



Mapping Educational Ecosystems in Bulgaria: Types and Trends.

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SUMMARY

The paper presents the current results of a long-term research project focused on mapping educational ecosystems in Bulgaria. Based on a conceptual analysis of ecosystemic paradigm in formal and non-formal education the paper presents a classification of identified types of educational models and practices with ecosystemic features.

The qualitative research is based on case studies of the 28 administrative regions of the country with the aim to map the open educational ecosystems. The data show that their features and dynamics reflect the reached balance between proactive local culture(s), context and leadership, on one side, and the supportive external priorities and policies at regional, national and international level, on the other. This explains why some ecosystems are internally focused and resilient while others' sustainability is seriously affected by the external context and dynamics.

KEY WORDS

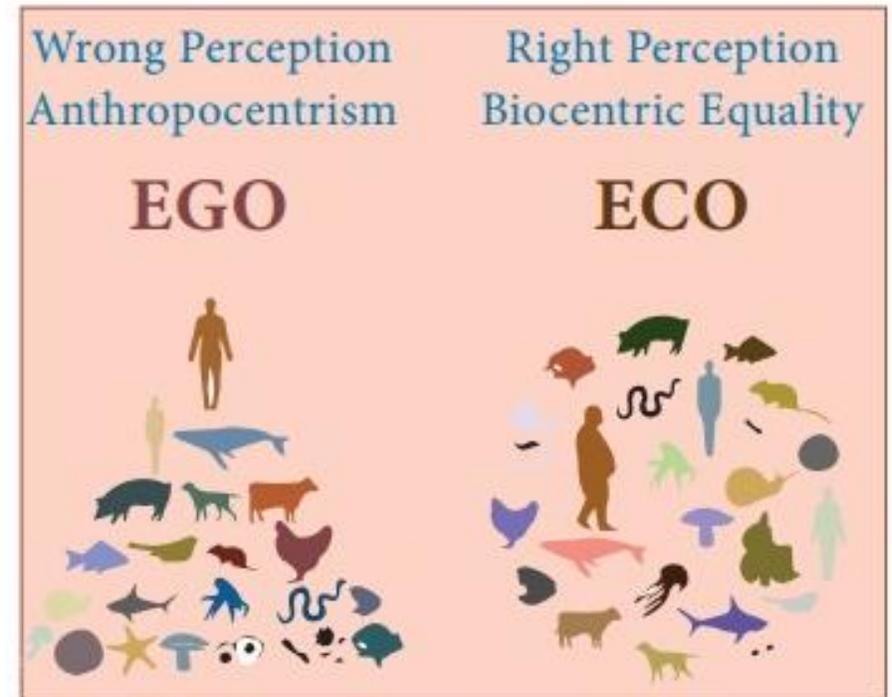
Essential dimensions of an ecosystem

Ecosystem structure – BIOCENOSIS + BIOTOPE

Biotic + abiotic substances and energy = LIFE

Ecosystem cycle of substances and energies - *a historically imposed model of coherent development based on the synergy of 4 types of ecosystem services (functions) realized through the interaction of biocenosis and biotope (Arthur Tansley, Correct and Incorrect Use of Botanical Terms, 1935).*

Ecosystem life and resilience – Factor Influences and Interactions with Other (External) Systems and Ecosystems



Ecosystem structure



Ecosystem Cycle



Ecosystem life

WHAT IS THE ADDED VALUE OF THE ECOSYSTEMIC RESEARCH?

	SYSTEMIC RESEARCH	ECOSYSTEMIC RESEARCH
Value foundations	Certainty Orderliness (in chaos) Predictability Control Result/Competition	Nature conservation Uniqueness (in chaos!) Probability Freedom Impact/Balance
Ideological and philosophical foundations	Each form of life or existence is a system that deserves and can be preserved and developed through systemic approaches, resources and tools.	Each form of life or existence is a naturally connected set of subsystems (biotic and abiotic) that deserves and can be preserved and developed through approaches and methods of balanced coexistence and distribution of things and energies among its constituent subsystems.
Scientific foundations	Mono scientific dimensions in an interdisciplinary context	Interdisciplinary dimensions in a mono scientific context
Application in practice	Institutionalization Standardization / Normalization Formalization classification	Contextualization Categorization Mapping Profiling
Research methodologies	Hypotheses Controlled mixing of methods and procedures	Open and flexible mixing of methods and procedures



THE CHALLENGE: ENORMOUS VARIETY OF ECOSYSTEM PARADIGMS AND MODELS IN EDUCATION WORLDWIDE

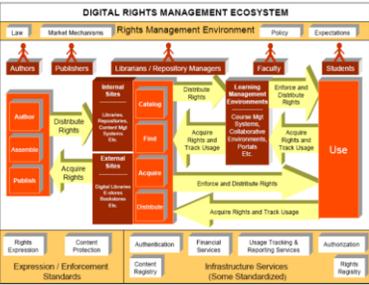
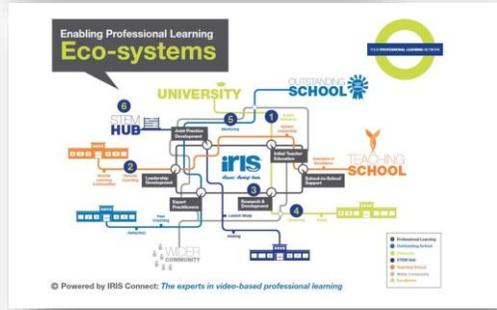
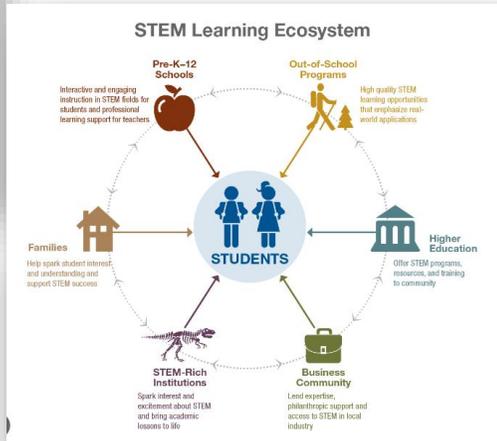
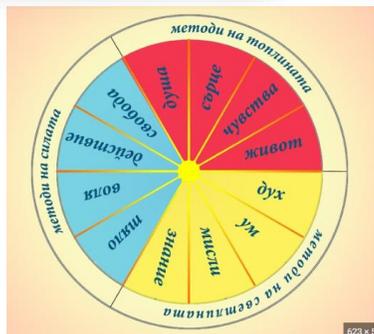
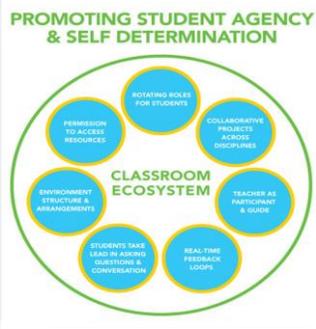
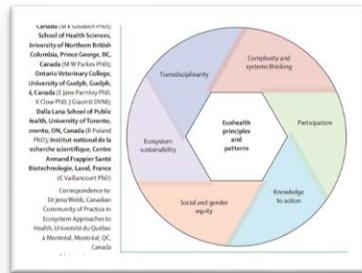
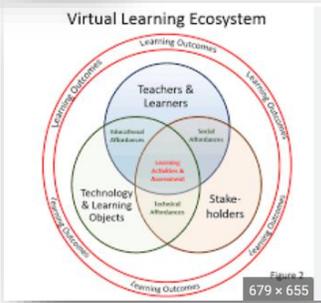
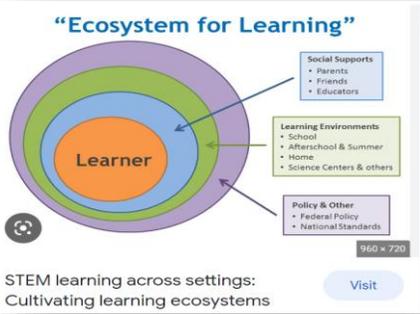


Figure 8. Digital Rights Management Ecosystem for educational community from [11]



THE RESEARCH QUESTION:

- What are the typical structural and functional characteristics of educational ecosystems in Bulgaria (compared to common trends worldwide)?
- How the ecosystemic paradigm in education can impact the quality education concept and assessment?

METHODOLOGY

Systematic review of
74 Scopus
publications

28 case studies
(administrative
regions) – *regional
open education
ecosystems*

Theoretical and Conceptual Foundations of Ecosystem Studies in Education

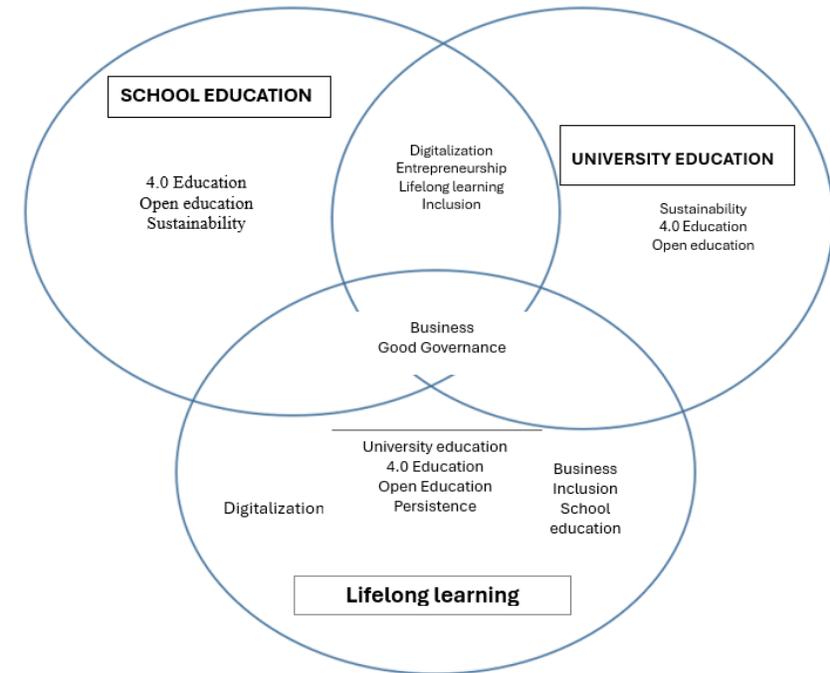
- Economic theories of cycles in ecosystems
- Theories about networks as ecosystems
- Theories of the management of organizational ecosystems
- Community (Political Science) Theories
- Learning ecosystem modelling



Structural and functional dimensions of educational ecosystems

(research data from systematic review of 74 Scopus publications)

Structural elements of educational ecosystems	Functional dimensions of educational ecosystems
University Ecosystems (18 publications) School Ecosystems (22 publications) Lifelong learning ecosystems (12 publications) Ecosystems in the field of professional business and engineering training (18 publications)	Digitalization in education (30 publications) Inclusion in education (16 publications) Entrepreneurship in Education (16 publications) Sustainability (9 posts) Good Governance in education (11 publications)



In: A SYSTEMATIC REVIEW OF PARADIGM APPROACHES TO RESEARCH AND MODELLING OF EDUCATIONAL ECOSYSTEMS, Pedagogy-
 Pedagogika, 5s/2024, p. 7 – 28, <https://doi.org/10.53656/ped2024-5s.01>
https://azbuki.bg/wp-content/uploads/2024/06/pedagogy_5s_24_silviya-nikolaeva.pdf

Ecosystemic services and functionalities in education

(global education context)

(S. Nikolaeva, 2024)

• In: A SYSTEMATIC REVIEW OF PARADIGM APPROACHES TO RESEARCH AND MODELLING OF EDUCATIONAL ECOSYSTEMS, *Pedagogy-Pedagogika*, 5s/2024, p. 7 – 28, <https://doi.org/10.53656/ped2024-5s.01>

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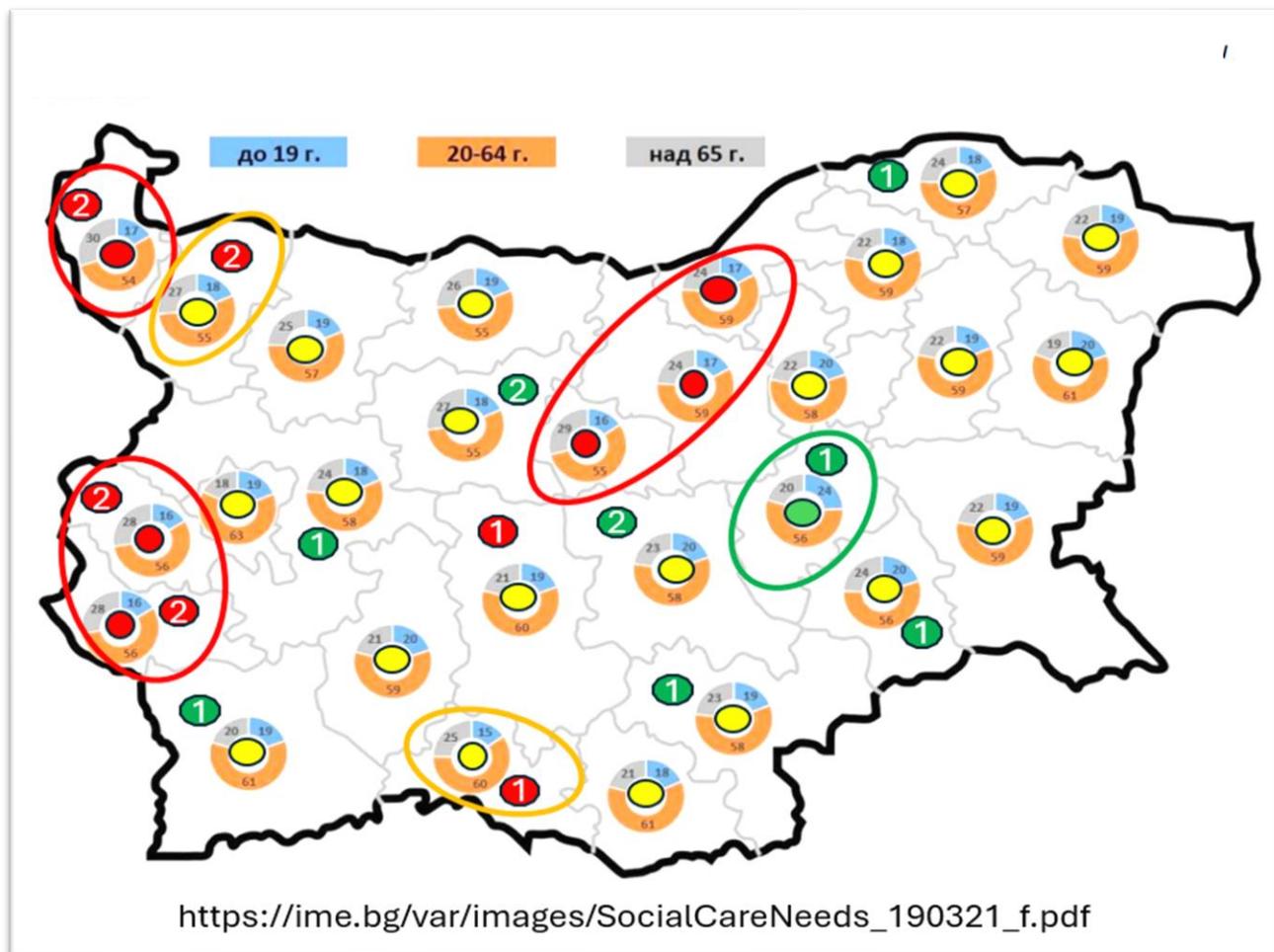
Ecosystemic services Ecosystemic functionalities	Provisioning	Regulating	Supporting	Cultural
Sustainable development	Models and practices for education for sustainable development	Policies and programs supporting education for sustainable development	Infrastructure for education for sustainable development	Sustainable development cultural norms and stereotypes
Inclusion	Inclusive education Inclusive methods and approaches in education Inclusive education leadership	Inclusive environments Inclusive policies, priorities and programs	Inclusive infrastructure Inclusive schools Inclusive teachers and trainers Inclusive learning communities	Personal development Social inclusion Educational inclusion
Digitalization	Digital learning Digital education Education 5.0 Digital connectivity Digital accessibility	Digital services Digital learning environments DIT in education	Digital infrastructure Digital technologies Digital resources and products	Digital safety Digital added value Digital inclusiveness and support
Entrepreneurship	Models and methods for entrepreneurship education	Educational networks for entrepreneurship education	Entrepreneurship infrastructure and connectivity	Entrepreneurship culture Entrepreneurship competence Entrepreneurship participation

Ecosystemic services of regional educational entities in Bulgaria

Regional educational entities	Ecosystemic services
Nurseries & Kindergartens	Preschool institutions for providing early care and education programs for children (1 – 5/6 years)
Public and private schools	Public and private primary, middle and secondary schools for providing formal education for all Bulgarian students
Cultural and educational centers for children and students	Public, private and civic institutions for providing non-formal out-of-school education in arts, social and natural sciences as well as special education to students with learning difficulties
Career centers (out-of-school)	Out-of-school public, private and civic centers for providing vocational and career counseling and
Student hostels	Municipal institutions for providing accommodation and socio-educational support to school students in risk or in need
Observatories	Educational institutions providing non-formal education and training programs in physics and astronomy
Speech therapy centers	Public or private centers for providing speech development support for school students with learning difficulties based on speech deficits or problems
Sport clubs & centers	Public or private centers for providing

Case study data

MAPPING TERRITORIAL DISTRIBUTION OF YOUNG POPULATION UNDER 19 BY REGIONS IN BULGARIA



Regions with lowest % of young people under 19



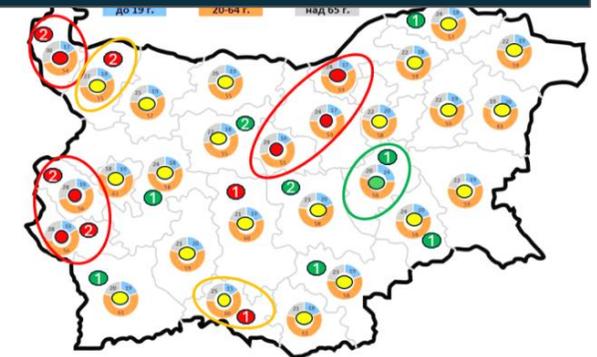
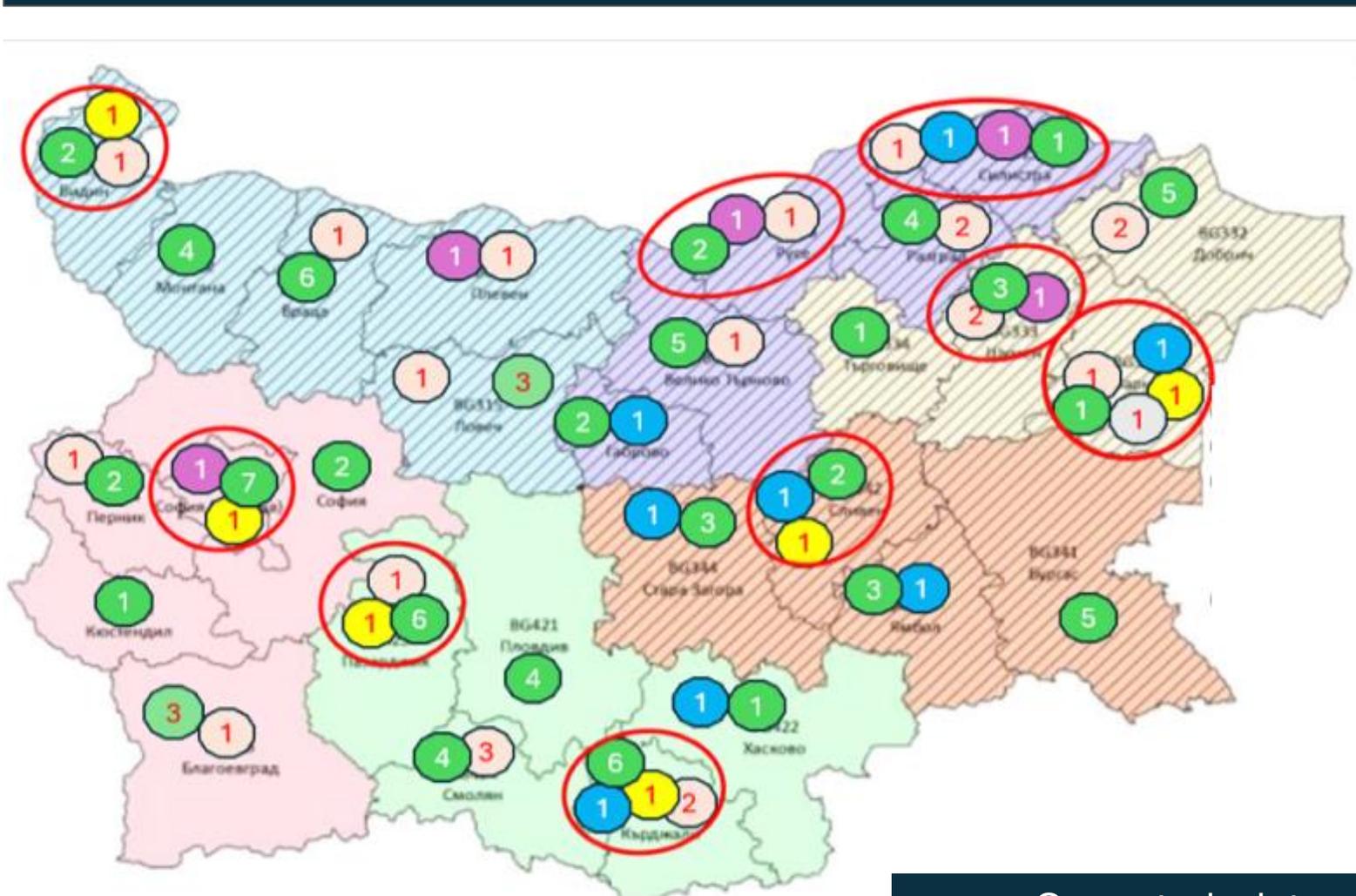
Regions with mid level % of young people under 19



Regions with highest % of young people under 19

Case study data

MAPPING OPEN EDUCATIONAL ECOSYSTEMS BY REGIONS IN BULGARIA

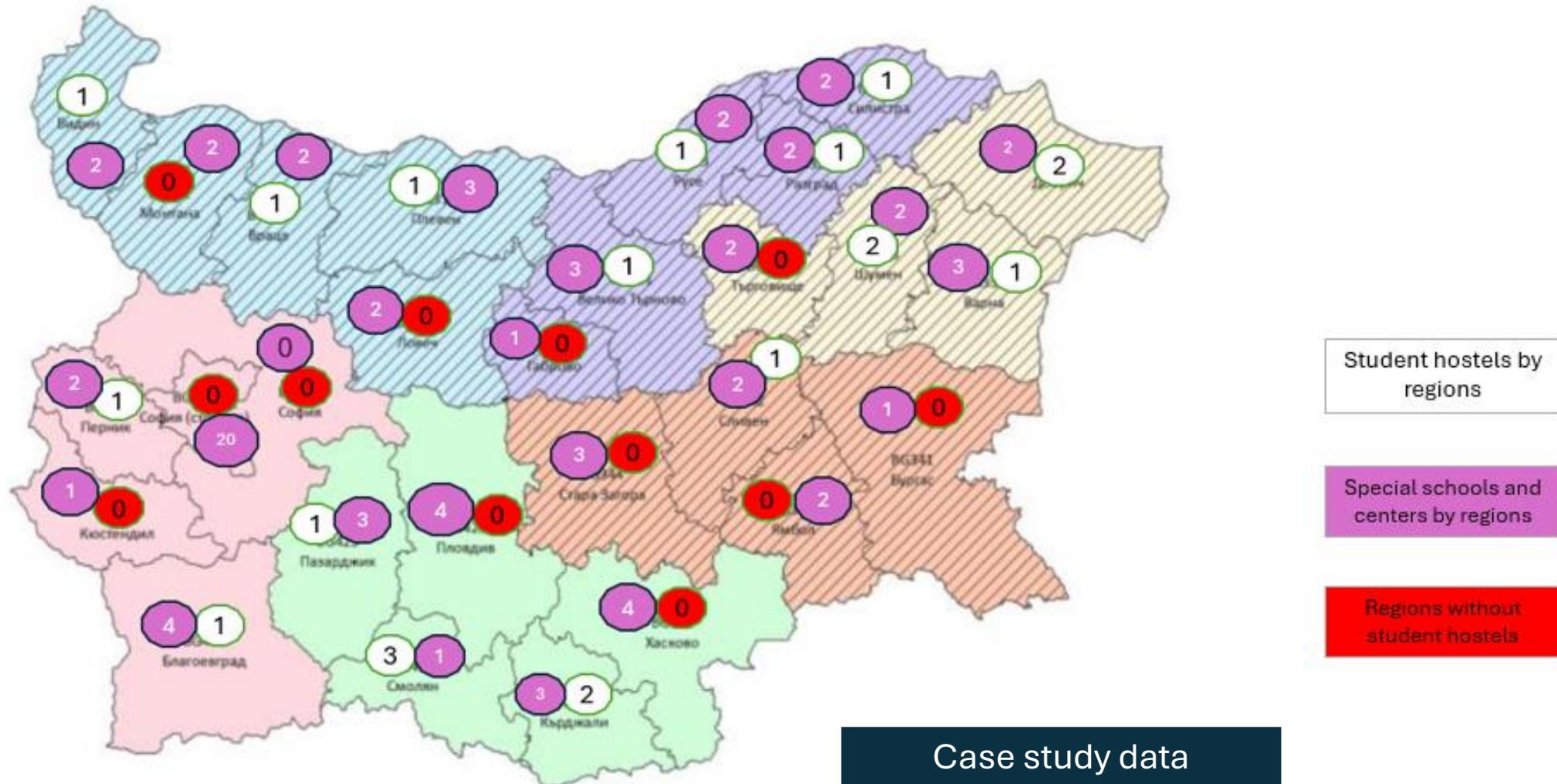


https://ime.bg/var/images/SocialCareNeeds_190321_f.pdf

- Cultural centers for children and students
- Career centers
- Student hostels
- Observatories
- Speech therapy centers
- Sport clubs

Case study data

MAPPING TERRITORIAL DISTRIBUTION OF STUDENT HOSTELS AND SPECIAL SCHOOLS AND CENTERS BY REGIONS IN BULGARIA



OPEN EDUCATIONAL ECOSYSTEMS IN BULGARIA

(case study results)

Structural specifics

Regional open educational ecosystems in Bulgaria have similar external structure including common types of educational entities. Most of them reflect current official policies, educational act and strategic programs. However, their internal structural specifics reflect key regional factors like socio-economic and social-ethic profile of the regions, available human resources and logistics, as well as regional and institutional traditions, current policies and priorities.

Functional specifics

- Case study data show that their functional features and dynamics reflect the reached balance between proactive local culture(s), context and leadership, on one side, and the supportive external priorities and policies at regional, national and international level, on the other. This explains why some ecosystems are internally focused and resilient while others' sustainability is seriously affected by the external context and dynamics.

Conclusions – *data analysis impact*

- Case study data show a lack of strong linear (positive or negative) correlation between common quantitative indexes (i.e. population, tyles and numbers of learning entities, educational achievements etc.) and the scope of the regional educational ecosystems. Their profiles are mostly affected by the dynamic interaction between external and internal specifics of their contextually balanced structure and functionality.
- These results give reasons to rethink and redefine quality education by reflecting the ecosystemic specifics of contextual conditions, regulators, resources and practices through testing new forms of holistic norms, tools and stimulus.
- Regardless of declaring ecosystemic values and ambitions well know international assessment programs in fact implement system paradigm approaches and tools toward education. Their universal philosophy and methodology have low ecosystemic validity at regional, sociocultural or institutional level which leads to contextual inaccuracy and ecosystemic irrelevance of some of the suggested evaluations and recommendation.

Conclusions – *research paradigm impact*

- ❑ Ecosystemic research of open educational ecosystems improves the impact of the systemic approaches and practices by addressing holistically the context and integrating the potential of all kind of entities and resources.

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