

*Dear readers of the IncluSMe newsletter,*

With this first newsletter we would like to invite you to become a part of our community aiming on improving in mathematics and science initial teacher education by linking math and science education with intercultural pedagogies to better prepare teachers for culturally diverse classrooms.

Therefore, we would like to inform you in this newsletter about the IncluSMe project and also provide you with insights into initiatives in Greece and Slovak Republic:

- [IncluSMe – a project on intercultural learning in mathematics and science initial teacher education](#)
- [A longitudinal intervention in a complex educational environment in Greece: supporting Muslim minority students to learn mathematics](#)
- [Inclusive Education in Slovak Republic](#)

*Your IncluSMe team*

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## **IncluSMe – a project on intercultural learning in mathematics and science initial teacher education**

With the presented project, we offer a constructive contribution to tackle one of Europe’s greatest challenges: **education for an increasing number of refugee and immigrant youth**. To integrate them into European educational systems and to provide for stable, socially cohesive societies we need well-educated teachers who are prepared for and able to deal with (cultural) diversity in classrooms.

**IncluSMe** (*Intercultural learning in mathematics and science initial teacher education*) focuses on increasing the quality of the initial teacher education (ITE) of prospective mathematics and science teachers by **including intercultural learning into their curricula**: Prospective mathematics and science teachers need to learn how to cope with language barriers, culturally different pre-concepts about science and highly varying proficiencies of (immigrant) students to be prepared to tackle the challenges of their future profession.

In turn, maths and science competences are crucial for civic participation, academic and professional success, not only for students with diverse backgrounds but for all. But if comprehension and communication problems due to language barriers or cultural differences are not addressed, students with immigrant background perform poorly in maths and science. In order to secure educational opportunities for immigrant and refugee youth, it is essential to **include intercultural aspects into the initial education of maths and science teachers**.

Our project, therefore, aims to improve the relevance of higher education curricula for prospective maths and science teachers by **linking maths and science education with intercultural learning** – and thereby strengthening students’ social, civic and intercultural competences.

Our project therefore is named **IncluSMe** - *Intercultural learning in mathematics and science initial teacher education* and we will jointly contribute to a high-quality initial teacher education (ITE) throughout Europe.

### **Outcomes and Activities**

Core to the IncluSMe is the design and implementation of **open access teaching modules on intercultural learning** for prospective maths and science teacher; downloadable on our future website. These modules will be purposefully designed (flexible structure, modular, user guidance) so that they can be easily used in existing university courses and curricula.

Intercultural learning combines the acquisition of knowledge (on other cultures, cultural differences, and differing perspectives) with the development of personal competences that affect attitudes, values and opinions. Additionally, prospective teachers need to know about pedagogical approaches to deal with (cultural) diversity in class.

For intercultural learning first-hand experiences are indispensable. Therefore, the project also promotes student mobility, in particular by **offering two international summer schools**. Prospective maths and science



teachers are among the least mobile students. We aim to close this mobility gap (as envisioned in the Yerevan 2015 Bologna Communiqué). Our summer schools are envisaged as door openers for promoting the mobility of maths and science ITE students.

In addition, **two international and four national multiplier events** will support the dissemination of the project results.

With these activities, IncluSMe will also strengthen transnational cooperation between universities in establishing mobility programmes for maths and science students in initial teacher education.

IncluSMe will contribute to make the initial education of prospective maths and science teachers more relevant and more adapted to societal challenges of an increasingly diverse Europe. The desired impact of the project is (1) a broad implementation of the modules created within the project in maths and science ITE courses all over Europe as well as (2) the achievement of greater progress towards curriculum innovation with respect to the inclusion of intercultural learning as an integral part of maths and science subject didactics.

In the long run, **culturally sensitive maths and science teaching** will have great impact on educational progress of immigrant and refugee youth in general and open up opportunities for their social participation. Furthermore, all students in a classroom will benefit from teachers who are well equipped to meet and deal with different kinds of diversity in classrooms and students themselves will acquire greater social and intercultural competences.

### The IncluSMe team - who we are

The project brings together **11 teams of higher education institutions** for ITE from across Europe comprising experts in maths and science education, in inclusion and diversity, in mobility and intercultural learning, as well as persons involved in pilot projects for refugees:

*University of Education Freiburg, Germany (coordinating institution)*

*University of Nicosia, Cyprus*

*University of Hradec Králové, Czech Republic*

*University of Jaen, Spain*

*National and Kapodistrian University of Athens, Greece*

*Vilnius University, Lithuania*

*University of Malta, Malta*

*Utrecht University, Netherlands*

*Norwegian University of Science and Technology, Norway*

*Jönköping University, Sweden*

*Constantine the Philosopher University, Slovakia*

### A longitudinal intervention in a complex educational environment in Greece: supporting Muslim minority students to learn mathematics

With this article we would like to present an initiative in which our Greek IncluSMe project team is involved as a partner in the role of a Scientific Supervisor. Aim of the initiative is to tackle the challenge of integrating students with diverse backgrounds into the society by means of the educational system. Thus, drawing on the knowledge and experiences of initiatives with similar aims is enriching project's like IncluSMe, as we believe that learning from each other, exchanging and cooperating is key to achieving common goals.

The Project **'Education of the Muslim minority in Thrace'** started in 1996 and still running, funded by the European Union ([www.museduc.gr/en](http://www.museduc.gr/en)). It was designed as an educational policy aiming at the harmonious integration of the Muslim minority children living in Thrace (the north-eastern region of Greece) through school into the Greek society and their being accepted by the majority as equal citizens.

When the project was launched, the education received by these minority children was very poor. They would complete primary school with an inadequate knowledge of both Greek and Turkish languages, which prevented them from continuing their education and constituted a big obstacle to their integration into the society. More than 65% of these children did not complete their nine-year compulsory education, whereas the separate



'minority primary schools' which most attended, together with the more general isolation and segregation, were unavoidably leading to a cultural ghettoisation. Minority children were taught Greek with the textbooks used in all public schools, in other words with textbooks written by and for native speakers of the Greek language.

The project was organized along two axes. The first concerned interventions within school related predominately with the **design and the writing of new textbooks and educational materials** following contemporary pedagogical principles, using modern technologies, relying on methods of teaching Greek as a second language, and taking into account the special social and cultural framework of the minority. The effective use of these new textbooks and educational materials was supported through systematic teachers' professional development in teaching Greek as a second language, on how to handle issues related to bilingualism and on the importance played by mother tongue in the learning of a second language. The second axis along which the project was developed concerned **interventions outside school**. The 'support centers' (KESPEM) were the most important among these interventions. These can be described as a kind of community and learning centers, mobile or not, equipped with computer labs and lending libraries, and offering Greek classes from specially trained teachers.

As far as mathematics is concerned, the intervention aimed at **helping minority pupils overcome their difficulties in mathematics and improve their school performance**. To this direction, a package of about 1,000 activities translated from English and adapted to the Greek reality was developed and used. The activities aspired to (a) enrich the official curriculum of mathematics with alternative activities of mainly an investigative nature and (b) support the autonomous development of the pupil's mathematical knowledge. More than 2,200 students of 11 – 16 years old and 135 primary and secondary teachers worked with the activities in classes after normal school hours (total of about 1,500 hours per school year).

The project has contributed since 1997 to the improvement of education provided to the minority children, through the acknowledgment of cultural diversity as a common feature of contemporary societies, the appreciation of the wealth generated from the meeting and the interaction of different cultures, and the respect for all languages and identities as an essential component of harmonious coexistence in every society. Regarding mathematics learning and teaching, the results highlighted the difficulties faced by minority students as they struggle to come to terms with the cultural values associated with mathematical activities in three different cultures (Turkish, Greek and their own). These students enter school with a culturally distinct view of **reality** which causes frustration and confusion about what is exactly relevant when mathematical contexts are discussed or modelled. Minority students and their teachers had the opportunity to work together in a more relaxed educational context, **explore each other's culture and appreciate its power in dealing with mathematical knowledge in formal and informal settings**.

(Charalambos Sakonidis, University of Athena, Greece)

### Inclusive Education in Slovak Republic

Here we present a Slovak initiative about inclusion, which allows for cooperation with IncluSMe. It will on the one hand allow IncluSMe partners to pilot project materials and on the other profit from the experiences made in the Slovak initiative.

The Slovak Government assented to the membership in the European Agency for Development in Special Needs Education in November 2011. This act enabled Slovakia to be a part of the international professional platform supporting the development of inclusive education where school respects diversity and individuality of child, pupil and student. Inclusion in education, as the challenge for change of some processes in education system in Slovakia, was defined as a key objective after January 2012, when the **Slovak government adopted a concept of inclusive education**.

The government, subsequently, on February 20th 2012, highlighted the need for legislative definitions of *segregation* and *inclusion* in the anti-discrimination law, in the law on education, and in the following relevant legislative decrees and acts. The concept of education from the January 11th 2012 highlighted the necessity to develop "a specific model of school inclusion for different situations and target groups with the ambition to create a general model of an inclusive school" [1].



Since during the last years Slovakia was not a primary destination of refugees and immigrants, the model of inclusive education is dominantly focused to Roma pupils. Roma children (3 – 6 years old, kindergartens) and pupils (6 – 19 years old, primary and secondary schools) are officially named as *pupils from socially disadvantaged environment*. Together with children and pupils with developmental disorders, behavioural disorders, illnesses and poor health they are all officially and generally (by the school law) understood as **pupils with special educational needs** (PSEN). Paradox of this label is, that talented and gifted pupils belong to this educational category, even if the models of special educational needs of talented and gifted pupils are obviously different. Gifted or talented pupils have above-average skills in the intellectual field, in the arts or sport compared with schoolmates. The education and training of these talented and gifted pupils evokes special educational treatment. Pupils with special educational needs are educated according to the special individual educational program. The programme is created by experts and respects individual disability and/or talent of affected pupils [2].

Methodological and Pedagogical Centres (institutional bodies for direct application government policy and model of school inclusion forming) have implemented three major national projects in years 2011 – 2015 aiming on inclusive education of Roma children: ‘Education of teachers for inclusion of marginalized Roma communities’, ‘An inclusive model of education in pre-primary levels of education’ and ‘PRINED - Project of Inclusive Education’ [3].

The projects aimed at implementation of elements of inclusive education of Roma children in kindergarten and Roma pupils in primary schools. They promoted many activities focused to mapping, comparing and analysing the situation in different regions in Slovakia as well as came up with active fieldwork aimed to improve the professional development of teachers and to assistant teachers in inclusive pedagogy.

Since the education of pupils with indicated PSEN dominantly takes place in regular classes, together with other pupils, the general model of inclusive education is the essential educational element Slovakian schools and what teachers call for.

Some activities of teachers’ professional development within the projects mentioned above were dedicated to prepare teachers, generalists as well as two subjects’ specialists, in collaboration either with a special education teacher, a teacher assistant, an external expert or a consultant in special pedagogy. Centres of Pedagogical and Psychological Counselling have also been included to the projects. The mission of the centres, which have been established in every Slovakian county town, is to work as the first aid place and permanent supporting place for schools and teachers and also parents. They are supposed to recognize and tackle educational problems arriving in relation to PSEN pupils. Projects participants were also trained on how to prepare and use individual education programs for particular pupils, for instance developing such special individual plan for one, several or all school subjects. The other topic of training was on how to include inclusive education principles to the School Educational Program, with respect of the culture and character of the particular school in the village, town and region [4].

### The State Educational Program

The aims of education are declared by the State Educational Program (SEP, intended school curriculum) for primary and secondary schools in Slovakia. Educational themes are domains within SEP composed by school subjects [5]. Inclusive education is explicitly mentioned in two educational themes: *Humans and Society* and *Humans and Values*. The educational aims of the themes are targeted to the development of individual and social competences. The general aim from the point of view of inclusive education elements is to prepare pupils for real life, to create harmonious and stable relations in different social groups - in the family, at school, at work, in society. Pupils make joint experiences, cope and learn from other opinions, learn creative ways to solve problems and learn principles of open, creative and critical thinking.

The State educational program for primary and secondary schools of Slovak republic also defines several cross-educational themes, which explicitly declare principles of inclusive pedagogy in the description, such are: *Multicultural education* and *Education and training of pupils from socially disadvantaged backgrounds* as well as the cross-educational theme *Multicultural Education*.

For example, the aim of the application of this cross-educational theme *Multicultural Education* is to contribute to pupils:

- Respect of the natural diversity of the society;
- Recognition of various traditional cultures and new cultures and subcultures;



- Acceptation cultural diversity as a social reality;
- Understanding the own human rights and respect the human rights of others;
- Having the opportunity to learn about national cultural heritage and develop cultural identity.

To achieve this, the IncluSMe team from Constantine the Philosopher University in Nitra is cooperating with a primary school in Mojmirovce. The IncluSMe team is going to work together with teachers and pupils from this school and will pilot project activities and ideas to support the development of inclusive education in this school.

(Sona Čeretková, Constantine the Philosopher University, Slovakia)

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## IncluSMe Newsletter

No. 1, January 2017

**IncluSMe** (Intercultural learning in mathematics and science initial teacher education)

Prof. Dr. Katja Maaß (Project Coordinator)

International Centre for STEM Education (ICSE) at the University of Education Freiburg

Kunzenweg 21, 79117 Freiburg, Germany

International project website: will be published soon

Innovation in science education: <https://www.ph-freiburg.de/international/innovationSTEMedu>

Email: [icse@ph-freiburg.de](mailto:icse@ph-freiburg.de)

**Editing and contributions:** Elena Schäfer (Project Manager)

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**Disclaimer:** The creation of these resources has been co-funded by the Erasmus+ programme of the European Union under grant no. 2016-1-DE01-KA203-002910. Neither the European Union/European Commission nor the project's national funding agency [DAAD] are responsible for the content or liable for any losses or damage resulting of the use of these resources.

