BRIDGING MIGRATION AND RURAL REGENERATION: RETHINKING LINGUISTIC INTEGRATION FOR DEMOGRAPHIC SUSTAINABILITY

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SUMMARY

This study examines how language learning contributes to demographic resilience in rural Southern Italy, with Pietradefusi as a case study. It addresses a significant knowledge gap by exploring the intersection of migration, linguistic integration, and rural sustainability. Findings reveal that migrant settlement is sustained by a hybrid ecosystem that combines formal instruction, informal community hubs, and digital tools. These practices foster social cohesion, encourage long-term settlement, and position language acquisition as a strategic demographic resource rather than solely a cultural one, strengthening the demographic sustainability of depopulated regions. Policy implications highlight the need for municipalities to recognise non-institutional hubs as grassroots integration centres and to complement them with AI-enabled language platforms that support certification requirements. Such hybrid strategies can enhance accessibility through flexible scheduling, transport provision, and multilingual resources. Ethical design, human oversight, and attention to digital literacy and privacy are essential to ensure that technological innovation strengthens rather than replaces human connection. Although the study's small sample size limits generalisation, it opens pathways for further research across rural contexts and for testing operational models that embed inclusive language practices into demographic policy. Ultimately, the findings highlight how inclusive language strategies can transform integration into a driver of rural resilience. Although the study's small sample size limits generalisation, it opens pathways for further research across rural contexts and for testing operational models that embed inclusive language practices into demographic policy. Ultimately, the findings highlight how inclusive language strategies can transform integration into a driver of rural resilience.

INTRODUCTION

Across Europe, rural territories face persistent demographic challenges marked by ageing populations, declining birth rates, and youth outmigration. Southern Italy, in particular, reflects this crisis, with regions such as Calabria, Campania, and Sicily experiencing steep population declines and structural economic fragility (OECD, 2025). In response, several small municipalities have adopted refugee resettlement strategies as a countermeasure to demographic decay. Research has increasingly recognised migration as a potential catalyst for rural revitalisation (Zanfrini & Pasini, 2025; Pasetti & Cancellieri, 2024), yet the alignment between asylum governance and local development policy remains tenuous.

The existing literature emphasises the importance of migrant labour, housing access, and community support, but our study focuses on the pivotal role of linguistic integration—particularly for migrants settled in rural areas. This perspective is informed by two previous studies: one examining the empowerment of unaccompanied minors in rural Italy through linguistic integration (Santorelli et al., 2024), and another analysing the broader framework, policies, and outcomes of linguistic integration in Italy (Santorelli et al., 2023). Together, these studies highlight how

language acquisition shapes social inclusion, autonomy, and long-term integration outcomes, providing a foundation for the present analysis. Bourdieu's (1991) concept of linguistic capital is crucial to understanding how language proficiency influences educational access, performance, and future opportunities.

Furthermore, this study aims to highlight how EU-driven language certification programs and local linguistic initiatives shape integration outcomes and demographic renewal in Southern Italy. Through fieldwork, interviews, and policy analysis, it examines the role of language proficiency in promoting access to asylum, employment, and social cohesion. In addition to institutional efforts, the integration process can be further enhanced by incorporating emerging AI-supported language tools into non-institutional learning environments. These technologies—ranging from mobile translation apps to adaptive language learning platforms—offer flexible, accessible, and personalised support for language acquisition and mediation. Crucially, they can facilitate linguistic integration even in non-standard or informal settings, empowering migrants to navigate everyday interactions, access services, and build social connections beyond formal education systems.

THEORETICAL FRAMEWORK

This study draws upon a multi-layered theoretical foundation that combines migration systems theory, rural sociology, linguistic integration models, and identity-focused frameworks from multilingual education. Together, these perspectives offer a nuanced lens for analysing how language acquisition contributes to the demographic and social revitalisation of depopulated rural areas in Southern Italy. In addition,

the concepts of demographic resilience and linguistic capital are introduced to deepen the analysis of how language intersects with population sustainability and social power in rural contexts.

Migration Systems Theory (Mabogunje, 1970) highlights the reciprocal linkages between sending and receiving regions. In Southern Italy, small municipalities are embedded within dynamic migration systems where

international flows can either reinforce existing social structures or reshape them. Within this context, linguistic integration serves as a feedback mechanism: language proficiency opens access to legal residency, education, and employment, which, in turn, influences migrants' decisions to settle and integrate over the long term.

These processes unfold within a broader landscape of rural restructuring. As Woods (2011) argues, rural territories are increasingly transformed by global and national pressures, often resulting in peripheralization. Southern Italy exemplifies this trend, facing demographic decline and economic marginalisation. This study challenges dominant narratives of rural decline by positioning migrants as agents of change. Language programs are reframed not simply as tools for integration but as instruments of territorial revalorization, enabling migrants to contribute meaningfully to local revitalisation.

Language learning is central to this transformation, not only as a communicative practice but also as a site of identity formation and power negotiation (Zschomler, 2019). Drawing on language socialisation theory (Duff, 2010; Norton, 2013), the study emphasises how multilingual contexts allow migrants to navigate belonging, agency, and visibility. Informal learning environments—such as community hubs—play a vital role in fostering social inclusion and shaping migrant identities within the host society.

The relationship between language and identity is further illuminated through Social Identity Theory (Tajfel & Turner, 1979) and Bourdieu's (1991) concept of linguistic capital. Linguistic capital refers to the value of language skills as a form of cultural capital that grants access to institutional recognition, employment, and social legitimacy. Migrants who acquire dominant or prestigious languages gain access to social capital and legal rights, while those speaking marginalised languages often face exclusion. In rural educational and social settings, these linguistic hierarchies significantly influence integration outcomes and settlement decisions.

The notion of demographic resilience adds another analytical layer. Defined as the capacity of populations to withstand and adapt to demographic challenges such as depopulation, ageing, and migration imbalances (De Souza, 2015; OECD, 2025), demographic resilience in rural Italy depends on the successful integration and retention of migrants. Language proficiency is a critical determinant: it enables migrants to meet residency requirements, access labour markets, and participate in civic life, thereby stabilising population dynamics and contributing to rural sustainability.

Finally, Pierson's (1993) policy feedback theory offers a framework for understanding how language certification policies shape local governance. EU-driven linguistic initiatives create incentive structures that influence municipal asylum practices. When adapted to local contexts, these policies enhance rural towns' capacity to retain population and foster demographic resilience, positioning language learning as a strategic tool for both integration and territorial sustainability.

RESEARCH METHODOLOGY

This study adopts a qualitative research design to explore how linguistic integration strategies contribute to demographic resilience in rural Southern Italy. The methodology combines fieldwork, document analysis, and case study expansion to provide a comprehensive understanding of the intersection between migration, language policy, and rural revitalisation. The approach is grounded in the need to capture migrants' lived experiences and the social dynamics of small municipalities, where quantitative indicators alone cannot fully explain integration processes.

A central focus is the hybrid integration model that emerges from the interplay of formal instruction, informal community-based learning, and digital tools. This model demonstrates how diverse pathways of language acquisition collectively sustain social cohesion and demographic stability in depopulated rural areas.

Fieldwork analysis was conducted in the municipality of Pietradefusi (Avellino, Campania) between January and September 2025. The site was selected for its engagement in migrant reception and non-institutional integration initiatives. Pietradefusi has experienced marked depopulation over the past decade, driven by a persistently negative natural balance and sustained outmigration. However, the arrival of foreign nationals—though numerically limited—has contributed to a modest but consistent positive migration balance in certain years. The study included informal observations, interviews, and the collection of digital surveys.

A total of 25 individuals participated: 15 migrant residents (ages 18-45, originating from Bangladesh, Ghana, Mali, Côte d'Ivoire, and Gambia), 2 educators involved in language instruction, 6 long-term local residents, and 2 representatives from NGOs active in integration efforts. All participants provided informed consent.

Data were collected through a combination of informal conversations, field notes, and digital surveys.

Informal interviews were conducted in English or Italian, with translation provided via a translator app or AI tools (e.g., Google Translate, ChatGPT) as needed. Notes were taken manually during or immediately after each interaction.

Digital surveys were distributed via Google Forms, targeting migrant residents.

To facilitate survey participation, a printed note was displayed inside Bar Mario, a local bar, featuring a QR code that provided easy access to the questionnaire. Moreover, the bar owner, through informal personal

contacts with members of the migrant community, directly shared the survey link, thereby encouraging their participation. The questions aimed to elicit reports of integration experiences and perceptions.

The survey is structured in two main sections. The first section collects profile information (Table 1), including gender, age, level of education, languages spoken, and possession of an Italian language certificate.

Table 1.
Demographic profile of the respondents

VARIABLE	DISTRIBUTION
Age range	18–45 years
Gender	13 male, 2 female
Nationalities	Bangladesh (7), Ghana (2), Mali (2), Côte d'Ivoire (1), Gambia (3)
Length of stay	<2 years (6), 2–5 years (5), >5 years (4)
Employment status	Agricultural work (10), service sector (3), unemployed (2)
Italian Language Certification	3

Source: Author's own elaboration

The second section focuses on the linguistic and social integration of migrants in rural areas. It is divided into thematic sub-sections, and for each statement, participants were asked to respond to statements using a five-point Likert scale: Very much – Quite a bit – A little – Not at all – I don't know / Not applicable.

The survey investigates how non-institutional hubs—such as bars, social centres, and local associations—when combined with digital tools, translation apps, and AI-powered educational technologies, contribute to linguistic integration.

The purpose of this survey is to assess the impact of non-institutional hubs on migrants' integration in rural areas.

In particular, the structured questionnaire is designed to collect data on the following dimensions:

▪ Use of digital tools and artificial intelligence
▪ Access to public services
▪ Role of non-institutional hubs
▪ Linguistic and social integration
▪ Repopulation of rural areas.

The questions are formulated to help construct a behavioural grid that demonstrates:

▪ The role of language proficiency in accessing rights and employment
▪ The effectiveness of digital and AI tools in supporting integration
▪ The contribution of non-institutional hubs to social cohesion

The impact on demographic balance and rural development.

The survey combined the closed-ended Likert-scale questions (Table 2) with open-ended questions to capture both measurable trends and personal narratives.

While the structured items provided quantifiable data on confidence, frequency, and perceived importance, the open-ended questions allowed respondents to elaborate on their experiences in their own words.

Table 2.
Closed-ended Likert-scale question domains

Domain	Topic
Language Learning & Proficiency:	Confidence in everyday Italian, barriers to attending courses, and frequency of informal practice.
Digital Tools & AI:	frequency of translation app use, perceived effectiveness of AI-powered tools.
Non-Institutional Hubs:	importance of bars and shops, trust in community figures versus municipal officials.
Integration & Rural Development:	perceptions of welcome, contribution of migration to rural revitalisation, and long-term settlement intentions.
Five-point Likert scale: Very much – Quite a bit – A little – Not at all – I don't know / Not applicable.	

Source: Author's own elaboration

To complement the structured scales, participants were invited to respond to narrative prompts such as:

- Can you describe a situation in which you learned Italian through everyday interaction (e.g., at a bar, shop, or workplace)?
- What challenges have you faced in attending formal Italian language courses, and how have you tried to overcome them?
- How have places like local bars, grocery stores, or social centres helped you feel part of the community?
- Which digital or AI-powered tools have been most useful for you in learning Italian or accessing services, and why?
- Who do you turn to when you need help with language or local information, and what makes them trustworthy?
- How do you see your life in Pietradefusi in the next five years? Do you plan to stay, move, or pursue new opportunities?

This dual design enabled the construction of a behavioural grid linking language proficiency, digital tool use, and informal hubs to broader outcomes, including access to rights, employment, and rural demographic resilience. The closed-ended items ensured comparability across respondents, while the open-ended narratives added depth, nuance, and authentic voices that captured the lived realities of integration. To strengthen validity, themes emerging from interviews were systematically cross-checked against survey responses through triangulation, confirming consistency across different data sources.

Document Analysis To support the fieldwork findings and situate Pietradefusi's experience within broader national and international frameworks, a document analysis was conducted using thematic keywords such as linguistic integration, rural settlement, demographic resilience, and policy innovation. This analysis revealed that Pietradefusi reflects a broader trend across Southern Italy, in which small municipalities increasingly leverage migration and language policies to counter depopulation and foster local revitalisation.

Statistical data from ISTAT, accessed via the Campania regional portal, provided detailed insights into demographic shifts and migration flows specific to Pietradefusi, reinforcing its relevance as a case study. The 30th Italian Report on Migrations (Zanfrini & Pasini, 2025) further contextualised these findings by highlighting successful initiatives in regions such as Calabria (Sarlo et al., 2016) and Sicily, where targeted

programs in language learning, cultural mediation, and community engagement reversed depopulation trends and contributed to economic renewal and social cohesion (European Parliament, 2020).

These national examples align with broader European strategies (Curtale et al., 2025). The EU Action Plan on Integration and Inclusion 2021–2027 (European Commission, 2025) outlines a multi-level approach that encourages collaboration among national, regional, and local actors, civil society, and migrant communities to develop tailored integration policies (European Commission, n.d.). Central to this strategy is the Asylum, Migration and Integration Fund (AMIF), which provides financial support for language training programs aligned with the Common European Framework of Reference for Languages (CEFR). These programs are particularly vital in rural areas, where formal resources are limited and language proficiency is essential for accessing employment, education, and civic life.

Projects such as UNITES (2022–2024), coordinated by Eurocities and funded through AMIF (European Commission, 2025), exemplify participatory governance by involving migrants and local stakeholders in co-designing integration policies. Similarly, the SIRA Project (2021–2023) piloted grassroots approaches in several EU countries, strengthening local capacity and improving access to funding mechanisms. Both initiatives align with the Action Plan's strategic goals and underscore the importance of inclusive, locally adapted integration models.

Despite these efforts, language barriers remain a persistent challenge. The European Parliament's study "New approaches to labour market integration of migrants and refugees" (Fasani, 2024). notes that limited proficiency in the host country's language continues to restrict migrants' access to essential services, especially in rural areas. Many language programs lack territorial sensitivity and standardised certification, making it difficult for migrants to demonstrate their skills and integrate effectively. The study calls for more inclusive and flexible language policies that address the needs of vulnerable groups and promote lifelong learning.

These insights reinforce the importance of contextualised language strategies observed in Pietradefusi. Informal language acquisition and community-driven practices have proven effective in encouraging long-term inclusion, supporting the idea that migration and linguistic integration can serve as strategic tools for rural renewal within both national and European policy frameworks.

MAIN RESULTS

The case study of Pietradefusi offers a compelling example of how small towns in Southern Italy are being reshaped by demographic decline and the gradual rise of migrant communities.

Pietradefusi is a small municipality in Avellino, Campania, nestled in the Irpinia hills of Southern Italy. Its economy is primarily based on agriculture, with vineyards and olive groves playing a central role in local production. The town hosts an Istituto Comprensivo

that includes a preschool (scuola dell'infanzia), primary school, and lower secondary school (first-grade secondary education). Additionally, there is a second-grade secondary school—a Liceo Classico—which operates with a limited number of enrolled students. For broader educational and economic opportunities, residents often rely on nearby towns such as Avellino and Benevento.

According to the ISTAT (Istituto Nazionale di Statistica, 2025), between 2000 and 2023, Pietradefusi experienced a steady decline in its resident population, dropping from over 2,500 inhabitants to 1,918 by the end of 2023.

This demographic contraction reflects broader trends of rural depopulation in Southern Italy, driven by a persistently negative natural balance and sustained outmigration. In 2023, foreign residents accounted for approximately 6.4% of the population, indicating a modest but stable migrant presence. By January 1, 2024, this proportion had risen to 8.8%, following a net increase of 46 foreign residents (+37.4%). Notably, the leading nationality shifted from Romania (28 residents in 2023) to Bangladesh (23 residents in 2024), marking a significant change in the migrant community's composition. Regional trends further highlight this transformation: Asian nationals grew from 15 (12.2%) to 50 (29.6%), with Bangladesh and Pakistan showing the strongest growth; African nationals increased from 44 (35.8%) to 64 (37.9%), with Nigeria remaining prominent and new arrivals from Mali and Gambia; meanwhile, European nationals saw a relative decline from 50.4% to 31.4%, as Romanian and Bulgarian communities remained stable but proportionally less dominant. These shifts underscore the evolving role of migration in shaping Pietradefusi's demographic landscape.

In Pietradefusi, informal commercial spaces, such as the local bar, grocery store, and tobacco shop, continue to serve as everyday social anchors for both longtime residents and newcomers. In the main square of Dentecane—home to the municipal offices—establishments like Alimentari Michele and Bar Mario emerged as informal hubs of social interaction and information exchange. These venues offered spontaneous access to practical knowledge about transportation, job opportunities, and local networks, underscoring the strategic role of non-institutional settings in fostering social cohesion and facilitating integration.

Empirical data from interviews revealed that most migrants acquired everyday Italian through informal interactions rather than institutional instruction. While the majority had attended CPIA language courses, only a few had obtained formal certification. Irregular work schedules and limited transportation were cited as significant barriers to consistent attendance. Yet formal language certification is not merely symbolic: it is a legal requirement for obtaining long-term residency in Italy. This underscores the urgency of providing hybrid solutions in rural areas—combining formal instruction with flexible, community-based learning—to ensure migrants can meet legal thresholds while adapting to local constraints.

Several interviewees described how informal learning occurred through daily exchanges in community spaces. One migrant recounted that, to request a traditional meal at the bar-trattoria, they had to explain the recipe in detail, including the ingredients, cooking procedures, and utensils. This interaction not only expanded their vocabulary but also became a moment of cultural exchange. The bar owner, intrigued by the dish, added it to the menu, and it soon attracted interest from local residents, who began requesting it. Through this shared culinary experience, migrants and locals engaged in mutual learning, fostering a sense of belonging and respect.

Migrants consistently emphasized the role of community spaces in their linguistic and social integration: "At first I only came for coffee... I didn't speak much. But here, nobody minds if you fumble a word. They just smile and help you say it better" (Adam, 28, olive worker from Mali); "Bar Mario is where I learned the Italian I actually use. Not from books—from talking with old men about football and pasta" (Rahim, 33, labourer from Bangladesh); and "At Bar Mario I learned more Italian than in class, because I had to order food, ask questions, and talk with locals every day" (Hasan, 32, labourer from Bangladesh). These everyday exchanges often became moments of cultural exchange, as one participant explained: "Explaining my recipe was like teaching Italian to myself. The bar owner listened carefully, and I felt respected." Similarly, Fatima, a caregiver from Mali, noted: "You see the same people every morning. Over time, they start asking how your kids are doing or if you've found work yet. That's where I feel I became part of the town." Local residents also recognised this transformation, with Enrico, a 61-year-old pensioner, observing: "We used to think migrants were just passing through. However, they are now part of our community. You hear Arabic and Napoletano mixed like it's normal."

Taken together, these findings show that in rural contexts where institutional resources are limited, integration unfolds through a hybrid ecosystem of informal hubs, trusted community figures, and digital technologies, demonstrating that language learning is most effective when treated not only as a classroom subject but as a lived, community-based practice that fosters belonging and strengthens demographic resilience.

Beyond these spontaneous interactions, the bar actively supported migrants' language acquisition and integration. It provided teaching materials, including a printed Italian dictionary and a tablet equipped with translation and learning apps. These resources were available to anyone who needed them and were frequently used to mediate conversations with locals. It is particularly noteworthy that many migrants described the bar owner as a trusted figure—someone they could rely on more than local officials, who were

often perceived as impersonal or difficult to approach. "When I don't understand something, I go to the bar and ask Mario or Irene about it. They use the tablet with translation apps and explain everything. They even call on my behalf when I can't go through some bureaucratic procedures" (Moussa, 35, labourer from Mali). The bar thus became not only a social hub but also a grassroots integration centre, where language learning, community support, and emotional reassurance converged.

Technology and educational AI emerged as essential tools during the initial phase of settlement, when language barriers were most acute. Many participants reported feeling overwhelmed when attempting to access municipal services, often unsure where to go or whom to contact. In these moments, digital tools became indispensable: automatic translation apps, voice recognition engines, and CEFR-aligned language platforms enabled migrants to interpret instructions, formulate questions, and engage with unfamiliar systems. "Without the translation app, I could not ask for help at the municipal office. It gave me the words I needed" (Oumar, 29, labourer from Gambia). It is paramount to understand and monitor how social and linguistic environments are changing, as well as to consider the ethical implications of implementing such technologies in sensitive situations (Alwi, et al., 2025). Beyond immediate communication needs, these tools supported high-quality, flexible language learning. Migrants described using pronunciation apps, vocabulary trainers, and multilingual interfaces to practice Italian in real time, often in response to specific daily challenges. This form of situational, self-paced learning allowed them to build linguistic competence in ways that formal instruction could not always accommodate. Importantly, these technologies also facilitated peer-to-peer learning among migrants from different linguistic backgrounds, creating shared spaces of understanding and support.

In rural contexts such as Pietradefusi, where institutional resources are limited, the combination of informal social environments and digital technologies has formed a hybrid ecosystem of learning and inclusion. These findings suggest that migrant integration is most effective when language is treated not only as a classroom subject but as a lived, community-based practice. By embracing flexible, context-sensitive strategies— grounded in everyday interaction and supported by technological innovation—rural municipalities can foster sustainable settlement and strengthen demographic resilience. Given the structural barriers to formal education, integrating digital tools and AI-powered language education represents a promising solution. Technologies offering flexible scheduling, adaptive feedback, and multilingual accessibility can replicate core components of classroom instruction while enabling self-paced, situational learning.

DISCUSSION

The findings from Pietradefusi reveal a significant shift in how language policies and integration practices are understood within the broader landscape of migration studies. Traditionally framed as cultural tools to facilitate communication and social inclusion, language policies in this study emerge as strategic instruments of demographic stabilisation. This reframing is particularly relevant in rural contexts facing depopulation, where migrants' ability to settle long-term is closely tied to their access to language instruction and to certification requirements legally linked to residency status in Italy. The hybrid model observed in Pietradefusi also reflects the strategic goals of EU-funded initiatives such as UNITES and SIRA, which advocate participatory governance and territorial sensitivity in integration policy.

Document analysis reinforces this perspective, particularly when compared with the cases of Sicily and Calabria (Besliu, 2023). What distinguishes Pietradefusi, however, is the innovative role played by non-institutional learning environments.

Educational AI and digital tools further enhanced this informal infrastructure. Indeed, community hubs and digital channels together allow learners to acquire usable linguistic capital in authentic contexts—whether through app-based conversation challenges or voice-enabled guides for navigating public services.

It is important to note that current practice often involves migrants using freely available apps, such as translation tools or voice-recognition engines (e.g., Siri or Google Assistant), in an ad-hoc manner, or vocabulary-building applications such as Memrise (free version) or Quizlet. These tools rely on flashcards and spaced repetition to help memorise essential words, but they are typically accessed casually and without pedagogical validation. Indeed, while these applications provide immediate support for everyday communication, their educational outcomes are not systematically measured, and they cannot guarantee progression aligned with recognised proficiency frameworks. In contrast, structured digital materials—such as CEFR-aligned adaptive platforms, validated online courses, and AI-driven pronunciation trainers—represent emerging innovations that have been tested for pedagogical validity. These tools are designed to replicate core components of classroom instruction, offering measurable progress, adaptive feedback, and alignment with certification requirements.

Highlighting this distinction emphasises that, although casual app use can help overcome immediate barriers, it markedly differs from structured digital learning environments that are effective and can reliably support migrants in meeting legal and educational standards (Table 3).

Table 3.

Apps vs. Structured Digital Materials in AI-Supported Language Learning

DIMENSION	FREELY AVAILABLE APPS (CURRENT PRACTICE)	STRUCTURED DIGITAL MATERIALS (EMERGING INNOVATION)
Purpose	Immediate communication support; adhoc translation and vocabulary help.	Systematic language acquisition aligned with CEFR or other validated frameworks.
Strengths	Accessible, low cost, easy to use; useful for overcoming daily barriers.	Pedagogically tested; measurable outcomes; adaptive feedback; supports certification requirements.
Limitations	Outcomes not systematically measured; risk of fossilised errors; limited progression.	Requires infrastructure (e.g., internet access and devices); higher digital literacy; less spontaneous than informal exchanges.
Examples	Google Translate, voice recognition apps, and basic vocabulary trainers (Siri, Memorise, Quizlet, Drosp).	CEFR-aligned adaptive platforms, AI-driven pronunciation feedback, and validated online courses (Talkpal, Giulia, PingoAI).
Role in Integration	Helps migrants "get by" in everyday interactions.	Enables migrants to achieve formal proficiency and meet legal residency thresholds.

Source: Author's own elaboration.

Recognising this gap is crucial for policy design: municipalities should encourage the transition from reliance on unstructured apps to validated digital learning pathways, while also addressing barriers related to digital literacy, internet access, and the need for human guidance. Educational AI should be understood as a catalyst rather than a substitute for human connection. When combined with community-based learning and institutional support, AI can amplify integration processes, transforming language from a classroom subject into a lived tool of everyday life and contributing to the demographic resilience of rural regions.

In sum, this study contributes to a growing body of research that repositions language policy as a demographic tool and highlights the transformative potential of informal learning environments. By embedding language acquisition in everyday life and leveraging local networks, rural municipalities such as Pietradefusi can foster sustainable integration and demographic resilience, offering a replicable model for other regions facing similar challenges.

CONCLUSIONS

This study extends the traditional scope of migration research by reframing language policies not merely as cultural instruments but as strategic demographic tools. In the context of rural Italy, and specifically Pietradefusi, language acquisition emerges as a decisive factor in population stabilisation. By enabling migrants to meet legal residency requirements and participate fully in local life, language proficiency directly shapes their decision to settle long-term—thereby contributing to the demographic resilience of depopulated regions.

An innovative empirical contribution lies in the positioning of non-institutional learning environments—such as cafés, bars, and social hubs—as vital complements to formal language instruction. These spaces foster spontaneous, situated learning and social bonding, often filling gaps left by limited institutional infrastructure. The active roles of community figures, the availability of digital tools, and the emergence of informal support networks illustrate how integration unfolds beyond classrooms and is embedded in everyday life.

Key Empirical Findings. The study shows that migrant integration in Pietradefusi is shaped by a hybrid ecosystem of informal hubs, trusted community figures, and digital tools. Most migrants acquire everyday Italian through informal exchanges, while structural barriers limit access to formal courses. Informal spaces such as bars and shops foster both linguistic practice and cultural exchange, while digital technologies provide flexible, situational learning. Together, these mechanisms strengthen social cohesion and contribute to rural demographic sustainability.

Policy Implications Findings suggest that rural municipalities should invest in hybrid integration strategies that combine formal instruction with community-based learning and digital support. Non-institutional hubs can be recognised as grassroots integration centres, while AI-powered language tools can help migrants meet legal certification requirements. Policies that support transport access, flexible scheduling, and multilingual resources would further enhance integration outcomes.

Limitations of the Study. The relatively small sample size and reliance on snowball sampling limit the generalizability of results. Self-reported data may also introduce bias.

Directions for Future Research Future studies should integrate longitudinal quantitative data on migrant population dynamics, labour market participation, and language proficiency to complement qualitative insights. Comparative research across multiple rural municipalities would clarify whether Pietradefusi's hybrid integration model is replicable elsewhere. Exploring the role of digital and AI tools in formal certification processes also represents a promising avenue. Moving forward, an operational framework for hybrid integration should be imagined and tested, providing municipalities with concrete strategies to embed inclusive language practices, digital innovation, and community partnerships into sustainable demographic policy.

Final Reflections This research highlights the intersection of migration, linguistic integration, and rural demographic resilience, offering a reflection that points toward further research and operational testing. Ethical design, human oversight, and attention to digital literacy and privacy are essential in deploying technological solutions. To support demographic resilience, rural municipalities should prioritise mobile-first language access, human-guided digital supports, and cross-sector coordination. Ultimately, AI is not a substitute for human connection—it is a catalyst that amplifies it, transforming language from a classroom subject into a living tool of community life. The convergence of inclusive language strategies, digital innovation, and cross-sector partnerships represents a transformative pathway for integration—one that empowers individuals, strengthens communities, and redefines rural resilience across Europe.

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