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ACADEMIC PLURALISM IN DEFINING DEMOGEOGRAPHIC CONCEPTS AND THEIR FORMATION IN SCHOOL GEOGRAPHY UNDER CONTEMPORARY MIGRATION CRISES (CHERNIHIV REGION, UKRAINE)

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ABSTRACT

The article provides a comprehensive analysis of academic definitions of demogeographic concepts and offers a theoretical and methodological substantiation for their formation in the 8th-grade geography course under educational modernization. Based on a multi-level comparative analysis, a significant conceptual gap is identified between dynamic academic discourse and the simplified, static interpretations of "migration" and "depopulation" definitions embedded within the current model curricula of the New Ukrainian School (NUS). The methodological toolkit for navigating "definition pluralism" in classroom instruction through interactive technologies, Comparative Concept Matrices, population pyramid analysis, demographic modeling, and signal outlines is substantiated. Particular attention is paid to the integration of the regional component using the case study of the Chernihiv region as a strategic border territory undergoing severe geodemographic deformations. The spatial-temporal transformations of human capital in the region induced by military aggression are characterized, specifically focusing on the intense population outflows from the vulnerable northeastern border zones toward the relatively safer regional economic axis. It is demonstrated that integrating local contexts that link forced migration to

cascading socioeconomic and ecological consequences serves as an effective instrument for cultivating students' critical thinking and spatial awareness.

KEYWORDS: *demogeography, analysis of definitions, academic pluralism, geography education, New Ukrainian School, forced migration, depopulation, regional component, Chernihiv region.*

1. INTRODUCTION

The contemporary stage of Ukrainian statehood is characterized by unprecedented transformations across all spheres of social life, with deep-rooted demographic shifts being among the most critical. The ongoing full-scale war has triggered the largest migration crisis in Europe since World War II, manifesting in massive flows of external refugees and internally displaced persons (IDPs), alongside a sharp acceleration of depopulation processes and the distortion of the population's age-sex structure (Alov et al., 2026; Poot, 2026). These extreme geodemographic realities pose severe challenges not only to academic science (UNFPA, n.d.) but also to the secondary education system, which is fundamentally responsible for cultivating spatial logic and critical thinking in the younger generation (White, 2025).

In the context of implementing the New Ukrainian School (NUS) reform, modernizing geography education in the 8th grade – where students systematically study the course "Geography: Population and Economy of Ukraine" – has assumed vital importance. However, the formation of core demogeographic concepts (such as "natural change," "depopulation," "migration," and "urbanization") in modern schools faces a profound contradiction: while contemporary academic literature demonstrates a pluralism of definitions and dynamically updates its conceptual apparatus to reflect global and local crises (Ciommi et al., 2020; United Nations Dag Hammarskjöld Library, n.d.), educational practice is often constrained by static or simplified interpretations embedded within curricula. This divergence is explicitly visible when examining the structural approaches of state-approved model curricula, such as those developed by Kobernik et al. (2022) and Zapototskyi et al. (2022), which establish the pedagogical framework for teaching population geography under the NUS standards but require careful methodological alignment with evolving academic discourse.

Furthermore, the implementation of the regional component in the educational process demands urgent attention. The Chernihiv region, as a strategic border territory that has

directly endured active military actions and continuous cross-border shelling, stands at the epicenter of catastrophic depopulation and forced migration trends, leading to the rapid depletion of human capital and the emergence of abandoned border zones. Effectively addressing these local processes in school geography serves as a powerful instrument for fostering civic competence and spatial awareness (Topchiiev, 2005). However, it requires a high level of pedagogical adaptability and ethical sensitivity from the teacher. Consequently, a clear necessity emerges for a thorough theoretical analysis of demogeographic definitions and the development of innovative methodological frameworks that integrate general state-level challenges with localized regional realities.

The aim of this study is to provide a theoretical and methodological substantiation for the process of forming key demogeographic concepts in the 8th-grade geography course under educational modernization, and to develop practical recommendations for addressing the contemporary migration processes of Ukraine and the Chernihiv region in school practice.

Research objectives are: 1) to analyze the conceptual and terminological framework of demogeography within the current model secondary education curricula (Kobernik et al., 2022; Zapototskyi et al., 2022) and correlate them with contemporary academic approaches (Population Reference Bureau, 2020; Sengupta-Schröder, 2026); 2) to substantiate the methodological aspects of forming demogeographic concepts in an environment of "definition pluralism" by utilizing interactive teaching methods and critical thinking strategies; 3) to characterize the distinct features and current trajectories of migration processes in Ukraine and the Chernihiv region to ensure their scientifically rigorous and pedagogically sound integration into classroom instruction; 4) to design a practical methodological toolkit (case studies, regional statistical tasks, and local lore materials) aimed at building students' spatial understanding of state-level and regional demographic challenges.

2. MATERIALS AND METHODS

To achieve the research aim and systematically address the outlined objectives, this study employs a multi-layered methodological framework that merges theoretical geographic analysis, comparative education models, and regional localized case study methods. Given the intricate interface between academic demography and secondary geography education, the investigation is anchored in an interdisciplinary paradigm.

First, to evaluate the structural differences and conceptual boundaries within the curriculum, the study utilizes the multilevel comparative analysis framework adapted from the classic

educational methodology established by Bray et al. (2014). This approach facilitates an organized, matrix-based comparison across different educational dimensions. In this study, the framework is applied horizontally to contrast the two major state-approved 8th-grade model geography curricula currently implemented under the New Ukrainian School (NUS) reform: the curriculum developed by Kobernik et al. (2022) and the one designed by Zapototskyi et al. (2022). Simultaneously, a vertical analysis is conducted to map how these school curricula correspond to or diverge from advanced academic definitions found in global repositories, such as the Population Reference Bureau (2020), the United Nations metadata systems (United Nations Dag Hammarskjöld Library, n.d.), and contemporary geographic training literature (Sengupta-Schröder, 2026).

Second, content analysis and semantic mapping are applied to the targeted curricula and accompanying textbook content. This technique enables the extraction of structural parameters associated with core demogeographic concepts, specifically focusing on how terms like "migration," "depopulation", and "natural change" are introduced to students. By isolating the exact definitions and contexts provided by Kobernik et al. (2022) and Zapototskyi et al. (2022), the research identifies critical conceptual gaps where school definitions lean toward simplified, static representations, contrasting them with the dynamic, crisis-driven interpretations highlighted in current academic literature (Alov et al., 2026; Poot, 2026).

Third, the pedagogical modeling method is employed to construct innovative instructional strategies. This involves designing specific methodological tools rooted in active and interactive learning paradigms (White, 2025). The study models classroom scenarios where teachers can navigate "definition pluralism" not as a pedagogical barrier, but as a constructive tool to build students' critical thinking and spatial analysis capabilities.

Finally, the study integrates a regionalized case study approach, utilizing localized empirical data from the Chernihiv region. This component acts as a bridge between abstract demographic indicators and the immediate socio-spatial reality of the classroom. By drawing upon contemporary regional statistics, local lore, and spatial socio-geographic concepts (Topchiiev, 2005), the methodology models how to structure curriculum content around modern forced migration and border depopulation realities (UNFPA, n.d.). This integration provides a scalable blueprint for geography teachers to execute meaningful, context-aware instruction in regions highly impacted by demographic crises.

3. RESULTS AND DISCUSSION

3.1. Theoretical and terminological framework of demogeography in the school geography course and comparison of academic approaches (definitions) of these concepts

The formation of demogeographic literacy in secondary education depends heavily on the scientific accuracy and analytical depth of the definitions presented to students. When analyzing the current landscape of the New Ukrainian School (NUS) reform for the 8th-grade geography course, a horizontal comparison reveals distinct structural differences in how core demogeographic concepts are introduced by different authors. The model curriculum developed by Kobernik et al. (2022) addresses population dynamics through a highly structured, systemic lens, explicitly categorizing human populations into separate modules of demographic processes and spatial distribution. Conversely, the model curriculum by Zapototskyi et al. (2022) integrates population parameters more fluidly with socioeconomic factors, emphasizing the functional links between demographic structures and economic systems. These divergent structural styles inherently shape the scope and depth of the definitions made available to teachers and learners.

A vertical comparative analysis using the framework adapted from Bray, Adamson, and Mason (2014) highlights a significant conceptual gap between academic demography and secondary school applications, particularly concerning the core concepts of *migration* and *depopulation*.

In academic literature, migration is defined broadly as the geographic movement of people across specified boundaries for the purpose of establishing a new permanent or semipermanent residence, capturing a wide spectrum of voluntary, forced, seasonal, internal, and external flows (IB Geography Revision, 2026; Population Reference Bureau, 2020). Academic models frequently analyze migration through advanced spatial lenses, such as the "push-pull" hypothesis, which links physical moves directly to underlying economic infrastructure and security crises (Population Reference Bureau, 2020; White, 2025). Furthermore, modern academic frameworks increasingly include spatial displacement caused by geopolitical conflicts, drawing clear definitions for internally displaced persons (IDPs) and cross-border refugees (Sengupta-Schröder, 2026).

In contrast, the model curricula for the 8th grade tend to offer a more restricted interpretation. The curriculum by Kobernik et al. (2022) focuses primarily on the statistical and administrative classification of migration, categorizing it heavily by duration (permanent vs. temporary) and direction (internal vs. external). While this approach builds solid structural

classification skills, it often separates the physical act of moving from its deep socio-spatial drivers. The curriculum by Zapototskyi et al. (2022) connects migration closer to labor resources and global interactions, yet both school programs struggle to dynamically capture the reality of *forced migration* caused by sudden geopolitical shocks, leaving a conceptual gap between school terminology and the volatile socio-spatial realities experienced by students.

A similar divergence occurs with the concept of depopulation. Academic frameworks define depopulation dynamically as a sustained state of population decline and negative population growth driven by an overlapping matrix of fertility decline, high mortality, and net emigration (UNFPA, n.d.; United Nations Dag Hammarskjöld Library, n.d.). Modern spatial economics views depopulation not merely as a numerical drop, but as a complex process that deforms the age-sex structure, strains the age-dependency ratio, and triggers long-term regional economic challenges (Alov et al., 2026; Ciommi et al., 2020; Poot, 2026).

Within the school curricula, however, depopulation is frequently reduced to a static mathematical outcome – a simple byproduct of natural decrease where the crude death rate exceeds the crude birth rate (Kobernik et al., 2022; Zapototskyi et al., 2022). By framing depopulation almost exclusively around natural change, school definitions often overlook the massive role that net migration plays in accelerating regional population decline. This represents a significant conceptual omission, as it prevents students from grasping how mechanical population movement actively reshapes the demographic landscape independently of biological birth and death rates.

Ultimately, this comparative analysis reveals that school geography under the NUS framework provides a valuable foundational structure, but tends to isolate demogeographic definitions within rigid, traditional boundaries. Academic demography, by contrast, treats these concepts as fluid, multi-causal, and highly localized spatial phenomena (Sengupta-Schröder, 2026; Topchiiev, 2005). Navigating this pluralism of definitions requires advanced methodological interventions that allow school teachers to bridge the gap between simplified curricular terms and the complex, real-world demographic processes occurring outside the classroom.

3.2. Methodological aspects of forming demogeographic concepts in school practice

Navigating the conceptual gap between traditional textbook definitions and the dynamic realities of modern academic demography requires a shift from passive, rote learning to active and interactive pedagogical paradigms. As established in comparative educational research, teaching complex, multi-causal structures under modern standards demands the

integration of critical thinking strategies that allow students to explore "definition pluralism" directly (Bray et al., 2014; White, 2025). Instead of forcing 8th-grade learners to memorize a single, static definition from a model curriculum, teachers should utilize instructional methods that treat definitions as fluid tools for spatial and social analysis.

The first practical intervention involves the implementation of Comparative Concept Matrices. This interactive technique allows students to visually map out different definitions of core terms like "migration" or "depopulation". For instance, learners can contrast the structurally restricted definitions found in the school curriculum – such as the simple categorization of migration by direction and duration (Kobernik et al., 2022) or the depiction of depopulation as a mere mathematical byproduct of natural decrease (Zapototskyi et al., 2022) – with broader academic frameworks (Population Reference Bureau, 2020; Sengupta-Schröder, 2026). By physically filling out a comparative matrix, students visually isolate what is missing from their textbooks, such as the profound role of economic push-pull factors, geopolitical security crises, and the massive impact of net migration on accelerating regional decline.

The second core methodological strategy is the advanced application of Population Pyramid Analysis and Demographic Modeling. Population pyramids should not merely be used as passive illustrations of age-sex structure, but as active diagnostic tools. Under the teacher's guidance, students can analyze how past and present migration flows or deep depopulation cycles structurally deform the shape of a population pyramid, stretching the age-dependency ratio and shrinking the future workforce (Ciommi et al., 2020; IB Geography Revision, 2026). Teachers can design interactive modeling tasks where students simulate different demographic scenarios – such as a sudden wave of outward forced migration – and project how these shifts will independently alter the socio-economic landscape over the next several decades (Poot, 2026; Topchiiev, 2005).

Finally, the pedagogical framework must integrate Critical Inquiry and Problem-Based Learning (PBL). By introducing real-world, conflict-driven demographic crises, teachers prompt students to evaluate how traditional terms adapt to volatile real-world shocks (UNFPA, n.d.). To consolidate these diverse definitions into a cohesive cognitive system, the utilization of Signal Outlines (Structural Diagrams) demonstrates exceptional pedagogical efficiency. Serving as a visual mnemonic tool, a signal outline strips away conversational density, allowing 8th-grade learners to map the immediate functional links between biological dynamics (natural change) and mechanical processes (forced migration) as they converge into systemic crisis outcomes such as depopulation (see Figure 1).

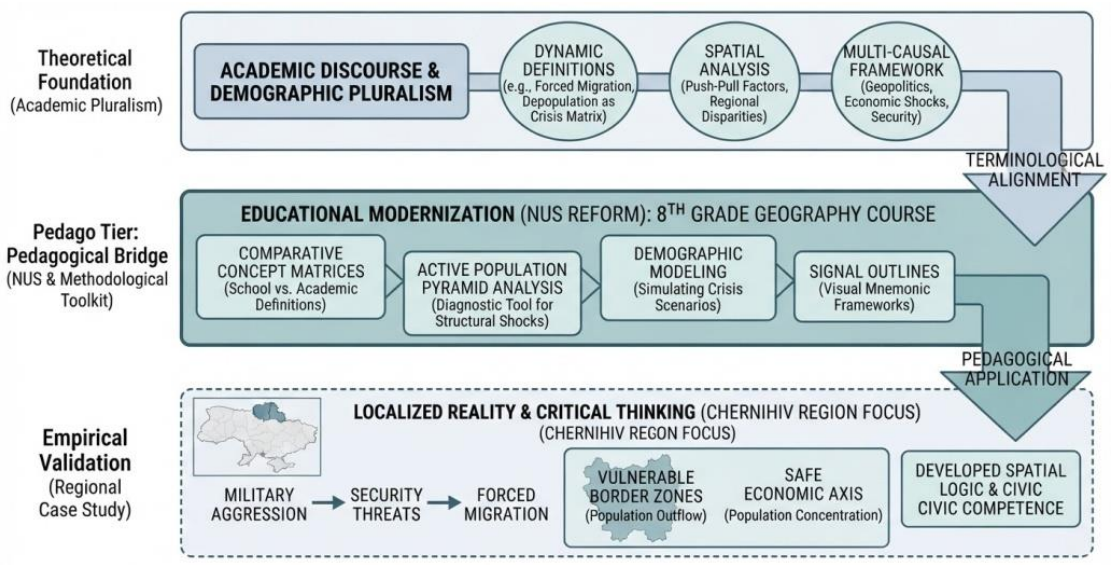


Figure 1. Conceptual layout for forming demogeographic concepts in school geography.

This approach shifts the student's role from a passive consumer of text to an active socio-geographic researcher. Ultimately, these interactive methodologies and visual anchors ensure that 8th-grade learners develop true demographic literacy, transforming rigid curricular terms into functional lenses capable of deciphering complex global and regional human patterns (White, 2025).

3.3. Addressing the problem of migration in Ukraine and the Chernihiv region in school geography

The empirical validation of demogeographic concepts in school practice reaches its highest socio-pedagogical value when focused on the severe human capital challenges unfolding across contemporary Ukraine. In the context of 8th-grade geography instruction, the topic of population migration must shift from a dry statistical index to a critical evaluation of how active military operations serve as the primary catalyst for forced spatial and mechanical displacement. At the national scale, the ongoing full-scale military invasion has induced a catastrophic loss of human capital, uniquely characterized by a gender- and age-skewed exodus where approximately 30% to 40% of children and prime-age women have been displaced abroad (Emerson, 2023). This unprecedented flight creates structural shocks independent of biological vital rates, deforming the nation's long-term demographic balance and introducing a parallel surge in domestic educational migration, where young applicants are forced to seek safety away from front-line zones (Davydenko et al., 2024).

When translating these national realities into localized school geography, the Chernihiv region serves as a premier, context-aware case study for regional analysis. As a strategic

border territory bordering the aggressor state and Belarus, the region stands at the epicenter of intense spatial-temporal transformations induced directly by military aggression and continuous cross-border shelling (Danylevskyi & Udovychenko, 2024). Prior to the war, Chernihiv Region was already marked by a slow depopulation cycle; however, the security crisis has accelerated these mechanical movements into a threatening regional emergency. Statistical tracking reveals that while over 71,000 internally displaced persons (IDPs) registered within the safer clusters of the province, the vulnerable northeastern border zones – specifically the Koriukivka and Novhorod-Siverskyi districts – have suffered severe, destabilizing population outflows due to direct security threats (Danylevskyi & Udovychenko, 2024). In classroom instruction, teachers can guide students to analyze this profound unevenness by mapping the *Chernihiv–Nizhyn–Pryluky economic axis*, which now functions as the primary spatial refuge and center of gravity for remaining labor resources, contrasted against the shrinking, high-risk border peripheries.

Furthermore, a comprehensive socio-geographic school analysis requires linking these human displacements to the broader disruption of local ecological and municipal infrastructures. Military actions have not only driven people away but have also inflicted severe, cascading damage on local environments – from the explosive contamination and forest fires ravaging terrestrial ecosystems in adjacent northern regions (Yurieva & Udovychenko, 2024) to the collapse of household and municipal waste management systems caused by unauthorized dumping and rapid rural shifts (Kuznetzova & Udovychenko, 2024).

By integrating these multi-layered regional crises into problem-based geography lessons, teachers prevent students from viewing migration as an isolated term. Instead, learners employ their conceptual signal outlines to discover how military violence triggers a chain reaction: active shelling drives forced migration, migration strips border zones of vital labor resources, and the subsequent regional abandonment shapes the post-war socio-ecological future of their immediate homeland (Danylevskyi & Udovychenko, 2024; Topchiiev, 2005).

4. CONCLUSIONS

The theoretical and methodological investigation into the formation of core demogeographic concepts in the 8th-grade geography course under the NUS reform yields several conclusions. A multi-layered comparative analysis reveals a significant divergence between academic demography and secondary geography education. While contemporary academic literature treats terms like "migration" and "depopulation" as fluid, multi-causal, and crisis-driven spatial phenomena, model school curricula (Kobernik et al., 2022; Zapototskyi et al., 2022)

frequently reduce them to static administrative classifications or rigid mathematical outcomes of natural decrease. This leaves a conceptual omission, missing the profound role of geopolitical shocks and net migration in reshaping the socio-spatial landscape.

Navigating this "definition pluralism" in the classroom requires a shift toward active and interactive pedagogical paradigms. The implementation of comparative concept matrices, active population pyramid analysis, and demographic modeling empowers students to treat definitions not as static texts to memorize, but as dynamic analytical tools. These techniques, alongside visual mnemonic frameworks like Signal Outlines, successfully foster spatial logic, critical inquiry, and problem-solving skills in 8th-grade learners.

Integrating the regional component through the case study of the Chernihiv region bridges the gap between abstract state-level data and the volatile immediate reality. Analyzing the distinct spatial-temporal transformations of Chernihiv Region – characterized by severe population outflows from vulnerable northeastern border zones (Koriukivka and Novhorod-Siverskyi districts) toward the safer Chernihiv – Nizhyn – Pryluky economic axis – demonstrates how forced migration triggers cascading socioeconomic and ecological shifts.

Effectively modernizing geography education demands a dynamic update of school textbook apparatuses and enhanced pedagogical adaptability. Geography teachers must be equipped with adaptable methodological toolkits that link macro-demographic theory with localized regional realities, transforming school geography into a powerful instrument for cultivating civic competence and resilient spatial awareness in the younger generation.

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