through storytelling, music, challenges, and educational campaigns. These efforts highlight that digital media can support bottom-up, community-driven revitalization by enabling local speakers, especially youth, to shape and share content that expresses their linguistic heritage.

Research across Indonesian contexts supports this perspective. For example, research examining social media use show that platforms can increase interest and participation in local languages when youth are encouraged to create and share content featuring regional vocabulary, cultural narratives, and interactive challenges. Instagram, TikTok, and YouTube become spaces not just for entertainment but for active language engagement and identity performance, strengthening pride and visibility for local cultural expressions (Turnip et al., 2025).

However, it has also been cautioned that digital preservation efforts must be strategically oriented and culturally grounded. Simply transferring traditional content online is not sufficient; successful initiatives integrate local language learning with engaging digital formats that reflect how young people create and consume media today. Oliviatika et al. (2024) emphasize that content should be community-based, interactive, and designed with local cultural values in mind, ensuring that digital preservation goes beyond documentation to active use and normalization among youth audiences.

2. Research Methods

Rationale for Instagram-Based Gamification

Instagram remains one of the most popular platforms among Indonesian youth. It offers visual storytelling and AR filters that naturally attract digital natives. The platform's ease of sharing encourages virality and peer participation, which are crucial for community-based language initiatives. By using Instagram filters, the project reduces barriers to participation because users do not need to download additional apps. Instead, they interact with the game through a familiar interface.

Gamification Structure and Levels

The game consists of three progressive levels, each representing increasing linguistic and cultural complexity:

> Level 1–Easy:
>
> At this level, users will be required to say everyday Expressions, such as Peu haba? ("How are you?"), Haba get ("Fine"), Jeut ("Yes"), Hoe neu jak ("Where are you going?"), Pakon meunan? ("Why is it like that?")
>
> Level 2–Medium:
>
> At this level, users will need to utter polite phrases or culturally important expressions correctly, such as Teurimong geunaseh ("Thank you") and Meu'ah ("Pardon me").
>
> Level 3–Difficult:
>
> At this level, users are challenged to pronounce cultural idioms or deeper expressions, such as Phui tuleng (helpfulness), and Pajoh jalo toh kapai ("Eating nets, but what comes out is ship", referring to people who like to exaggerate, or an advice to speak the truth).

Speech recognition prompts players to pronounce the displayed word or phrase; successful recognition triggers a virtual object to pass through a hole successfully, indicating progress.

Visual and Audio Cues

To emphasize cultural identity, the background uses Acehnese traditional backdrop. Each successful attempt allows an object to a hole and triggers Acehnese sound effects, namely rapai drum rhythms. After all levels are passed, seulangke melodies will turn on to get the players familiar with Acehnese music.

Development Using Meta Spark AR Studio

Meta Spark AR Studio allows creators to design AR filters with visual triggers, 3D objects, and simple logic scripts. The project integrates Face-tracking overlays, Tap-based interaction, Speech recognition patches, Animation, and Audio playback triggers. The lightweight design ensures accessibility, even for mobile devices with limited processing power.

3. Result and Discussion

The proposed Acehnese pronunciation game is implemented as an Instagram social media filter and integrates traditional Acehnese colours and motifs to create a culturally familiar environment for users (see Figure 1). Each wooden box displayed on the screen contains an Acehnese phrase that users are required to pronounce aloud. The filter employs speech-recognition technology to evaluate pronunciation accuracy. When the pronunciation is correct, the virtual object successfully passes through the hole in the box and continues along the path. Conversely, incorrect pronunciation causes the object to be blocked, encouraging users to repeat the attempt. A countdown timer displayed at the top of the interface introduces a playful challenge element that enhances user engagement. Through this interactive mechanism, the filter combines cultural representation

with game-based interaction, enabling young users to practise Acehnese expressions in a low-pressure and enjoyable digital environment.

Fig 1. Proposed Social Media Game for the Preservation of Acehnese Language Maintenance among Acehnese Youth.

This design strategy is consistent with previous studies indicating that youth demonstrate strong engagement with interactive and game-based digital experiences (Baureh & Neman, 2025; Deterding et al., 2011). Furthermore, data from Statista (2025) indicate that Instagram usage in Indonesia is particularly high among individuals aged 15–34, suggesting strong potential for organic adoption. The filter facilitates micro-learning by providing brief but repeated exposure to Acehnese vocabulary within users' everyday social media activities. Its shareable nature further encourages peer participation, transforming language practice into a social rather than purely instructional activity.

From a sociolinguistic perspective, community-based language maintenance depends heavily on visibility and participation. When young users share stories featuring Acehnese expressions through the filter, they contribute to the normalization of the language within their digital networks. This aligns with findings that digital revitalization initiatives are more effective when they emphasize participatory and community-driven practices (D.R. & Susanti, 2025; Watimelu, 2024). Gamification mechanisms also promote repeated engagement, which increases the likelihood of vocabulary retention and sustained exposure.

Gamification as a Low-Barrier Strategy for Language Maintenance

Gamification has been widely recognized as an effective approach for motivating learners and sustaining engagement. Game-inspired elements such as feedback, challenge, repetition, and progression can enhance attention, memory retention, and willingness to interact with unfamiliar material. Luo's (2023) systematic review demonstrates that gamified language learning tools positively influence learner engagement and encourage repeated practice, although learning outcomes depend on the quality of design and contextual relevance.

For many young users, local languages are often associated with formal instruction and academic pressure, which can generate psychological resistance. In contrast, playful formats such as Instagram filters reduce this barrier by reframing participation as entertainment rather than obligation. Users engage voluntarily because the experience feels enjoyable. This observation is consistent with studies by Disa and Arni (2025) and Zameer (2025), which emphasize that gamification aligns effectively with micro-learning patterns characteristic of digital natives.

In the context of heritage languages such as Acehnese, where structured instruction opportunities are limited, social media filters can function as informal gateways for exposure and repetition. Repeated encounters with short phrases combined with immediate feedback support familiarity and automaticity, both of which are essential for language maintenance. While gamification alone does not ensure advanced proficiency, it plays a critical role in shaping positive attitudes and increasing voluntary engagement, which are foundational for revitalization efforts.

Strengthening Cultural Identity through Digital Media

Language is closely intertwined with identity, serving as a marker of worldview, belonging, and cultural continuity. When young users encounter local vocabulary and cultural symbols embedded within visually appealing and socially relevant digital formats, the language is reframed from being perceived as outdated to becoming expressive and socially meaningful.

This phenomenon aligns with Turnip et al. (2025), who argue that digital natives actively construct identity through online participation. Social media platforms function not only as communication tools but also as spaces for identity negotiation. By embedding Acehnese vocabulary, motifs, and sounds into Instagram's interactive features, the filter allows youth to express cultural affiliation within the digital environments they inhabit daily. This process contributes to the normalization of the language within peer networks, which is essential for countering language marginalization.

Similar patterns have been observed in other contexts. For example, digital communities around endangered languages such as Louisiana Creole have used social media platforms to create spaces for collective learning, cultural affirmation, and identity strengthening (Mayeux, 2024). These cases suggest that digital media can function as powerful instruments for both linguistic and cultural revitalization.

Community Engagement and Virality

A key strength of social media lies in its capacity to amplify participation through network effects. When a young user shares content using the Acehnese filter, the act represents not only individual practice but also a public expression of cultural engagement. Peers who encounter this content may respond, remix, or adopt the filter themselves, generating organic diffusion.

Such dynamics are particularly relevant for language maintenance, which is fundamentally social rather than solely pedagogical. Prior studies have shown that language-based challenges and creative campaigns on platforms such as Instagram and TikTok significantly enhance the visibility of minority languages and stimulate public curiosity (Chew, 2021; Nauvalia & Setiawan, 2022). The mechanisms of likes, comments, and shares provide social reinforcement, making participation emotionally rewarding and reinforcing repeated use. This mirrors the communal practice environments that are widely recognized as essential for sustaining language vitality.

Pedagogical and Technological Contributions

The integration of speech recognition, augmented reality, and gamification offers several pedagogical advantages. Lampropoulos (2022) demonstrates that AR technologies enhance immersion, contextual understanding, and learner motivation by blending digital elements with real-world interaction. In language learning contexts, such immersive experiences can strengthen engagement and facilitate meaningful practice.

Similarly, Al-Khresheh (2025) reports that game-based learning environments can support working memory and attention regulation, both of which are crucial for effective vocabulary acquisition. The use of Instagram's native infrastructure also reduces technical barriers, as users do not need to install additional applications. Immediate feedback within a familiar platform further supports learning by reinforcing correct pronunciation and encouraging repetition. These features make the filter particularly suitable for scalable micro-learning experiences embedded within everyday digital routines.

Limitations and Considerations

Despite its potential, social media gamification should not be viewed as a comprehensive solution for language revitalization. Several limitations must be acknowledged. First, while short, gamified interactions can increase motivation and familiarity, they are insufficient for developing advanced linguistic competence, particularly in grammar and complex discourse. Second, speech recognition systems may struggle with dialectal variation, background noise, and the phonetic complexity of local languages, potentially limiting accuracy. Third, unequal access to reliable internet and compatible devices may restrict participation for some communities.

Most importantly, gamified filters should be positioned as complementary tools rather than replacements for formal education and community-based language initiatives. Long-term language maintenance ultimately depends on supportive educational policies, curriculum integration, intergenerational transmission, and active community engagement. Digital tools such as this filter can enhance visibility and motivation, but sustainable revitalization requires broader structural support.

4. Conclusions

This paper argues that social media gamification, specifically through an Instagram quiz filter integrating speech recognition, offers a promising, low-barrier strategy for maintaining local languages such as Acehnese among digital natives. By combining visual play, audio cues, and culturally meaningful vocabulary tasks, the project supports micro-learning while fostering cultural identity and social participation. Although not a substitute for comprehensive language education, this approach creatively utilizes digital platforms that youth already frequent, making local language engagement both fun and socially relevant. Future works may involve testing the filter with Acehnese youth, integrating additional game mechanics, or expanding the concept into TikTok or YouTube Shorts. The long-term vision is to create sustainable digital ecologies of local language practice that align with the habits, preferences, and identities of young learners in the digital era.

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