

REPUBLIC OF MACEDONIA

Teacher Education Programme on Early Numeracy and Literacy in the former Yugoslav Republic of Macedonia

Introduction

The overall reference framework for the activities in the field of education in the former Yugoslav Republic of Macedonia is the 2005–2015 National Programme for the Development of Education. The Ministry of Education and Science (MoES) is accountable for the overall educational system from primary to tertiary education. MoES is in charge of the establishment and operation of the educational institutions and their accreditation, approval and adoption of curricula, publication of textbooks, and endorsing appointments in educational institutions. Bodies within MoES include the Bureau for the Development of Education (BED), the State Education Inspectorate (SEI), and the Directorate for Development and Promotion of Education in the Languages of the Communities.

The national education budget for 2011 amounted to approximately 4.6 per cent of GDP, which is well below the OECD average of 5.7 per cent. Although responsibility for provision of primary and secondary education services have been devolved to the local level, education is mainly funded from central government. Expenditure on education constitutes almost half of all government transfers to municipalitiesⁱⁱ. However, about 80 per cent of the local budget is allocated for employees' salaries, leaving little or almost no resources available for other essential areas like training or service development.

Primary education is organized in three cycles of three years each. While curricula development, textbooks, teacher training, and ultimate approval of many local decisions remain with central government, municipalities still have responsibility for building and maintenance of schools, employment of teachers and staff, and provision of textbooks, materials and support services. Education continues to be financed mainly from the central budget, with resources allocated to municipalities. The task of the municipality is to supervise the working conditions in schools, the enrolment of students, and ensure satisfactory arrangements for transport, food and student accommodation, but they engage very little in supporting and monitoring quality.

There are also concerns to be addressed as to how far the education system is meeting the learning needs of all pupils. The basic premise behind inclusive education is that policy and practices should allow for students of diverse backgrounds and abilities to obtain the benefits of national education systems through systems that are flexible and supportive enough to meet the needs of students with diverse needs and

backgrounds in regular schools and classrooms. The National Strategy for the Development of Education (2005-2015) is developed to emphasize issues of improving access to education; reducing discrimination within; improving educational experiences and outcomes for all children. Also the Concept for the New Nine-Year Compulsory Education is rooted in the Child-Friendly Schools (CFS) principles and addresses issues of inclusiveness and quality and relevance. However, implementation of these priorities has been quite limited.

The country has so far implemented many approaches to teacher professional development, but there is limited data about their effectiveness. By law, the Bureau for Education Development is responsible for in-service training. The BED has a mandate to assess teacher needs for training, organize and deliver teacher training. In addition they provide on-going monitoring and support to implementation of reforms in schools. The capacities and the budget for this type of support are limited in terms of limited number of staff and funding allocated by the Ministry. Such activities are therefore to a large extent supported by donors. The recent reform supported by the World Bank Education Modernization Project introduced a model of in-service training that separated this function from the BED and outsourced it to private providers. BED was given a mandate to support schools in assessing training needs as part of the school self-evaluation process and that based on these needs organize outsourcing of training institutions. Reports and evaluations of this model highlight challenges related to the weak capacity of the providers to provide quality training and the process of self-evaluation of teachers that is geared towards their own professional needs that do not necessarily match the needs of the country for improving quality of education (e.g. teachers often choose IT or English classes). To address this gap the BED still kept a responsibility for mandatory national training which are defined and decided by the Ministry of Education and Science and in line with country's need for improving quality of education. There is no system of measuring of effectiveness of these trainings, or linking it with the results from national, external or international assessments (TIMSS, PIRLS and PISA).

BED has also regional units with mandate to provide support to schools in their respective regions. Some regions and some languages are not adequately covered resulting in lack of any support to teachers in these regions.

The State Education Inspectorate (SEI) is organized regionally in accordance with the school network and the language of instruction. Education inspection done by SEI includes surveillance on the quality of education process and its effectiveness through evaluation of the work of the primary and secondary schools, as well as surveillance on the application of laws, other regulations and general legal acts that regulate the field of education. The State Education Inspectorate performs inspection on implementation of education standards, provision of quality of education, effectiveness through evaluation of performance of education institutions, as well as application of laws, other regulations and general legal acts in the field of education. The inspectors are responsible to evaluate the schools and teachers. Often the function of BED and SEI although by law should be aligned, in practice they do not coordinate and cooperate which poses another challenge to education quality in the country.

Primary education is organized in three cycles of three years each. In September 2008, primary education was transformed into a nine-year education programme with children being enrolled at the age of six instead of seven. There were 990 elementary schools in the country at the end of 2011, and 114 secondary

schools. The existing school network still reflects the demographic situation of the 1960s and 1970s and this has resulted in considerable discrepancies in the location of educational facilities.

Based on people's self-assessment in the 2002 census, the national literacy rate is 96 per centⁱⁱⁱ. This indicates that 4 per cent of the population aged 15 and above is illiterate. The illiteracy rate among Macedonians was the lowest (2%), while the highest was observed among the Roma population (21%). In 2002, 33 per cent of the Roma population had failed to complete primary education and of the remaining 67 per cent, 93 per cent had completed only primary education.

The ISCED table below shows an adjusted net attendance ratio (NAR) of 98 per cent nationally for primary schools in 2011. There is no significant urban/rural or gender divides nationally although NARs range from 99 in Northeast region to 94 in East. While there are some differentials between wealth quintiles, the most significant variations seem to relate to ethnicity with a Macedonian NAR of 99; an Albanian NAR of 97; and others at only 92 per cent. MICS4 data shows that only 84 per cent of Roma children of primary school entry age (age 6) are attending the first grade of primary school. While the majority (86%) of Roma children of primary school age do attend school, this still leaves 14 per cent of Roma children out of school.

Male		Female		Total		
Net attendance ratio (adjusted)	Number of children	Net attendance ratio (adjusted)	Number of children	Net attendance ratio (adjusted)	Number of children	
Area						
Urban	98.1	236	98.1	193	98.1	429
Rural	98.3	218	97.7	187	98.0	405
Age at beginning of school						
6	95.3	88	97.0	77	96.1	165
7	97.2	91	98.3	83	97.7	174
8	99.7	89	97.3	80	98.5	169
9	100.0	85	96.7	58	98.7	143
10	98.9	101	100.0	81	99.4	182
Mother's education						
Primary or	96.6	191	97.6	162	97.1	353
Secondary	99.7	186	98.3	168	99.0	354
High	98.6	77	97.7	49	98.2	126
Wealth index quintile						
Poorest	95.7	96	96.8	73	96.2	169
Second	97.6	86	97.5	88	97.5	174
Middle	99.2	91	99.7	83	99.4	174
Fourth	100.0	82	94.9	59	97.9	141
Richest	98.9	99	100.0	76	99.4	175
Ethnicity of household						
Macedonian	99.6	258	98.8	218	99.2	476
Albanian	97.6	158	97.2	133	97.4	290
Other	91.7	38	94.5	29	92.9	67
Total	98.2	454	97.9	379	98.1	833

Table 15: Percentage of children of primary school age attending primary or secondary school (adjusted NAR) by ISCED 1 standard classification 2011 (MICS4)

Given that most Roma children speak Romani and do not attend ECE programmes, they tend to be disadvantaged from their first day in school. Unfortunately the national curriculum does not take into account the need for systematic efforts to ensure that children master the language of instruction and teachers are not trained on how to assist children in mastering it. Far greater efforts are required to prevent Roma children's school experiences from reinforcing segregation through language, culture and behaviour in their school. Extra effort is also required to prepare the ethnic majorities (Macedonians and Albanians) for greater inclusion of minority groups and to value diversity in society.

To date there has been no systematic response to legal requirement that schools should organize additional teaching hours for all students who do not show satisfactory results. Possibly as a result of all these factors, the rate of Roma attendance decreases with age so that, by the age of 14, as many as 25 per cent of Roma children have dropped out. Since school attendance is mandatory in Macedonia and the systems and structures for tracking pupils are fairly well developed, this high rate of non-attendance raises questions about families' commitment and capacity to support their children's education, but also about local municipalities' commitment and capacity to meet their own legal obligations. Primary and secondary education in public institutions are free of charge for all pupils, as well as textbooks, transportation for students and pupils living two kilometres or more from school. Poor families, however, still find it difficult to meet the costs of uniforms, transport, materials etc. Some municipalities have developed specific initiatives to boost school attendance but some have found it difficult to sustain them after initial project funding expired.

Male		Female		Total	
Net attendance ratio (adjusted)	Number of children	Net attendance ratio (adjusted)	Number of children	Net attendance ratio (adjusted) ¹	Number of children
Age at beginning of school					
6	81.3	36	91.6	38	86.6
7	93.6	44	90.9	56	92.1
8	93.4	37	90.7	38	92.0
9	88.9	35	90.2	43	89.6
10	91.7	37	85.3	27	89.0
Mother's education					
None	91.0	41	83.3	40	87.2
Primary	89.1	140	91.4	146	90.3
Secondary +	100.0	8	95.0	17	96.6
Wealth index quintile					
Poorest	70.5	44	77.0	49	73.9
Second	89.2	41	96.1	48	92.9
Middle	99.0	42	92.4	37	95.9
Fourth	99.1	37	89.6	30	94.8
Richest	97.2	25	97.2	40	97.2
Total	90.0	189	90.1	203	90.0

Table 16: Percentage of children of primary school age attending primary or secondary school (adjusted NAR) by ISCED 1 standard classification, Roma settlements 2011 (MICS4)

The national rate for completion and transition to secondary school is 97 per cent but there are significant differentials based on ethnicity, gender and socioeconomic ranking.. Although accessing these can be complex, and provision can be irregular, these have successfully boosted attendance by excluded populations e.g. Albanian girls, Roma, children of poor families.

Secondary education has been compulsory since 2008. General secondary education covers a period of four years, whereas vocational secondary education lasts from two to four years, depending on the specific programme. Pupils enrol in secondary education on the basis of their performance in primary education. According to official data, approximately 60 per cent of secondary school pupils in Macedonia attend vocational programmes. The national NAR for secondary school is 85 per cent for children of Macedonian and Albanian ethnicity. However, only 38 per cent of Roma children of secondary school age attend secondary school; 4 per cent are still attending primary school; while 58 per cent are not attending school at all. The NAR for Roma girls has risen from 21 per cent to 35 per cent and significant differences were also observed based on socioeconomic status, with lowest net attendance ratio among children living in poorest households (16%) and highest in richest households (66%). The fact that almost 60 per cent of Roma youth do not attend secondary school contributes significantly to the continuing cycle of unemployment, social exclusion and poverty among Roma in the country.

Assessment of pupil performance in grades one to three is descriptive and as a result pupils are sometimes advanced to the next grade without having developed the necessary level of knowledge and skills, leading in turn to frustrations and drop-outs in the upper cycles of primary education. Additionally, pupils in the upper cycles of primary education are sometimes promoted from one grade to the next despite not meeting performance criteria. Although this may be done with the child's well-being in mind, the practice allows teachers to abdicate their responsibility for pupils' academic competencies. The introduction of a final examination at the end of primary education is currently under discussion.

When the degree to which students aged 15 can read and comprehend was measured objectively through the Programme for International Student Assessment Tests (PISA) of the OECD in 2000, Macedonia ranked 38 out of 41 countries. The PISA results indicated that only 34.5 per cent of pupils who had completed or were about to complete primary education had not even achieved the first of five levels of proficiency, while an additional 28 per cent had only reached the first proficiency level. These results can be taken as a serious indicator of the poor quality of teaching in the country^{iv} and illustrate the need for systemic changes in order to raise the level of the population's actual literacy.

1. Aims

In 2008, the Macedonian Ministry of Education and Science (MoES) started to address the problem of low student results in international assessments¹. A thorough analysis of possible influencing factors such as curriculum review and review of teaching practise was undertaken, and deficiencies were found in both areas. At the same time, the MoES with the support of donors was trying to define a national system of in-service teacher training. Few different models had been implemented with limited evidence of effectiveness (impact on student outcomes). The decision was to start with a new teacher education programme tailored to include aspects of numeracy and literacy instruction that address deficiencies found in country's PIRLS and TIMSS results and national curriculum, and effective approaches that help teachers acquire necessary knowledge and skills, resulting in change of teacher instruction and improved student learning. Priority was given to teachers in the first cycle of primary education (1-3 grades)².

- The aims of the new Teacher Education Programme were:
- To deepen teacher understanding of quality teacher instruction in numeracy and literacy;
- To support teachers in acquiring knowledge and skills for implementation of quality mathematics instruction and quality literacy instruction and establish effective and sustainable approaches to teacher professional development;
- To improve student outcomes in early numeracy and literacy;
- To improve student results in future international assessments (TIMSS and PIRLS).

2. Leadership and Partners

The Ministry of Education and Science (MoES) has the main responsibility for the Programme, and the Bureau for Education Development (BED), responsible for in-service teacher training, curriculum development and teacher support is the leading institution.

The Programme is also part of the Cooperation Agreement between the Government of the former Yugoslav Republic of Macedonia and UNICEF (2010-2015). The context for the Programme was the declining quality of education and the lack of adequate support to teachers identified as key bottlenecks for the realization of the child right to education in the country³.

UNICEF provided international expertise. Miske Witt & Associates was hired to give support for: 1) review of curricula in mathematics and language for early grades and review of teaching practice; 2) identifying international best practices in teacher education for potential replication in the country; and 3) training of national trainers, training of BED advisors to support dissemination and implementation in schools.

¹ 2006 PIRLS rank 33rd out of 40 participating countries - only 2 % of 4th grade students reached the “advanced” benchmark, 15 % “high” benchmark, and 40 % “intermediate” level¹. 2003 TIMSS ranking 29 out of 38 countries -70% of eight grade students are reaching the minimum level

² The Macedonian primary education system has three education cycles : 1-3, 4-6 and 7-9 grades

³ UNICEF (2010). Situation Analysis of Children and Women. UNICEF Skopje

The Macedonian Centre for Civic Education (MCCE) was hired by UNICEF to provide logistic and expert support, specifically for: 1) conducting baseline studies for both numeracy and literacy component; 2) dissemination of teacher training in schools and certification of national trainers and teachers; and 3) providing support to regional learning (mentoring) teams.

University teacher training faculties (4) were involved in the programme to ensure alignment with their study programmes.

The programme is now part of the Government Programme for Education.

3. Strategies and activities

The new Teacher Education Programme is grounded in the research about educational reform that requires enhanced skills and capacity of both teachers and the educational system. The main strategy of the Programme is therefore focused on building capacity from the bottom to stimulate system change over the long term by changing teacher practice, and from the top through MoES decisions to adopt a different professional development model, train all teachers in the country in the new programme, and equip BED advisors to support the training and the implementation of the new teacher education programme.

The strategy is based on the model of change according to which teachers define their success in terms of their students' learning⁴:

- Teachers are provided with training opportunities to acquire new knowledge and skills and change teacher instruction;
- Focus is on the application of the newly acquired knowledge and skills as the key prerequisite for initiating the process of continuous improvement;
- Only when/if teachers see change in student learning and outcomes this translates into change in their attitudes and beliefs.

The strategy was pursued through the following activities:

I. Preparation phase (2008-2009): focused on gaining a better understanding of influencing factors:

1. *Review of national curricula in mathematics and literacy*⁵ and *review of teaching practice*⁶;

⁴Guskey, 2002

⁵The reviews were conducted in 2008 by a team of experts from Miske Witt & Associates- in general there is a problem of low expectation, absence of developmental sequence and connection between broader goals for the cycle and specific goals for each grade absence of certain strands/components of standards.. In language - lack of emphasis on comprehension, phonological awareness, decoding and word knowledge, vocabulary, fluency, and the writing process and overemphasis on grammar, etc...in mathematics-lower range of numbers and operations, less focus on relationship among numbers, building of a better understanding of the base ten system, non-counting strategies, less opportunities for students to use their own invented strategies, reflect on and share their strategies, etc.)

2. *Identifying international best practices of teacher education programmes in two subjects: mathematics and language.* The „Thinking Mathematics in Early Grades“– developed by the American Federation of Teachers (AFT) was selected as the most appropriate for use in the country⁷; and for language, the teacher education programme was developed by Nancy Clair, Jan Westrick, Miske Witts & Associates⁸;
3. *Development of teacher manuals-* teacher manuals for both mathematics and literacy were developed and distributed to all trained teachers;
4. *Baseline studies-*based on the principles and content of the new numeracy and literacy teacher education programmes were conducted to measure the initial situation of both early grade teachers knowledge and student outcomes in grade 4;

II. Implementation phase (2009- on-going) or the actual teacher training, and developing a model of teacher professional development and support⁹.

1. *Selection of national trainers (NT)* – through public announcement BED selected 50 national trainers for each numeracy and literacy component. The goals were to select motivated and experienced teachers from around the country, and ensure regional and language (Macedonian and Albanian) representation. 15 BED advisors were assigned to each component;
2. *Training of national trainers and BED advisors;*
3. *Dissemination of teacher training in all primary schools:*

Phase 1- National Trainers trained all early grade teachers within their schools in both numeracy and literacy.

Phase 2- National Trainers trained all early grade teachers in one neighbouring school in both numeracy and literacy.

Phase 3- National Trainers trained teachers (school trainers¹⁰) in 60 new primary schools in regions that were not previously covered with training.

Cascade model- In this phase, for the purpose of ensuring more efficient and quality support to teachers and disseminating the training to more schools and teachers, the cascade model of teacher training was introduced. Two teachers in each of these 60 primary schools were trained as school

⁶ Overreliance on textbooks, use of instructional strategies that do not take into account individual needs or high expectations

⁷ The programme is used in Minnesota, USA and has helped teachers to get deeper knowledge and understanding about mathematics, and enabled change in teacher instruction resulting in improved student outcomes. The AFT had given permission for use of this programme in Macedonian context. The first version was adapted for use by Judy Rohde, Miske Witts&Associates and Alice Gill, the author. The later adaptations were made by the national trainers, BED advisors and trained teachers.

⁸ Similarly, later versions were adapted by national trainers and trained teachers

⁹ Designed based on research on how teachers learn and change their practice and on the most effective systems of teacher professional development.

¹⁰ School trainers were selected based on previously agreed criteria which included previous experience in teacher training and innovation. The school trainers are obliged to apply the new innovative approaches in their own classrooms, train all teachers in their schools, provide support for implementation and participate in the school team for teacher certification.

trainers, and then with the support of BED advisors disseminated the training to all other teachers within their schools.

Phase 4- NT trained school trainers in 64 primary schools and then the school trainers trained all other teachers within their schools.

In each phase, the trained teachers receive continuous support and feedback on the quality of applied new concepts from the national trainers, the school trainers and the BED advisors.

4. Teacher Certification- was seen as an important step for ensuring meaningful application of the Programme. While previously certification was based on completion of training, this programme expanded the scope by introducing criteria for providing evidence of application (see annex B).

5. Training of BED advisors for providing quality support to teachers and monitor implementation of the Programme- the international consultants developed a fidelity tool and BED advisors were trained on its use.

6. Training of University Professors from four teacher training faculties and incorporation of the new programmes in their studies.

4. Context

In 2006, education was announced as one of the four Government priorities. Education was seen as key to development and contributing to quality human capital. Education reform launched by the Government included also curricular reform in 2008 (shift towards goal-oriented curricula, new subjects focusing on skills and outcomes –Life skills based education) and incorporation of Child-Friendly School principles¹¹. The BED had already tried different models of teacher professional development and there was very little evidence of effectiveness. At the same time, the debate about including the country in international assessments and the need to focus on results intensified¹².

5. Resources

The Programme is part of the Government Programme for Education. The Government contributes with its financial resources for expanding the programme to teachers in grades 4 and 5. The BED engages its advisors (15 per component or in total 30) and covers costs related to school support and monitoring. The initial costs for materials development, engaging international experts and dissemination of training are provided by UNICEF.

¹¹ One of the key principles of the CFS approach is effectiveness or what children learn – focus on higher results and relevant knowledge

¹² The country has already withdrawn from TIMSS 2009 (participated only in 1999 and 2003) and PIRLS 2011 (participated in 2006)

6. Development over Time

So far with this approach 4,247 or 68.5 per cent of all early grade teachers in 211 or 60.28 per cent primary schools have been trained in numeracy, and 2,777 or 44.79 per cent of all early grade teachers in 136 or 38.85 per cent of all primary schools in literacy¹³.

Since 2008, based on assessment of needs and demands by teachers, schools and BED, few modifications were introduced:

- *Training expanded to all class teachers in grades 1-5, school expert staff and school principals.* Although the programme was designed to cover teachers from grades 1-3, the same principles and techniques and methods can be applied to upper grades too. This ensures that all class teachers and all students in 1-5 grades are covered with the programme. In addition, to ensure quality in school support and sustainability school principals and school expert staff was also included in the training;
- *Regional learning (mentoring) teams*-consisting of Professors from teacher training faculties, national trainers, schools trainers, trained teachers and BED advisors, are established as fora for teachers and all those included in the implementation to exchange experiences, discuss challenges and find solutions;
- *Identifying and documenting best practices*- selected teachers and BED advisors received training for identifying and recording best practices in both numeracy and literacy.

7. Evidence of effectiveness and efficiency

Baseline studies in both numeracy and literacy were conducted before teachers were trained and started to apply new knowledge and skills in classroom. Baselines included a sample of 15 primary schools included in the training in phase 1, and 15 control primary schools that were not included/planned for training in phase 1. The intent was to measure progress over a period of three years after students have gone through the first cycle of primary education and reached grade 4. The baseline measured:

- Teacher attitudes, beliefs, mathematical and pedagogical knowledge;
- The school environment, organization, attitudes and expectations and support to teachers by school management;
- Student outcomes.

In 2012, progress was measured in numeracy and showed:

¹³ There are in total 6,200 early grade teachers and 350 primary schools in the country. All early grade teachers are planned to be covered with both teacher education programmes (numeracy and literacy)

- Significant improvement of results in project schools in 2012 compared to 2009;
- Statistically significant improvement in results in project schools compared to control schools in 2012;
- Student results from 2009 to 2012 improved for 22 per cent;
- Teacher mathematical knowledge and pedagogical knowledge from 2009 to 2012 improved for 15 or 7 per cent respectively ;
- Teachers changed their attitudes towards teaching and learning mathematics based on the programme *Thinking Mathematics* and departing from traditional approaches of teaching;
- More than 2/3 of teachers have overcome the concern about acceptance and application of approaches promoted with *Thinking Mathematics*, and half of the teachers are still concerned about the ways in which new approaches can influence student outcomes;
- Most of the teachers see themselves at the level of routine application and improvement of approaches in teaching in more than 1/3 of the instruction hours;
- Teachers are aware of their own needs and improvement, mainly in planning of teacher instruction based on the ten principles and techniques of *Thinking Mathematics*, student assessment and measurement of effects of the Programme;
- School principals are satisfied with the results in mathematics in early grades based on the application of *Thinking Mathematics*- they have observed positive change in students and teachers since the programme was introduced.

This leads to the conclusion that *the programme has positive effects on teacher instruction in mathematics in the first cycle of primary education.*

8. Success Factors

The factors influencing the success of the initiative include:

Preparation phase considered all factors that influence change and are critical to ensuring sustainability. A *thorough analysis of the situation and needs* informed the design of the programme in terms of content, methodology, organization and anticipated the steps of change; and *the Programme ensured relevance to the national context* –it considered national strategic decisions (i.e. curricular reform) and situation in schools (facing the challenge of implementing new innovated curricula for grades 1-3), and the identified need in the national/government policy to improve the quality of education and student outcomes in mathematics and language.

Training model based on research- high level international experts with experience from other countries were hired and consulted latest research on effective teacher professional development. The model of teacher professional development introduced in the former Yugoslav Republic of Macedonia follows the *Core Conceptual Framework for Effectiveness Studies of Professional Development* (Desimone, 2009) that identifies key inputs or core features of professional development (content focus, active learning, coherence, duration and collective participation), intermediate outcomes (teacher learning and instructional

change) and final outcomes (improved student learning) mediated in the particular context in which it occurs¹⁴.

Based on this model, training of national trainers- was implemented in three cycles of five days with periods in-between that allowed national trainers to gradually introduce and test the relevance and effectiveness of the new instructional strategies, gather evidence from application and exchange opinions with other national trainers on applicability.

High quality material were developed based on experiences from other counties in which improvement of student learning has happened as a result of the use of materials. The materials provided a combination of theoretical background and research evidence from implementation linked to principles of the programmes.

Teacher training dissemination: Public announcement for selection of National Trainers- which in fact were teachers selected based on criteria of previous experience in supporting innovation, and teacher training. The public announcement ensured best teachers are selected and also addressed the factor of motivation, i.e. the teachers went through self-assessment against the published criteria and by applying they confirmed their motivation for implementation of obligations envisaged with the Programme¹⁵. *Cascade model of training or* international trainers trained national trainers, national trainers trained school teachers in phase 1 and school trainers in phase 2, 3 and 4, enabled fast dissemination of the training aimed at covering all early grade teachers in the country (in total 6.200);

Teacher Support- was planned and implemented at several levels:

At school level: National trainers and school trainers provide continuous support to teachers for implementation in classroom; for initiating thematic discussions and exchange of experiences within the existing school expert bodies; for certification.

At municipal level: Regional learning (mentoring) teams were established and started functioning in 2013. These are envisaged to serve as mechanisms for expert discussion and exchange of experiences among schools at municipal level. In addition, University professors are getting involved in research related to innovation.

Institutional support by the BED: for the purpose of supporting implementation in classroom and teacher training BED advisors were provided with training on fidelity tool. BED also has a key role in teacher certification (ensuring quality of process and final decision) which is an innovation in terms of ensuring application. Finally, BED has a role in leading the work of the learning regional teams by providing guidance, ideas for improvement, gathering best practices, assessing the quality of best practices examples to be published on the BED website (planned for 2013).

¹⁴ Westrick, J. (2012). Transforming Early Literacy Instruction: An Effectiveness Study of the Local Literacy Provider Training Program in Macedonia .

¹⁵ NT were obliged to attend training by international consultants in total duration of 15 working days or three five-days workshops (3x5); NT were obliged to introduce concepts learned during the workshops in their classrooms with the support of BED advisors and bring evidence of implementation; NT, after the training by international consultants, were obliged to train all teachers in grades 1-3 in their schools

Teacher certification- proved to be a factor of strong motivation for teachers' participation in training and quality and intensity of programme implementation¹⁶. The model of teacher certification introduced with the Programme will inform the on-going process of legal reform in the area of teacher professional development.

9. Tensions and impediments

Teachers 1-5 grades- the programme planned to cover only teachers from the first cycle of primary education (1-3 grades). However, this is the same group of teachers responsible for students in grades 1-5. The programme overlooked the fact that the teacher who has a class of fifth graders, would be in charge of first graders in the next school year, and this created some tensions between the teachers that participated in the training and those who did not. This was addressed in the next phase by including the additional number of early grade teachers in the training.

School management support- the national trainers were selected by BED through public announcement and the school management was often not informed. Once Phase 1 started according to which national trainers were supposed to train teachers within their schools, ensuring support by school management was challenging. It was overcome in 2010 when the BED took the responsibility to introduce the Programme to schools management in advance and in details, thereby ensuring their buy-in.

Regional distribution and distribution by language of instruction – was not adequate. There were regions without any national trainer (e.g. Bitola region), or regions with big number of schools in Albanian language of instruction and without any trainer in Albanian language (e.g. Ohrid- Struga). To overcome this challenge, the programme started the cascade model of training.

Availability of trainers in the different languages of instruction- although the national trainers included both trainers in Macedonian and Albanian language of instruction, in ethnically mixed schools this posed a challenge. Namely, in cases when the trainer represented one language of instruction, he/she preferred to train teachers only in his/her language of instruction which left a number of teachers in the school untrained and posed a challenge for ensuring full school coverage. In a later phase, this was overcome by training teachers in both language of instruction.

¹⁶ Law on Primary Education- teacher portfolio was introduced as compulsory which should include certificates; and the integral evaluation of schools and teachers conducted by the State Education Inspectorate (SEI) evaluates the number of certificates in the last 3 years. The proposed model of teacher certification will inform the on-going work on developing and adoption of national model of teacher professional development (work supported by USAID)

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11. Annex

A: Overview of activities

	Activities	Number of NT and teachers certified
2008	Training of National Trainers numeracy Development of teacher manuals in numeracy	
2009	Baseline study numeracy Phase 1 training numeracy Training of NT literacy Development of teacher manuals in literacy	47 NT numeracy certified 34 schools -613 teachers in numeracy
2010	Phase 2 training numeracy Phase 1 in-school support numeracy Baseline study - literacy Phase 1 training literacy	46 schools -900 teachers in numeracy 47 NT literacy certified 676 teachers in literacy
2011	Phase 3 training of school trainers numeracy Dissemination training in Phase 3 schools numeracy In-school support for Phase 1 and Phase 2 numeracy Training of numeracy NT for mentoring skills Phase 2 training literacy Phase 1 in-school support literacy	110 school trainers in numeracy 1242 teachers in numeracy 44 NT numeracy trained for mentoring skills 44 NT literacy trained for mentoring skills 1019 teachers in literacy
2012	Phase 4 training of school trainers numeracy Development of Manual for teachers certification In-school support numeracy for Phase 1, Phase 2 and Phase 3 schools Training for good teaching practices preparation and video recording E-survey on program effects conducted Progress assessment study Phase 3 training of school trainers literacy In-school support literacy for Phase 1 and Phase 2 schools	110 school trainers certified 37 NT certified for mentoring skills 66 primary schools -259 school trainers 31 literacy NT certified for mentoring skills 162 literacy school trainers for Phase 3 schools trained
2013	Dissemination training in Phase 4 schools numeracy In-school support visits in numeracy Phase 1 schools Learning teams numeracy with representatives from Phase 1, Phase 2, and Phase 3 schools establishment and meetings support	1600 teachers numeracy 89 teachers that fulfil the certification criteria certified 920 teachers from literacy Phase

	<p>Dissemination training in literacy Phase 3 schools</p> <p>In-school support visits in literacy Phase 1 schools</p> <p>Learning teams literacy Phase 1 and Phase 2 schools</p>	<p>3 trained</p> <p>283 teachers that fulfil the literacy certification criteria - certified</p>
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B: Teacher certification

	Requirement	Certification team
National trainer	<p>Active participation and completion of 15 days training by international experts</p> <p>Active application of new-gained knowledge in their classrooms</p> <p>Completed training of all early grade teachers in their respective schools</p>	<p>The responsible BED advisors- based on monitoring/evaluation of teachers instruction in classroom -at least 2 days, and monitoring/ evaluation of at least 2 days of teachers training activities</p>
School trainer	<p>Active participation and completion of 8 days training by NT</p> <p>Active application of new-gained knowledge in their classrooms</p> <p>Conducted dissemination training for teachers in their respective schools</p>	<p>The responsible BED advisor and national trainer- based on monitoring/evaluation of teachers instruction in classroom -at least 2 days, and monitoring/ evaluation of at least 2 days of teachers training activities</p>
Mentor teacher	<p>Completion and active participation on training for mentoring skills</p> <p>Applying mentoring skills with other teachers in their schools and other schools</p> <p>Participation in the e-survey on program effects</p>	<p>MCEC specialist and BDE advisers -based on monitoring during training activities, quality of mentor report and conducted teachers support activities and quality of answers on the research questionnaire</p>
Trained teacher	<p>Completion and active participation in at least 36 hours of training (out of total 48)</p>	<p>School certification team</p> <p>Final decision made by the school principal and the</p>

	<p>Application of the new principles and techniques for which they have to enclose evidence in their portfolio, documents proving planning and teaching materials used during teaching, photos, videos and self-reflection for at least two lessons and at least one realized open class with evidence of participation of other teachers</p>	<p>responsible BED advisor</p>
<p>BED has the final decision on certification based on the documents provided by the certification teams at different levels</p>		

ⁱ *Country Assessment Macedonia* REF op cit

ⁱⁱ Lyon A. *Decentralisation and the Delivery of Primary and Secondary Education*, CRPM, Skopje, 2011 p7

ⁱⁱⁱ Figures quoted in *Report on the Progress towards the Millenium Development Goals*, Government of Macedonia, Skopje, 2009

^{iv} *Report on the Progress towards the Millenium Development Goals*, Government of Macedonia, Skopje, 2009