



# Research Group 3.1.10

## DigitalEdu-SU

Leading researcher prof. Roumiana Peytcheva-Forsyth –  
Faculty of Education, Sofia University

Established researcher –Harvey Mellor – emeritus reader at  
IoE, UCL



# General description of the project

-  The field of study - 'Digital education': the pedagogical use of digital technologies to support and enhance teaching, learning and assessment, and the development of digital competences of learners and training staff.
-  Digital competencies:
  -  both basic digital competences of all citizens,
  -  more advanced digital competencies for some students as preparation for later advanced study in informatics, or work within digital industries.

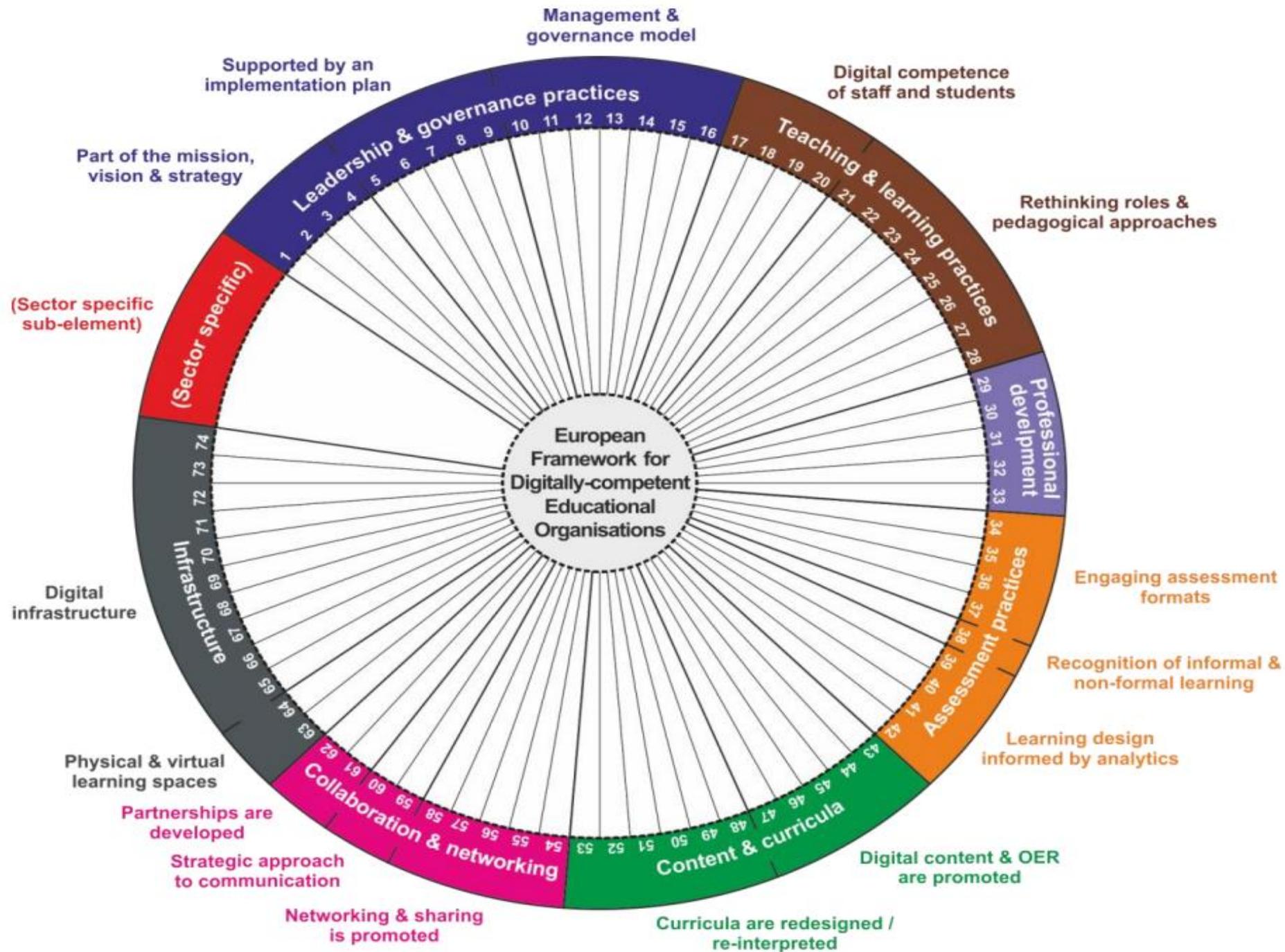


# General description of the project

In this study we draw on:

- 🖥️ the wide range of existing research in the field.
- 🖥️ the definitions of competencies from three existing European competency frameworks:
  - 🎮 DigComp 2.2. – the digital competence frame for citizens,
  - 🎮 DigCompEdu - the Digital Competence Framework for Educators
  - 🎮 EU Digital Maturity models for schools DigCompOrg (including DigBGSchool model the schools' digitalization)





# General description of the project

-  Our research efforts are directed towards the **‘state of the actual’** in digitalization of education as distinct from examining the **‘state of the art’**.
-  We believe that the actual implementation of digital education differs significantly from the picture painted by reports of intervention studies on the one hand and national level statistical reports of provision and uptake on the other.
-  It is hoped that such a focus will enable the refinement of existing approaches and guidelines in order to develop more effective approaches to implementing digital education.



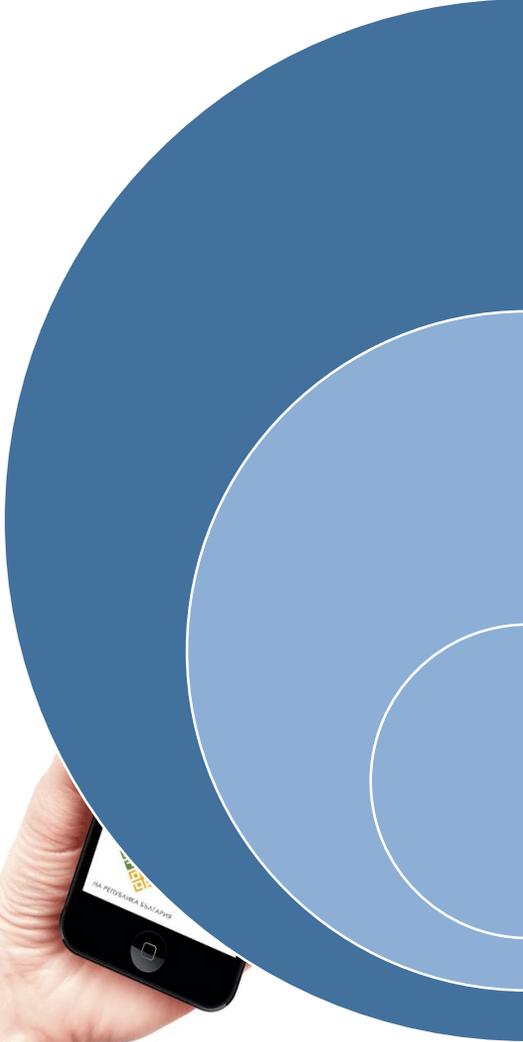
# General description of the project

## Research goals

- 
1. Identification of the **digital competences** of teachers, students and schools as educational organisations
  2. To identify how **existing curricula** support the development of students' digital competences and how digital technologies are used in their teaching, learning and assessment
  3. Identification of the **approaches to teaching, learning and assessment** of digital competences in schools
  4. Identification of the **pedagogical use of digital technologies** to support and enhance teaching, learning and assessment in schools, both in general and also in specific curriculum areas

# General description of the project

## Research goals



5. Identification of the present use of **teacher training** to develop teachers' digital educational competences and hence the ability of teachers to address the development of digital competences of their students

6. To establish how the **leadership and management** of digital education is carried out in primary and secondary schools

7. Identification of the development of advanced digital competencies as an elective subject for some students as preparation for work within digital industries

# Project activities in progress

## What has been done so far?

Building up the research group – 26 researchers from 10 Faculties, including 1 leading researcher (R4), 1 established researcher (R4), 22 research fellows (R2), and two junior researchers (R1).



# Project activities in progress

## What has been done so far?



FACULTY OF EDUCATION



FACULTY OF SLAVIC STUDIES



FACULTY OF MATHEMATICS AND  
INFORMATICS



FACULTY OF EDUCATIONAL STUDIES AND  
THE ARTS



FACULTY OF CLASSICAL AND MODERN  
PHILOLOGY



FACULTY OF HISTORY



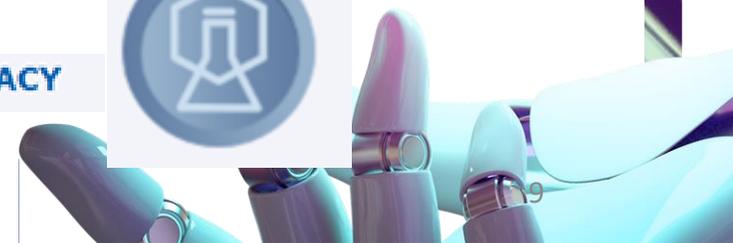
FACULTY OF PHYSICS

FACULTY OF GEOLOGY AND GEOGRAPHY



FACULTY OF BIOLOGY

FACULTY OF CHEMISTRY AND PHARMACY



Research Group 1 Virtual Room

Research Group 1 Forum

Research Group Resource Folder 1



Research Group 2 - Bulgarian language and literature

Members of the research group:
Ch. Assistant Dr. Nataliya Hristova - FSF
Ch. assistant Dr. Despina Vasileva - FSF

Research Group Virtual Room 2

Research Group 2 Forum

Research Group 2 Resource Folder



UCL

### Observation

- Systemic & Participatory
- Bottom-up
  - Ground observations
  - Fieldwork
  - Ground truthing
  - Participatory Action Research, empowerment
  - User & Habitat

# Project activities in progress

## What has been done so far?

Several research sub-groups were established to address the research objectives and to cover all researched areas

Research Group 1	Natural Sciences with representatives from the departments of teaching methodology at the Faculty of Chemistry and Pharmacy, the Faculty of Physics, and the Faculty of Biology.
Research Group 2	Bulgarian Language and Literature
Research Group 3	Foreign Language Education – English, German and Spanish
Research Group 4	Primary School Education
Research Group 5	Digitalization in the European and Bulgarian context
Research Group 6	Teacher training in the context of education digitalization
Research Group 7	Leadership and management of digital learning in schools
Research Group 8	Digitalization of education in mathematics and computer science
Research Group 9	Digitalization of education in history and geography



Efficient communication and interaction with the educational organizations where the data collection has to take place was established

Deans of all Faculties involved

Ethics Committee of Sofia University

The Center for Assessment in Preschool and School Education



Ministry of Education  
Regional Inspectorates of Education  
School directors



# Research carried out At Sofia University as a teacher training institution

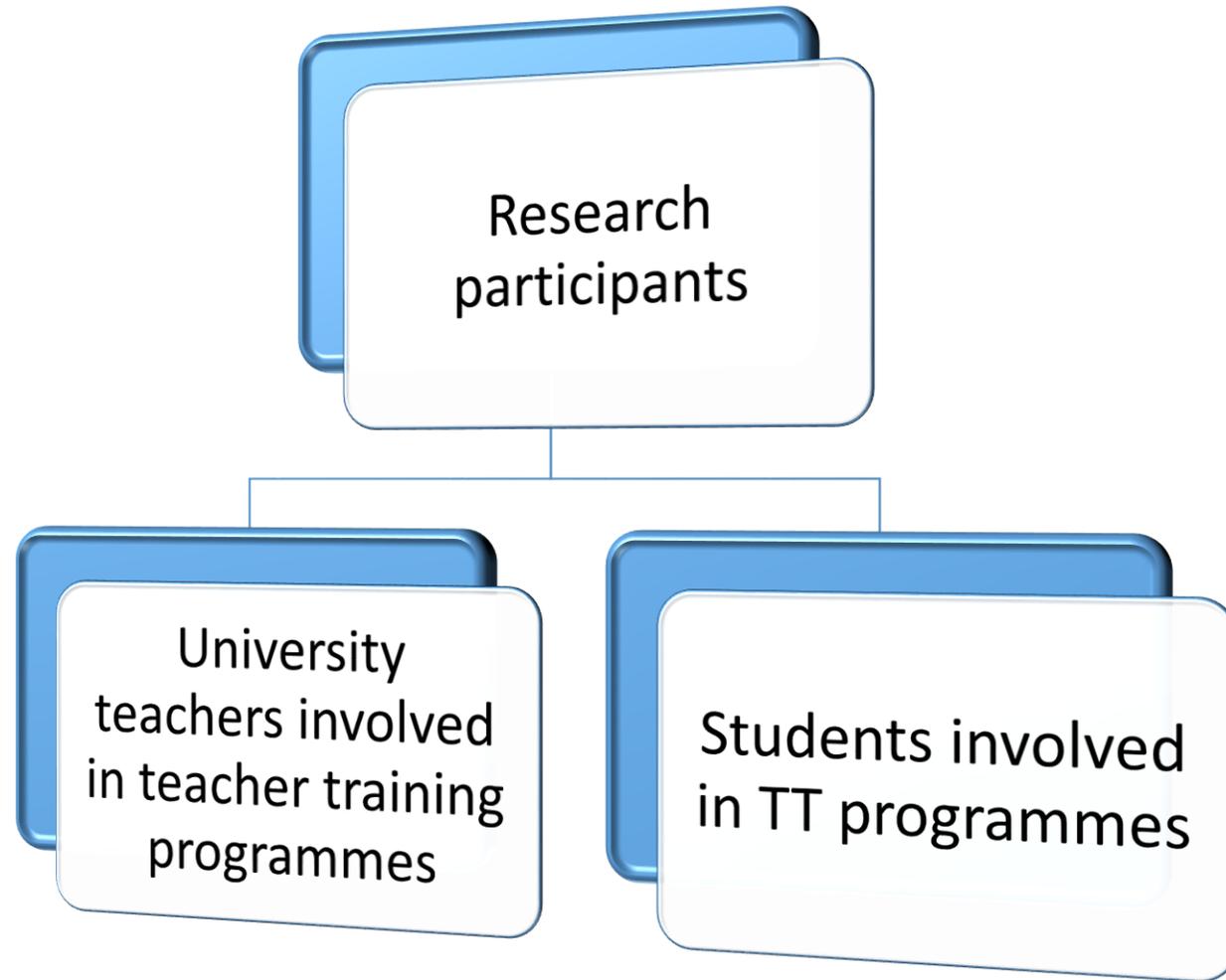
**Research aim 5** - Identification of the present use of teacher training to develop teachers' digital educational competences and hence the ability of teachers to address the development of digital competences of their students and to make appropriate pedagogical use of digital technologies

Research questions:

- What is level of digital competence of trainee teachers and teacher trainers as measured by self-report tools such as SELFIE and SELFIE for TEACHERS?
- What is level of digital competence of trainee teachers and teacher trainers as determined by observation of practice?
- What is the place accorded to digital competences in existing curriculum documentation for teacher training?
- What is the role assigned to the use of digital technologies to support teaching, learning and assessment by trainee teachers in existing curriculum documentation?
- How are teachers' digital educational competencies being assessed?



# Research carried out at Sofia University as a teacher training institution



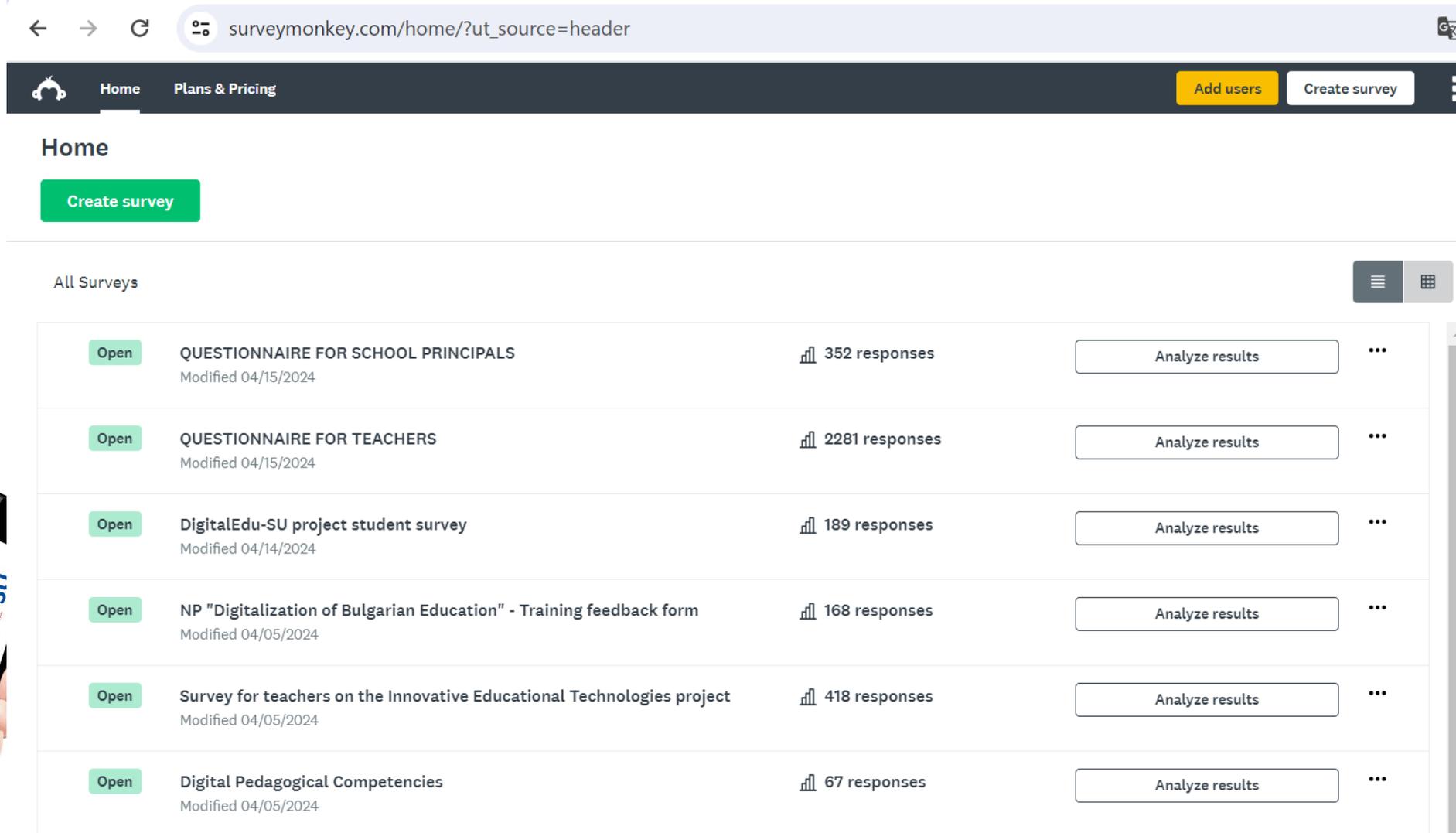
# Research carried out at Sofia University as a teacher training institution

## Research methodology

- 🔒 Documentation analysis – curriculum of teacher training programmes (TTP), syllabuses of disciplines
- 🔒 Survey for university teacher trainers – 109 participants (statistically analyzed)
- 🔒 Interviews – over 70 interviewed teachers (qualitative analysis)
- 🔒 Classroom observations – 2-3 observations per participant
- 🔒 Survey for students from TT programmes – 188 respondents by now



# Research carried out at Sofia University as a teacher training institution



The screenshot displays the SurveyMonkey dashboard interface. At the top, the browser address bar shows the URL `surveymonkey.com/home/?ut_source=header`. The navigation bar includes links for `Home` and `Plans & Pricing`, along with buttons for `Add users` and `Create survey`. Below the navigation bar, the `Home` section features a prominent `Create survey` button. The main content area is titled `All Surveys` and contains a table of survey results.

Status	Survey Title	Responses	Action
Open	QUESTIONNAIRE FOR SCHOOL PRINCIPALS Modified 04/15/2024	352 responses	Analyze results
Open	QUESTIONNAIRE FOR TEACHERS Modified 04/15/2024	2281 responses	Analyze results
Open	DigitalEdu-SU project student survey Modified 04/14/2024	189 responses	Analyze results
Open	NP "Digitalization of Bulgarian Education" - Training feedback form Modified 04/05/2024	168 responses	Analyze results
Open	Survey for teachers on the Innovative Educational Technologies project Modified 04/05/2024	418 responses	Analyze results
Open	Digital Pedagogical Competencies Modified 04/05/2024	67 responses	Analyze results





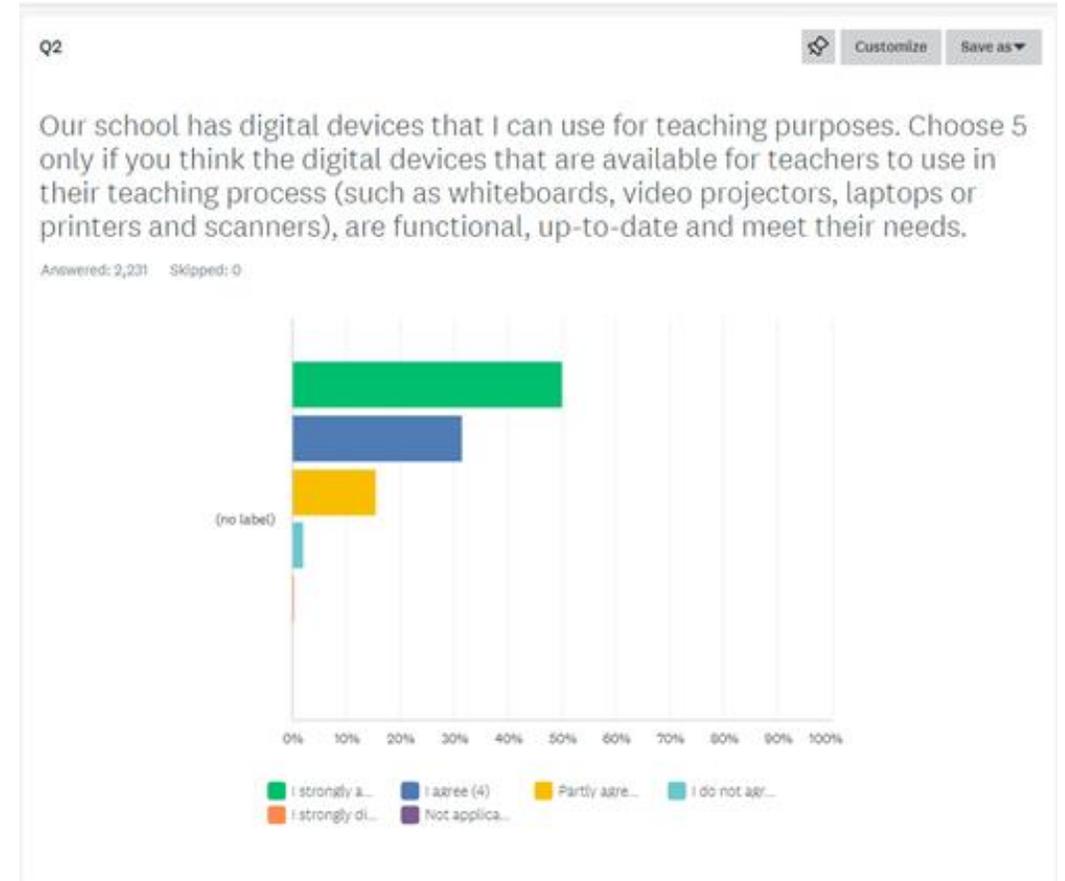
# Research carried out at secondary schools

2) National study on the digital competencies of educational institutions – representative sample of 359 secondary schools

2.1. Online survey - based on DigCompOrg for teachers



2231 teachers have completed the survey.



Open

QUESTIONNAIRE FOR TEACHERS

Modified 04/12/2024

2231 responses

Analyze results

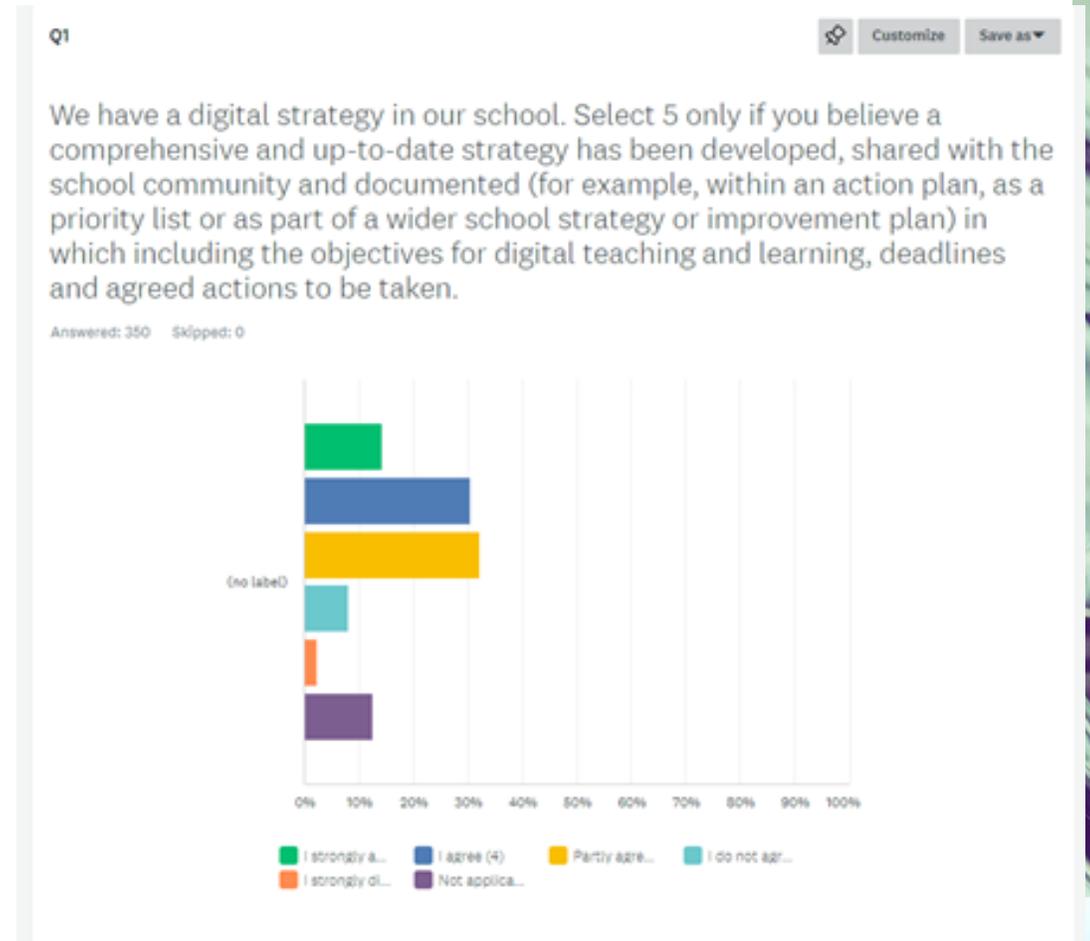
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# Research carried out at secondary schools

2) National study on the digital competencies of educational institutions – representative sample of 359 secondary schools

2.2. Online survey - based on DigCompOrg for school managers

350 School managers have completed the survey.



Open

QUESTIONNAIRE FOR SCHOOL PRINCIPALS  
Modified 04/12/2024

350 responses

Analyze results



# What's coming up in the near future? Secondary schools

Qualitative study in a sample of 30 schools

Based on the results of the national survey

In all key subject areas

Interviews with school managers and teachers

Classroom observations

Focus groups with students

Focus groups with parent



# Publication activity

## 8 WoS publications during 2024 planned

6 research papers accepted for publication in the AMEE 23 AIP conference proceedings referenced in SCOPUS and WoS:

### **“Digitalization of Bulgarian Education in the European Context”**

- Bistra Mizova, Roumiana Peytcheva-Forsyth, Margarita Bakracheva

### **“Teaching, Learning and Assessing Digital Competences in (Bulgarian) Primary Education: A Scoping Review”**

- Veronica Racheva, Lyubka Aleksieva

### **“The Role and Positioning of Digital Competences in Mathematics Education in Bulgaria”**

- Borislava Kirilova, Nikolina Nikolova, Temenuzhka Zafirova-Malcheva, Pencho Mihnev

### **“Teacher Attitudes toward ICT Implementation for Educational Purposes: Bulgarian and International Research (Scoping Review)”**

- Bistra Mizova, Margarita Bakracheva

### **“Towards a model of Pedagogical Literacies to underpin Machine-Learning-based adaptive Teaching Support”**

- Dejan Ljubojevic, Roumiana Peytcheva-Forsyth, Veronica Racheva, Stoyan Saev



# Publication activity

Journal of Pedagogy, issue 3s/2024, year XCVI

<https://pedagogy.azbuki.bg/pedagogics/pedagogyarticle/sadarzhanie-na-sp-pedagogika-2024-g/sp-pedagogika-knizhka-3s-2024-godina-xcvi/>

## **Digital Competence and Teaching Natural Sciences in Bulgarian Secondary Schools: Analysis of Regulatory Documents**

Nadezhda Raycheva, Milena Kirova

<https://doi.org/10.53656/ped2024-3s.03>

## **The Role of Digital Competence in School Historical Education**

Katya Misheva

<https://doi.org/10.53656/ped2024-3s.05>

## **Vision of digital competence of primary schools students and teachers in Bulgaria in educational documentation of the subject “Computer modelling”**

Lyubka Aleksieva, Veronica Racheva

<https://doi.org/10.53656/ped2024-3s.01>

## **Analysis of the Digital Competencies of Physics Teachers in Bulgaria According to the DigCompEdu Framework**

Ivelina Kotseva, Maya Gaydarova

<https://doi.org/10.53656/ped2024-3s.02>



# Publication activity - Journal of Pedagogy, issue 3s/2024, year XCVI

## **Digital Competence in Foreign Language Textbooks: Comparative Analysis of English, German, and Spanish Language Educational Systems**

Irena Dimova,  
Plamen Tsvetkov,  
Mihal Pavlov

<https://doi.org/10.53656/ped2024-3s.03>

## **Regarding Digitalization and School Geography**

Maya Vasileva

<https://doi.org/10.53656/ped2024-3s.04>

## **Leadership in the Context of Education Digitalization - Through the Prism of State Documents and Scientific Research**

Vasya Delibaltova

<https://doi.org/10.53656/ped2024-3s.07>

## **Vision of Digital Competences of Primary School Students and Teachers in Bulgaria in Educational Documentation of All School Subjects**

Lyubka Aleksieva, Veronica Racheva

## **Application of Digital Technologies in Chemistry Education: Attitudes of Teachers**

Tsenova, M., Kirova, M.



# Publication activity

Journal "Bulgarian Language and Literature" (<https://bel.azbuki.bg/en/>)

Vasileva, D. (2024). "Levels of Media Literacy of Students (Study)", Bulgarian Language and Literature, 66(1), pp. 68-81.

<https://bel.azbuki.bg/bulgarian/sadarzhanie-na-sp-balgarski-ezik-i-literatura-2024-g/sp-balgarski-ezik-i-literatura-knizhka-1-2024-godina-lxvi/>

Hristova, N. "The Rights of the Reader" in Literature Education and the Student Reading Blog. In: Journal Bulgarian Language and Literature, issue 1, 2024, pp. 59-67.

<https://bel.azbuki.bg/bulgarian/sadarzhanie-na-sp-balgarski-ezik-i-literatura-2024-g/sp-balgarski-ezik-i-literatura-knizhka-1-2024-godina-lxvi/>



# Publication activity

**Journal "Foreign Language Teaching"** (<https://foreignlanguages.azbuki.bg/en/>)

“Pedagogical Application of Digital Technologies in Foreign Language Education: Advantages and Challenges”

Irena Dimova, Plamen Tsvetkov, and Mihal Pavlov

**Journal "Mathematics and informatics"** (<https://mathinfo.azbuki.bg/en/>)

“Development of digital competences in the compulsory subject "Computer modeling and information technologies" in secondary school”

Borislava Kirilova, Nikolina Nikolova, Temenuzhka Zafirova-Malcheva, Pencho Mihnev

“Development of digital competences in the mandatory subject "Information Technologies" in secondary school”

Borislava Kirilova, Nikolina Nikolova, Temenuzhka Zafirova-Malcheva, Pencho Mihnev - Under review

**Croatian Journal of Education** – submitted for review

“Digitalization in Bulgarian science education: a comparative analysis of publications”

Elena Boyadzhieva, Adriana Tafrova



# Publication activity - papers in conference proceedings

## **INTED2024 - 18th Annual International Technology, Education and Development Conference:**

“Navigating The Future: Exploring Synchronous Hybrid Learning in Higher Education Post-Covid”

– Veronica Racheva, Roumiana Peytcheva-Forsyth

<https://library.iated.org/view/RACHEVA2024NAV>

“Incorporation of Flipped Classroom in Teaching Students with Special Educational Needs to Enhance Inclusive Education in Higher Education”

– Blagovesna Yovkova, Roumiana Peytcheva-Forsyth

<https://library.iated.org/view/YOVKOVA2024INC>



# Publication activity - papers in conference proceedings

16th annual International Conference on Education and New Learning Technologies,  
Palma (Spain) - 1st, 2nd and 3rd July 2024 – 5 accepted papers

***“Pre-service primary teachers’ digital competences: how do university teachers foster them?”***

- L. Aleksieva, M. Bakracheva

***“Digital pedagogical competences of Bulgarian secondary teachers – preliminary data”***

- B. Mizova, R. Peytcheva-Forsyth

***“Development of digital pedagogical competences in the university initial teacher training programmes – the perspective of university professors and future teachers (Sofia university case)”***

- R. Peytcheva-Forsyth, B. Yovkova

***“Bridging digital competences: A Comparative analysis between university teacher trainers and secondary school teachers in Bulgaria”***

R. Peytcheva-Forsyth, V. Racheva

***Personality predictors of teachers attitudes towards digital tools and artificial intelligence***

M. Bakracheva, B. Mizova





Thank you for your attention!

