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From Intended Curriculum to Enacted Practice: Innovations in Bulgarian Upper-Secondary Geography Education

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Abstract

This study examines how innovation-oriented expectations in Bulgarian upper-secondary Geography and Economics (Grades 11–12) are articulated in official curriculum materials and how they are interpreted by practicing teachers. Using a sequential multi-source qualitative design, Phase 1 involved document analysis of officially valid curriculum documents, approved textbooks/teachers' guides, and methodological recommendations for the 2025/2026 school year. Phase 2 comprised an online teacher questionnaire (n = 42), and Phase 3 semi-structured interviews with 37 in-service Geography and Economics teachers, to examine enactment, feasibility, and contextual constraints associated with elective modules, geospatial technologies, and fieldwork. A hybrid deductive–inductive analysis generated themes describing (a) curriculum structure and profiling, (b) competency targets and elective-module positioning, (c) geospatial-technology expectations and practical enactment, (d) fieldwork and outdoor learning, and (e) system-level constraints and support needs. By integrating intended curriculum messages with teacher perspectives, the study provides evidence-based implications for implementation support, teacher education, and targeted professional learning in geography.

Keywords: Elective modules and fieldwork; geospatial technologies (GIS) integration; Curriculum analysis, Bulgarian geography education

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Innovation Agendas in Geography Education: Competencies, Spatial Thinking, and Inquiry

Contemporary geography curricula increasingly emphasize competency-based objectives that combine disciplinary knowledge with transferable skills (e.g., spatial reasoning, evidence-based explanation, and communication of place-based arguments). This shift is

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closely linked to the expectation that students will be able to interpret spatial representations, relate human-environment relationships across scales, and make informed judgments about socio-ecological change. Spatial thinking is therefore positioned as a central learning objective in geography education, not only as a technical ability to read maps, but also as a form of reasoning that supports analysis, explanation, and decision-making in real-world contexts (National Research Council, 2006). However, evidence on whether authorized comparison tasks in geography materials foster comparison competency and how teachers operationalize such tasks in practice remains limited, underscoring the need to examine enacted practice alongside intended innovation signals (Simon, 2024).

A prominent strand of this innovation agenda concerns the integration of geospatial technologies (digital maps, spatial data, and GIS-based tools) into school geography. Such technologies are increasingly treated as "thinking tools" that can externalize spatial relations, support inquiry with authentic data, and scaffold students' understanding of complex spatial patterns and processes. In the Bulgarian context, policy-oriented and scholarly discussions similarly stress the need to modernize Geography and Economics through conceptual frameworks that foreground contemporary content, geospatial literacy, and action-oriented learning tasks (Draganova, 2022). At the same time, Bulgarian studies highlight that the feasibility of technology-rich approaches depends on teacher preparation and school-level infrastructure, including access to equipment and sustained professional development (Kotseff, 2019; Kotseff & Traykov, 2018). Evidence from Türkiye indicates that "students' attitudes towards GIS are positive, but new and widespread applications are needed" (Artvinli, 2010b, p. 1277).

Beyond digitalization, innovations are also pursued through pedagogical approaches that strengthen inquiry, fieldwork, and experiential learning. These approaches aim to connect curriculum goals with authentic geographic practices—observation, data collection, interpretation, and argumentation—thereby supporting deeper conceptual understanding and more durable competences. In Bulgaria, discussions of innovation in the Geography and Economics subject include methodological interpretations of inquiry-oriented and activity-based teaching, as well as expectations that teachers will design learning environments that connect content with local contexts and students lived experiences (Draganova & Dermendzhieva, 2020). Related Bulgarian scholarship further frames innovation in relation to inclusive and differentiated instruction (Kotseff, 2020) and to emerging thematic priorities such as disaster risk reduction, which requires both spatial understanding and action-oriented judgement (Sarafova, 2023). Consistent with this, action-research-oriented lesson design has been presented as "a guide and sample to geography teachers about how to configure and design activities of a geography lesson" (Artvinli, 2010a, p. 185).

Yet, curriculum innovation is rarely realized automatically. A consistent finding across curriculum research is that reforms are mediated through teachers' professional judgement, the availability and quality of curriculum materials, and the constraints of assessment and institutional routines. In this view, curriculum texts and authorized textbooks constitute the "intended" curriculum, but what students ultimately encounter depends on teachers' interpretation and enactment in specific school settings. Analyzing this intended–enacted relationship is therefore essential for evaluating whether innovation claims translate into meaningful classroom change (Remillard, 2005; van den Akker, 2003). Moreover, teachers' agency—their capacity to make pedagogically purposeful choices within structural conditions—has been recognized as a key mechanism through which curriculum innovation is

enabled, reshaped, or constrained (Priestley et al., 2012). Comparable debates in European geography education underscore persistent challenges in making geography visible and valued across educational levels and in aligning curricular ambitions with the conditions of classroom work (Droogleever Fortuijn et al., 2020).

Evidence on Geography Education Innovation in Bulgaria

In Bulgaria, geography education is taught as "Geography and Economics" across lower- and upper-secondary schooling and is formally shaped by state educational standards, curriculum documentation, and authorized textbooks. Recent Bulgarian discussions highlight a modernization agenda that seeks to align geography learning with contemporary social and environmental challenges, competence-oriented outcomes, and the use of geospatial representations and technologies (Draganova, 2022). At the same time, innovation is discussed in relation to methodological renewal in classroom practice and to how teachers interpret curriculum expectations when designing inquiry tasks, fieldwork, and activity-based lessons (Draganova & Dermendzhieva, 2020).

Bulgarian scholarship also points to implementation conditions that can either support or undermine this agenda. For instance, Kotseff (2020) connects geography instruction to the practical realization of inclusive education ideas, emphasizing the need for pedagogical differentiation, resource availability, and teacher preparedness. Complementing this, didactics-oriented work outlines theoretical and methodological foundations for geography teaching and the design of didactic tools that can translate curriculum intentions into teachable classroom sequences (Vasileva et al., 2018). From a technology perspective, Bulgarian conference research identifies "digital challenges" for school geography, including uneven infrastructure and the need for sustained teacher support to implement digital and geospatial innovations (Kotseff, 2019). Teacher education is likewise framed as a strategic level: innovation-oriented preparation of future geography teachers is argued to require explicit training in methodological renewal and the practical design of learning tasks (Kotseff & Traykov, 2018). Finally, thematic innovations such as disaster risk reduction have been analyzed as emerging priorities that require curriculum-aligned teacher capacity-building (Sarafova, 2023).

Despite this growing body of work, there remains limited empirical research that systematically connects (i) what curriculum documents and authorized textbooks articulate as innovation expectations with (ii) how teachers interpret and enact these expectations in everyday practice. Much of the existing literature provides conceptual arguments, policy-aligned proposals, or thematic discussions; fewer studies combine curriculum document analysis with direct accounts from practicing teachers in a single coherent analytic frame. As a result, the specific mechanisms through which innovation is enabled, adapted, or constrained in schools—and the concrete support needs that follow from these mechanisms—remain under-documented. Addressing this gap requires analytic attention to both intended curriculum messages and teacher sense-making, which are central to curriculum implementation research (Remillard, 2005; van den Akker, 2003; Priestley et al., 2012).

Against this background, the present study examines how "innovation" in Bulgarian secondary Geography and Economics is articulated in curriculum documents and authorized textbooks, and how teachers interpret and enact these innovation signals in practice. By

combining document analysis with interviews, the study aims to generate an evidence-based account of (a) the dominant innovation emphases in the intended curriculum, (b) the ways teachers translate these emphases into pedagogical routines, and (c) the constraints, enabling conditions, and support needs that shape innovation-oriented enactment in schools.

Accordingly, the study addresses the following overarching research question: How are innovation-oriented expectations in Bulgarian upper-secondary Geography and Economics articulated in curriculum documents and enacted by teachers in practice?

To answer this main problem, these sub-problems were developed by the researcher:

- How do curriculum documents and authorized materials articulate innovation expectations in Grades 11–12 Geography and Economics, particularly regarding competence-oriented learning, geospatial/digital tools, and field-based learning?
- What are teachers' profiles and current patterns of technology use and motivation for adopting new technological approaches in Geography and Economics?
- How do teachers evaluate the curriculum's preparation for real-life competences and the adequacy of training/qualification opportunities, and what forms of professional learning support are they willing to engage in?

Method

Research Design

This study adopted a sequential multi-source design in which documentary evidence was examined first and then complemented by teacher-generated data. Phase 1 involved document analysis of official curriculum materials and authorized learning resources. Phase 2 used a short online questionnaire (n = 42) to profile teachers' background characteristics, current technology-use patterns, and perceptions of curriculum readiness and professional-learning provision. Phase 3 consisted of semi-structured interviews with 37 teachers to elaborate and contextualize questionnaire patterns and to examine enactment constraints in depth. Such sequential, multi-source designs are suitable when the purpose is to connect intended curriculum messages in texts with practitioners' interpretation and enactment within institutional contexts (Creswell & Poth, 2018; Yin, 2018). Document analysis provides a systematic approach to interrogating curriculum texts as socio-educational artefacts (Bowen, 2009), while combining documentary and teacher-generated data supports triangulation and credibility of implementation inferences (Patton, 2015). To inform instrument development, the questionnaire drew on prior survey research into teachers' perceptions and classroom practices, using closed-ended Likert-type items to support descriptive profiling and to align survey constructs with subsequent interview prompts (Simonyi & Homoki, 2020).

Data Sources and Participants

Three complementary data sources were used. Phase 1 consisted of a document corpus including (i) officially valid curriculum/syllabus documents for Geography and Economics in Grades 11–12, (ii) authorized textbooks and teachers' guides, and (iii) methodological recommendations for the 2025/2026 school year. Documents were selected using relevance (direct alignment to Grades 11–12), authoritativeness (nationally issued/approved), and accessibility criteria, then organized for systematic coding (Bowen, 2009). Table 1 summarizes the documentary corpus.

Table 1

Documentary Corpus Analyzed in Phase 1

Document type	Document / source (short title)	Year	Notes / relevance
Curriculum	Geography and Economics Curriculum for Grade XI – Modules 1–6 (specialized preparation)	2018–2019	Defines module structure, learning outcomes, and recommended methods.
Textbook	Patarchanova, Levkov, & Mincheva, Geography and Economics – Specialized Preparation, Module 3: Modern Economic Development (Klet Bulgaria)	2020	Provides exemplary tasks, activities, and methodological guidance.
Textbook	Patarchanova, Patarchanov, Naydenov, & Stoeva, Geography and Economics – Specialised Preparation, Module 5: Bulgaria and Regional Policy (Klet Bulgaria)	n.d.	Illustrates national-scale themes and applied tasks.

Phase 2 consisted of an online questionnaire completed by 42 Geography and Economics teachers. The questionnaire captured participants' background characteristics (e.g., gender, age group, and school type), current technology-use practices, motivation for adopting new technological approaches, and perceptions of curriculum readiness and professional-learning opportunities.

Table 2

Phase 2 Online Questionnaire: Participants and Measured Domains

Component	Description
Phase	Phase 2
Data collection method	Online questionnaire
Participants	Geography and Economics teachers
Sample size (N)	42
Background characteristics	Gender; age group; school type
Current technology-use practices	Teachers' current technology-use practices in instruction (e.g., frequency and typical uses)
Motivation for adopting new technological approaches	Motivational drivers for adopting technology-enhanced approaches
Perceptions of curriculum readiness	Perceived readiness of the curriculum for technology integration
Professional-learning opportunities	Perceived availability and adequacy of professional-learning opportunities related to technology integration

Phase 3 consisted of semi-structured interviews with 37 in-service teachers (a purposive sub-sample of questionnaire respondents) to elaborate questionnaire patterns and to explore contextual constraints, enabling conditions, and implementation support needs (Patton, 2015).

Data Collection Instruments

Data-collection instruments were designed to connect documentary findings with teachers' reported practices and perceptions. For Phase 1, a document-analysis protocol and coding framework were developed to capture (i) innovation-related emphases (e.g., inquiry, digital/geospatial tool use, and field-based learning), (ii) competence statements and learning outcomes, and (iii) pedagogical guidance embedded in curriculum texts and authorized materials.

For Phase 2, a short online questionnaire was developed comprising nine items: three background/profile items (gender, age group, and school type), three items on technology-use patterns and resource use (including multi-response items), and three items on motivation, curriculum readiness for real life, and adequacy of training/qualification opportunities. An additional item probed willingness to participate in free professional training focused on mobile applications and internet resources.

For Phase 3, a semi-structured interview guide was developed based on Phase 1 themes and Phase 2 questionnaire patterns to probe teachers' interpretations, enactment strategies, and perceived constraints/supports. Interviews were audio-recorded with permission, transcribed verbatim, and anonymized (Creswell & Poth, 2018).

Data Collection and Analysis

Analysis proceeded in an iterative multi-strand manner. First, Phase 1 documents were coded using a hybrid deductive–inductive approach: deductive categories were informed by innovation-related dimensions in geography education (e.g., competence-oriented learning, inquiry, digital/geospatial tools, and fieldwork), while inductive coding captured Bulgaria-specific emphases (Bowen, 2009).

Second, Phase 2 questionnaire data were analyzed descriptively using frequencies and percentages to profile the participant group and to identify prevalent technology-use patterns, motivation levels, and perceptions of curriculum readiness and professional-learning provision.

Third, Phase 3 interview transcripts were thematically analyzed to elaborate, explain, and contextualize questionnaire patterns and to surface implementation mechanisms, constraints, and enabling conditions. Theme development followed a systematic process of familiarization, coding, candidate theme generation, and refinement (Braun & Clarke, 2006).

Finally, evidence from documents, questionnaire indicators, and interviews was integrated through triangulation and joint-display logic to derive meta-inferences about convergence/divergence between intended curriculum expectations and teachers' reported realities, and to specify actionable support needs (Patton, 2015).

Trustworthiness was strengthened through data-source triangulation across documents, questionnaire indicators, and interviews, maintenance of an audit trail for sampling and coding decisions, and peer debriefing within the research team (Patton, 2015). Ethical safeguards included informed consent, voluntary participation, anonymization of transcripts and questionnaire records, and secure data storage.

Findings support analytical transferability rather than statistical generalization. The documentary corpus reflects publicly available and authorized materials at the time of collection; questionnaire results represent self-reported patterns from a limited respondent

group (n = 42), while interview findings represent teachers' accounts rather than direct classroom observation. Future work could extend the design through lesson observations, artefact collection, and student outcome measures. In school education, geography illustrates the great creativity and initiative among students of course, methodologists, geography teachers (conducting classes and consultations on the geography platform), must successfully provide learning material, especially in the time when e-learning is entering. In the Bulgarian context, due to the commitment of Future research should strengthen analytical transferability by combining teacher self-reports with classroom observations and student learning evidence, particularly for outdoor learning and digital activities that may extend beyond standard lesson structures (Likouri et al., 2017).

Findings

Innovation Expectations in Grades 11–12 Geography and Economics Curricula and Authorized Materials

The document analysis indicates that the intended curriculum is organized through a modular structure that emphasizes multi-scalar geographical reasoning and competence-oriented learning targets. Across modules, learning outcomes and methodological guidance encourage the interpretation of maps, graphs, and statistical series, and promote applied problem-solving and inquiry-oriented tasks. Although geospatial technologies and digital resources are positioned as levers for modernizing Geography and Economics, guidance frequently remains generic (i.e., framed as encouragement rather than detailed classroom scenarios), leaving substantial pedagogical discretion to teachers.

More specifically, elective modules are framed as opportunities for contextual adaptation and student choice within specialized preparation, while competence descriptors repeatedly prioritize the interpretation of geospatial representations and the quality of map-work tasks and visuals. Fieldwork and outdoor learning are recommended as authenticity-enhancing strategies, yet they are often positioned as optional and potentially time-consuming, which may reduce prioritization under time-pressured conditions.

Teachers' Profiles, Technology-Use Patterns, and Motivation for Adopting New Approaches

Questionnaire responses suggest that the participating teachers represent a professionally experienced group: 57.1% identified as female and 42.9% as male; age distribution was skewed toward 40–60 years (57.2% combined), and most respondents taught in municipal/state schools (76.2%).

Teachers reported extensive use of basic digital tools in their pedagogical activity. The most frequently used technologies were multimedia presentations (76.2%) and internet sources (71.4%), followed by e-textbooks and educational websites (both 64.3%). Mobile applications were used by 40.5% of respondents, while only one respondent (2.4%) reported they were not using technology. Figure 1 visualizes these patterns.

Motivation to adopt new technological approaches was generally high: 57.1% reported high motivation and 16.7% characterized innovativeness as a matter of professional honor, whereas only 7.2% reported low or no motivation. Figure 2 summarizes the distribution of motivation responses. In terms of using curated online resources (informational sites/videos),

64.3% reported use in regular classes and 47.6% reported use for Olympiad/competition preparation, indicating that teachers draw on digital resources both for routine teaching and for enrichment activities.

Teachers' Evaluations of Curriculum Readiness, Training Adequacy, And Preferred Professional Learning Supports

With respect to whether the current curriculum prepares students for real life, responses were mixed: 61.9% agreed (7.1% strongly; 54.8% mostly), whereas 33.3% mostly disagreed. Perceptions of professional-learning opportunities were more critical: only 42.8% agreed that sufficient opportunities for quality training/qualification exist (19.0% strongly; 23.8% mostly), while 42.9% disagreed (38.1% mostly; 4.8% strongly) and 14.3% could not judge. Figure 3 presents these comparative perception patterns. Table 3 summarizes participant characteristics and school contexts from the teacher questionnaire (n = 42).

Table 3

Participant Characteristics and School Contexts (Phase 2 Questionnaire, N = 42)

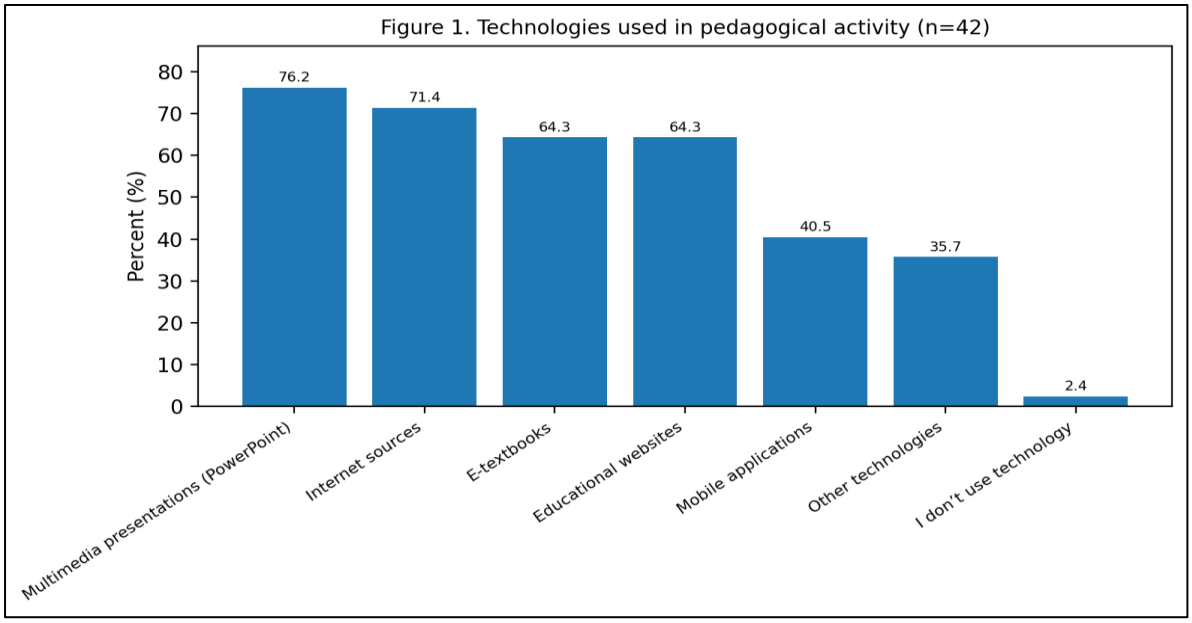
Variable	Categories	n (%)	Notes
Gender	Female; Male; Prefer not to answer	Female: 24 (57.1%) Male: 18 (42.9%) Prefer not to answer: 0 (0%)	Self-reported background item (Question 1).
Age group	Under 30; 30–40; 40–50; 50–60; Over 60	Under 30: 8 (19.0%) 30–40: 7 (16.7%) 40–50: 11 (26.2%) 50–60: 13 (31.0%) Over 60: 3 (7.1%)	Self-reported background item (Question 2).
School type	Municipal/State; Private; State+ Private; Not practicing	Municipal (State): 32 (76.2%) Not practicing at the moment: 6 (14.3%) Private: 2 (4.8%) State and private: 2 (4.8%)	Context indicator for implementation conditions (Question 3).

Interview accounts (n = 37) corroborated the survey patterns by emphasizing that teachers generally support innovation-oriented teaching but enact it selectively in response to constraints such as class time, uneven device access, and preparation demands. Teachers particularly highlighted the need for practical, classroom-ready professional learning on designing curriculum-aligned GIS/digital tasks, integrating authentic online resources safely, and planning feasible fieldwork/outdoor learning sequences.

The figure shows that teachers' technology use is concentrated on widely accessible and low-threshold tools, such as multimedia presentations and internet-based resources. More advanced or specialized tools, including mobile applications, are used less frequently, indicating gradual rather than transforming integration of digital technologies into classroom practice. This pattern suggests that innovation is primarily enacted through incremental adaptations of familiar tools rather than through systematic adoption of geospatial or inquiry-oriented technologies.

Figure 1

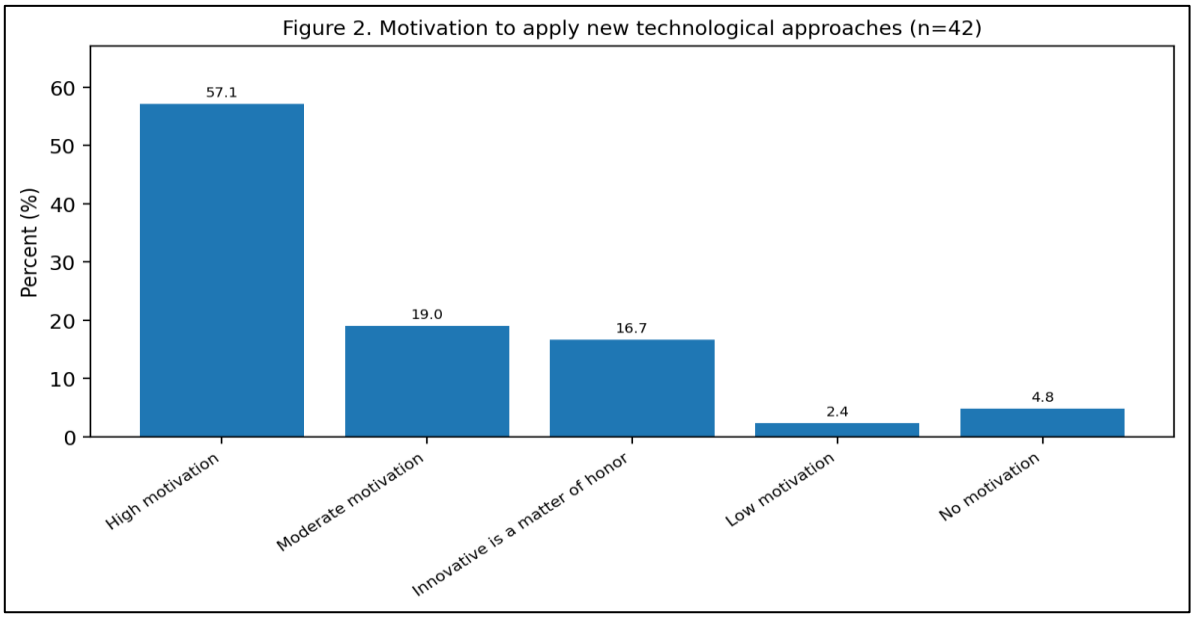
Technologies Used in Pedagogical Activity (Teacher Questionnaire, N = 42)



Importantly, willingness to engage in professional learning was high. No respondent selected the option of refusing training; 66.7% would participate in free training even without credits, and a further 19.0% would participate if credits were available. Taken together, these results indicate that the principal bottleneck is not teacher motivation but rather the availability, accessibility, and practical relevance of professional-learning provision. Table 4 integrates intended curriculum innovation signals with teacher questionnaire indicators to identify convergences, gaps, and actionable support needs.

Figure 2

Motivation For Applying New Technological Approaches (Teacher Questionnaire, N = 42).

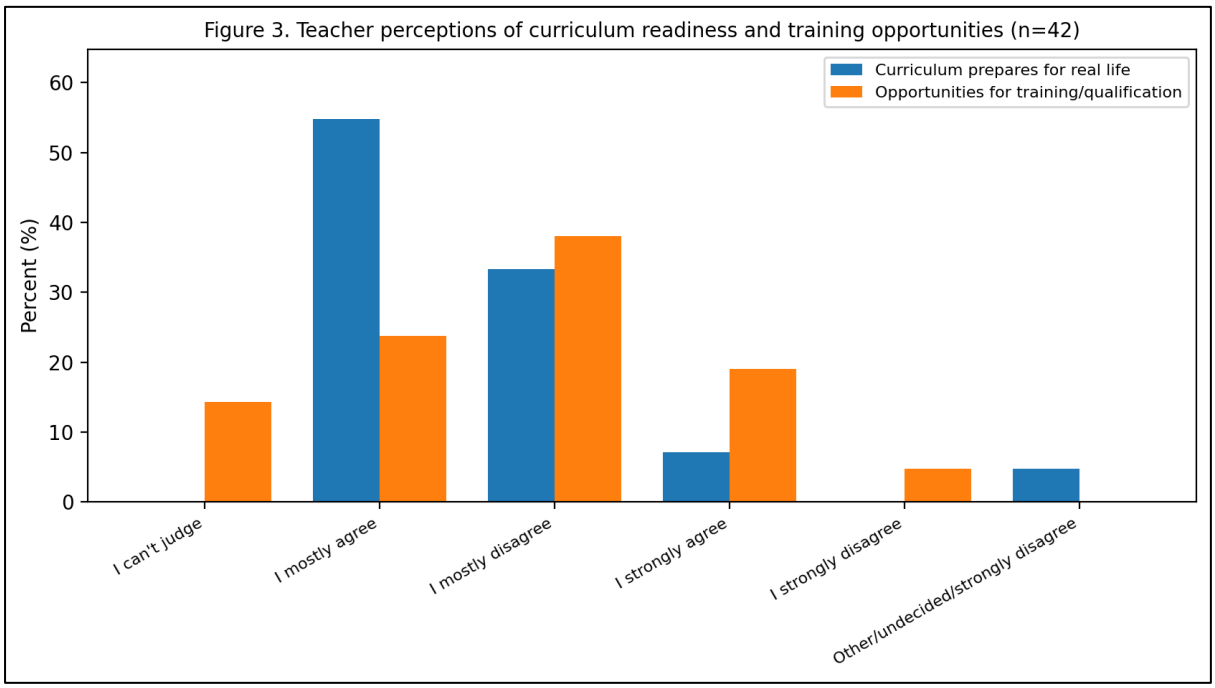


The distribution of responses indicates generally high motivation among teachers to adopt new technological approaches, with the majority reporting strong professional commitment to innovation. However, the coexistence of high motivation with selective classroom implementation suggests that willingness alone is insufficient to ensure enactment. Structural conditions, including time constraints and access to pedagogical support, appear to mediate how motivation translates into practice.

Accordingly, the pattern is best interpreted as conditional readiness: teachers report strong motivation, but enactment depends on enabling conditions—most notably access to classroom-ready resources, sustained professional learning, and assessment-for-learning competences that help legitimize innovative activities within accountability structures (Lebona & Ayanwale, 2024).

Figure 3

Teacher Perceptions of Curriculum Readiness and Training Opportunities (Teacher Questionnaire, N = 42).



The figure highlights a divergence between teachers' evaluations of curriculum readiness and their perceptions of available professional-learning opportunities. While a majority perceive the curriculum as broadly oriented toward real-life competences, substantial proportions express reservations or uncertainty.

This contrast underscores that curriculum intentions are not consistently matched by training and support structures capable of sustaining innovation in practice. This finding resonates with evidence that geography teachers experience innovation as a continuous and demanding process, reinforcing the need for sustained, practice-near professional learning rather than one-off initiatives (Karolčík & Marková, 2025).

Table 4

Joint Display Integrating Intended Curriculum Signals with Teacher Questionnaire Indicators (N = 42) To Specify Convergences, Gaps, And Support Needs

Focus area	Intended curriculum signal (documents)	Teacher questionnaire indicator (n = 42)	Implications (support needs)
Digital and geospatial tools	Digital resources and geospatial representations are positioned as modernization levers, but implementation scenarios are often stated at a general level.	High use of basic tools (PowerPoint 76.2%; internet sources 71.4%; e-textbooks/websites 64.3%); moderate use of mobile apps (40.5%).	Provide curated, curriculum-aligned task templates (including GIS-ready datasets/maps) and ensure baseline infrastructure and access.
Teacher motivation for innovation	Innovation rhetoric implies active teacher design and uptake of new approaches.	High motivation (57.1%) and strong professional commitment (16.7%); low/no motivation is rare (7.2%).	Prioritise practice-near PD that converts motivation into enactment (ready-to-use materials, exemplars, and coaching).
Use of curated online resources	Methodological guidance encourages use of digital resources and contemporary materials.	64.3% use informational sites/videos in regular classes; 47.6% for Olympiad/competition preparation; 40.5% for homework.	Develop vetted repositories and guidance for high-quality digital resources; address digital safety and quality assurance.
Curriculum readiness for real life	Competence-oriented outcomes position geography learning as preparation for real-world reasoning and decision-making.	61.9% agree curriculum prepares for real life; 33.3% mostly disagree.	Clarify competence expectations with performance examples and assessment-aligned tasks; strengthen authentic, applied learning sequences.
Professional learning opportunities and demand	Innovation expectations assume access to sustained teacher qualification and support.	Only 42.8% agree opportunities are sufficient; 42.9% disagree; willingness for free training is very high (66.7% even without credits; 19.0% with credits; 0% refuse).	Scale accessible PD pathways (with/without credits), focusing on mobile apps/internet resources and geospatial inquiry; reduce barriers via time allocation and institutional support.

Table 4 synthesizes intended curriculum messages with teacher-reported indicators, making visible where policy-level innovation signals align with everyday classroom realities and where they diverge. Across focus areas, teachers' high use of accessible digital tools and strong motivation contrasts with persistent concerns about the sufficiency of professional-learning opportunities, indicating a support-system bottleneck rather than an attitudinal deficit. The joint display therefore clarifies that implementation-ready resources, practice-near professional development, and institutional time/allocation supports are critical levers for narrowing the intended–enacted gap.

Discussion

This study extends scholarship on curriculum innovation by tracing how new geography-education ideas move from the intended curriculum (curricula, textbooks, and policy texts) to the enacted curriculum (teachers' reported practices) within Bulgarian secondary education. Consistent with curriculum implementation research, the analysis illustrates how teachers actively interpret, adapt, and sometimes narrow reform intentions in response to local constraints and professional judgement (Priestley et al., 2012; Remillard, 2005; Spillane et al., 2002; van den Akker, 2003). Teachers' practices regarding student assessment methods in Geography in secondary education in Greece. Although the application of descriptive assessment has been recorded in other European countries, the main focus of the study is on the current situation in Greece, as well as on the readiness of science teachers to adopt an alternative form of assessment and the identification of relevant circumstances. (Pavlis, 2025).

The document analysis suggested that contemporary Bulgarian curriculum and textbook materials increasingly emphasize competence-oriented learning, digital resources, inquiry, and field-based activities; however, interviews indicated that classroom enactment remains uneven and frequently instrumental. This implementation gap is well documented in other settings, where reforms are mediated through teachers' sense-making and school-level capacity, leading to selective adoption rather than wholesale transformation (Clement, 2014; Spillane et al., 2002).

In relation to geospatial technologies (GIS, digital mapping, and web-based resources), the pattern of rhetorical endorsement but constrained classroom uptake is consistent with international evidence identifying recurring barriers: insufficient pedagogical training, limited time for preparation, uneven access to hardware/software or suitable data, and assessment regimes that prioritize content coverage (Bednarz, 2004; Kerski, 2003; Šiljeg et al., 2022). Studies in diverse contexts similarly report that even when teachers express positive attitudes toward GIS, implementation is often constrained by these structural conditions (Akinyemi, 2015; Šiljeg et al., 2022), which aligns with Bulgarian teachers' emphasis on sustained professional learning and infrastructure. Of course, geography education is also starting to take place digitally, and opportunities are increasingly being sought to create a methodology that would develop digitalization in geography education. (Kurilj, 2019).

At the same time, the wider literature provides contrasting evidence that GIS-supported inquiry can yield learning benefits when instructional design and scaffolding are explicit. Empirical studies report improvements in learners' attitudes, self-efficacy, and achievement (Baker & White, 2003), while design-focused research articulates principles for GIS-supported geographic inquiry that reduces cognitive load and support progressive skill development (Favier & van der Schee, 2012). The present findings therefore suggest that the

key challenge in Bulgaria is less the curricular legitimacy of GIS than the conditions for enactment.

A comparable pattern emerges for fieldwork and out-of-school learning. Teachers valued fieldwork for making abstract concepts tangible, yet described fieldtrips as threatened by safety/liability concerns, time and cost pressures, and administrative hurdles. This resonates with analyses of fieldwork in risk society contexts, which show that perceived risk and accountability can substantially reshape teachers' willingness to undertake fieldwork (Cook et al., 2006) and that learning gains depend on careful pedagogical structuring rather than 'being outdoors' per se (Herrick, 2010).

Evidence also indicates that fieldwork constraints are not immutable. International perspectives suggest that fieldwork effectiveness depends on purposeful sequencing of preparation, guidance in the field, and structured post-field reflection, and that partnerships can help stabilize provision and build teacher capacity (Fuller et al., 2006). Recent work on nature-enhanced learning likewise argues that structured outdoor pedagogies can contribute to engagement and place-based understanding when aligned with clear learning outcomes and assessment approaches (Brookfield, 2022). These insights align with Bulgarian teachers' call for institutional support, risk management procedures, and resourcing for field-based learning.

Finally, teachers' tendency to prioritize examinable content and to confine innovations to optional modules reflects a broader research base on curriculum narrowing under high-stakes accountability. Qualitative meta synthesis research shows that testing regimes can reduce instructional breadth and discourage time-intensive pedagogies such as inquiry projects or extended fieldwork (Au, 2007). Taken together, the findings underscore that improving innovation uptake in Bulgarian geography education requires coordinated action across curriculum policy, teacher education, school leadership, and resource provision—so that reforms are supported not only at the level of official texts, but also in the everyday conditions of classroom work.

This sequential qualitative study shows that Bulgarian upper-secondary Geography and Economics materials articulate a clear innovation agenda through modular profiling, competency expectations, and encouragement of digital/geospatial tools and fieldwork. Teacher interviews, however, indicate that enactment is selective and shaped by infrastructural, temporal, and institutional constraints. Bridging the gap between planned and implemented curricula requires classroom-ready resources, targeted professional development, and sustained institutional support for fieldwork, GIS-based inquiry, and cartographic competences (Pivarníková, 2025).

Suggestions for Stakeholders

Building directly on the convergences and divergences identified in the findings—especially the recurring constraints around time, assessment pressure, access to equipment/digital resources, and fieldwork logistics—the following suggestions target the main actors who can realistically influence implementation conditions for innovation-oriented geography teaching in Bulgarian secondary education. These recommendations also align with international evidence that implementation improves when teachers have access to practical,

classroom-ready guidance and visual exemplars that translate curriculum ambitions into teachable routines (Hazen & Alberts, 2021).

Ministry of Education and Science / Curriculum Authorities

Clarify what counts as acceptable evidence of "innovation" in assessment-relevant terms (e.g., exemplars of GIS-based inquiry tasks and fieldwork-based performance assessments), and provide a minimal, nationally supported package of digital and fieldwork resources aligned with curriculum outcomes to reduce inequities between schools. Comparable models of curriculum-aligned GIS learning environments—often complemented by teacher-facing dashboards and formative analytics—suggest a scalable template for national repositories and implementation support (Mkhongi & Musakwa, 2020).

Regional Education Authorities and School Leadership (Principals)

Protect instructional time for inquiry/fieldwork by scheduling flexible blocks and supporting risk-management routines; additionally, prioritize maintenance and shared access to basic geospatial and classroom technologies (projectors, reliable internet, licensed or open GIS tools) so that teachers can implement curriculum expectations consistently.

Universities and Teacher Education Providers

Strengthen pre-service and in-service modules that integrate (i) geography didactics, (ii) curriculum interpretation, and (iii) classroom-ready GIS/fieldwork task design; use practicum-based assignments and micro-teaching with authorized materials to build teachers' design capacity for adapting innovations to local constraints.

Textbook Publishers and Educational Content Developers

Expand "educative" supports in authorized materials (step-by-step task sequences, differentiated worksheets, safety/logistics checklists for fieldwork, and assessment rubrics), and provide editable digital companions to lower the preparation burden that teachers reported as a barrier to innovative enactment.

Professional Associations and Teacher Networks (E.G., Bulgarian Geographical Society)

Coordinate peer-learning communities, lesson-study cycles, and shared repositories of vetted inquiry/GIS/fieldwork tasks; these can translate isolated innovative practices into collective routines and create feedback loops between teachers, curriculum developers, and researchers.

Researchers And Project Funders

Support design-based and implementation-focused studies that test scalable models (e.g., low-cost GIS and nearby fieldwork) and evaluate how specific supports shift enactment; report both intended and enacted curriculum evidence to make innovation claims transparent and comparable across contexts.

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