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CRITERIA-BASED ASSESSMENT THROUGH DESCRIPTORS (CAD) IN BASIC EDUCATION IN THE REPUBLIC OF MOLDOVA

Mariana **Marin**
Angela **Curacițchi**
Tatiana **Şova**
Veronica **Rusov**
Lilia **Trifan**

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This case study is a result of the KIX EAP Learning Cycle "Feasibility Studies on Scaling Innovation". Organised by NORRAG and the Nazarbayev University Graduate School of Education (NUGSE), this skills- and outcomes-oriented course ran from September 2020 to January 2021. Across 11 weeks, this professional course enabled national experts to publish evidence-based studies by examining the conditions whereby it is feasible to scale up an existing innovation or a pilot project in their country. Nine teams of educational sector experts from Georgia, Kyrgyzstan, Moldova, Tajikistan and Uzbekistan took part in this Learning Cycle.

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KIX EAP Hub / NORRAG
20, Rue Rothschild
P.O. Box 1672 1211 Geneva 1 Switzerland
norrag.kix@graduateinstitute.ch

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A BIOGRAPHICAL NOTE ON THE AUTHORS

Mariana Marin Marin holds a Doctor of Education (EdD) degree and is an associate professor at the Chișinău State Pedagogical University named after Ion Creangă. She is Chairwoman of the General Association of Teachers of Romania Branch in the Republic of Moldova, and Director and Editor-in-Chief of the Modern Teacher journal, Special issue in Russian. She is also a member of the KIX National Steering Committee in Moldova. In addition to this, she is a member of the National Council for the Approval of Curriculum at the Ministry of Education, Culture and Research (MECR) where she served as Chief of Staff in the year 2020. She has authored over 190 research studies, scientific-methodical and didactic works. Additionally, she is Coordinator of the working group on curriculum development in Romanian language and literature for primary schools and the gymnasium level. Her expertise lies in the management and implementation of criteria-based assessment and descriptors in the curriculum, civil society engagement in the development of education policies, and developing methodology to evaluate criteria using descriptors, which was implemented nationally and in accordance with the Education Code.

Anjela Curacițchi possesses an EdD degree, and is an associate professor at the Chișinău State Pedagogical University named after Ion Creangă, Moldova. She is Author and Coordinator of the curriculum development working group in Russian language and literature. She is also a working group member on the creation of methodology for Criteria-based Assessment through Descriptors (CAD) in grades 1–4. She is a Coordinating Editor of the journal "Modern Teacher: Special Issue in Russian" and has authored over 120 scientific, scientific-methodical and didactic works. In addition to being a member of the commission for master's theses defence, she also coordinates programs for advanced training and retraining of teaching staff and reviews scientific and methodological works of teaching staff in the certification process.

Tatiana Şova holds an EdD degree and is an associate professor and Head of the Pedagogics Department at the Alecu Russo Balti State University, Moldova. She is a member of the National Agency for Quality Assurance in Education and Research (ANACEC) expert committee, and Chairwoman of the Commission for the Evaluation and Accreditation of Master's Programs. In addition, she is a member of the Commission for the Certification of Didactic Personnel and Chairwoman of the Scientific Organising Committee. She has authored over 70 scientific research and methodological works and is serving as Coordinator for 12 national and European level projects.

Veronica Rusov is Lecturer at the Department of Pedagogy, Alecu Russo Balti State University, Moldova. She is Coordinator of the Resource Centre for Inclusive Education and a national facilitator of training in the field of inclusive education. Furthermore, she is an organising committee member of six international conferences and a member of eight national and European projects. She has authored over 40 scientific and methodological works.

Lilia Trifan is a doctoral candidate in Education and Special Education and Senior Lecturer at Ion Creangă State Pedagogical University, Chișinău and the Institute of Applied Criminology and Criminal Sciences in the Republic of Moldova. She authored more than 35 scientific papers, scientific-methodical and didactic works. Currently, she is a psychologist at Child, Community, Family (CCF) Moldova.

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LIST OF ACRONYMS AND ABBREVIATIONS

CAD	Criteria-based Assessment through Descriptors
CADM	Criteria-based Assessment through Descriptors and Marks
CIS	Commonwealth of Independent States
DEYS	Department of Education, Youth and Sports
EI	Educational Institution
IPS	Institute of Pedagogical Science
KIX	Knowledge and Innovation Exchange
KIX EAP	KIX Europe, Asia, and the Pacific
MCAD	Methodology of Criteria-based Assessment through Descriptors
MCADM	Methodology of Criteria-based Assessment through Descriptors and Marks
MECR	Ministry of Education, Culture and Research
NORRAG	Network for International Policies and Cooperation in Education and Training
NUGSE	Nazarbayev University Graduate School of Education
RM	The Republic of Moldova
SEN	Special Educational Needs
UNICEF	United Nations Children's Fund

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EXECUTIVE SUMMARY

The Criteria-based Assessment through Descriptors (CAD) reform was introduced into primary education in the Republic of Moldova (RM) in September 2015. Assessment based on the marks of primary school students was replaced with judgements or descriptors[1] of achievements that inform students about their learning progress and provide a guide for further success with regard to the earlier established criteria of assessment. The decision to abolish marks was grounded in the age characteristics of primary level students.

CAD falls nicely into the framework of formative assessment. Moreover, grades I–IV prioritise the formative measurement of school achievements: a student is provided with favourable conditions for success through accomplishing certain behaviours at a comfortable pace and in an individual context of personality formation. The desired effect implies the maintenance of the psychophysical health of primary level schoolchildren, the formation of internal motivation, the development of self-esteem on the basis of self-assessment abilities, the promotion of interpersonal communication in the context of mutual assessment, support for learning competencies and the dynamics of self-learning and self-development.

This reform has been successfully implemented in schools in the RM through a cascade system of various activities carried out at the national, rayon (municipal) and school levels. This study analyses how its main features – methodological support and the methodological manuals developed at all levels – have contributed to the successful implementation of the assessment reform in primary schools. The study offers a scientific evidence of the conditions that would allow the expansion of the CAD framework in basic education in the RM to the gymnasium level (grades V–IX). The study contains five sections:

Section 1 provides the context, i.e., the problem that existed before the pilot project's implementation, and provides relevant data.

Section 2 gives a *summary of 'Criteria-based Assessment through Descriptors (CAD) in Basic Education' project* and describes the project's objective, results and activities, including the structured data that were used in the project to measure the results. In addition, a list of enabling conditions for the project's successful implementation is provided, and the risks that could have resulted in the given innovation being unsuccessful are identified.

Section 3 *innovative features of 'Criteria-based Assessment through Descriptors (CAD) in Basic Education' project* covers the research methodology and provides the results of a brief evaluation of the innovative features of the pilot project.

Section 4 refers to the *potential scaling of the project at the gymnasium level in basic education* and contains an analysis of the elements that need modifying, simplifying and streamlining to extend CAD to gymnasium grades. Special attention is given to the main aspects of the project design: theory of change, results and activities of the project, implementation arrangements, calculation of financial costs and ways to identify limitations and potential problems.

Section 5 contains *recommendations* and proposals for scaling up and using Criteria-based Assessment through Descriptors and Marks (CADM) for gymnasium classes in the RM. The listed conditions, detailed explanations, limitations of the study and proposed actions serve the purpose of disseminating the innovations.

The visual materials in the *Annexes* provide detailed coverage of the work performed.

1. 'Descriptor' refers to a word or expression used to denote or identify something.

1

BACKGROUND AND CONTEXT OF CRITERIA-BASED ASSESSMENT REFORM IN THE REPUBLIC OF MOLDOVA

Criteria-based assessment through descriptors (CAD) is a system of both uniform and differentiated elements of teaching, learning and assessment, owing to the use of criteria and descriptors instead of marks. The methodological basis of CAD is the assessment of learning, whose main objective is to improve results achieved individually or in groups. CAD contributes to the development of motivation for learning and the (self-)correction of mistakes and, hence, evolution in the development of primary level schoolchildren's personalities.

The RM is the first country in the Commonwealth of Independent States (CIS) to undertake a criteria-based assessment reform on a national scale. One vivid example that demonstrates its serious intentions is the Code of Education, approved by the RM Parliament in October 2014, which clearly states in Article 16 (Item 5) that "primary education shall envisage the assessment of learning results on the basis of criteria and through descriptors", while Article 152 indicates that the "... assessment of the learning results through descriptors shall become effective in 2015, starting from grade 1" (Code of Education, 2014).

However, the Code of Education provisions were introduced without any previous research, a scientific foundation for the project or unanimous scientific opinion about potential solutions to the problem. As a result, the RM Ministry of Education, Culture and Research (MECR), in partnership with the Institute of Pedagogical Science (IPS), launched a research initiative, having created research teams for the development of the CAD concept. Several roundtable discussions and workshops took place to discuss a uniform approach to the announced reform. Some specialists were in a position to grant powers to teachers in terms of ungraded assessment. Therefore, it all boiled down to this principle. Nevertheless, working group meetings identified that the idea of teachers being entitled to full freedom could cause chaos. Ungraded assessment could pose the risk of disrupting the personality-centred approach, causing discrimination, a lack of transparency, a situation based on fault-finding and a violation of confidentiality, instead of resulting in success. Each teacher would use his/her individual system of motivation, and that would repeatedly prove the need for a uniform approach to assessment.

The proposed changes in primary education related to the abrogation of marks were not spontaneous, since accounts of primary level schoolchildren overloaded with learning became more common. Primary level schoolchildren were reported to have headaches, apathy and lack of interest in learning or going to school. The majority of the negative effects were caused by the assessment method in a context where didactic assessment actions took up a significant part of schooling: approximately 40% of teachers used to put a lot of psychological pressure on students (Ionesku, 1995).

The Study of School Achievements and Basic Competencies Assessment in Primary and Gymnasium Education in 2014–2015 in mathematics and the Romanian and Russian languages, covering 34 740 students in grade IV and including 34 739 mathematics tests, 28 145 Romanian tests and 6 549 Russian tests, revealed results that motivated the reform of primary grade assessment in 2015 (MECR, 2015). The findings identified problems in the assessment of primary students, as shown in Table 1 below.

The need to achieve better results and improve the quality of schooling urged for a reform in assessment. As a result, marks were substituted with descriptors of achievements that relied on the earlier announced criteria of assessment. The removal of marks was also supported due to age considerations. A primary level schoolchild perceives a mark as a praise or punishment and as an indication of teacher's positive or negative attitude towards him/her. A child is not capable of assessing him/herself with a mark. Thus, giving marks maintains external motivation in primary level schoolchildren, while descriptors suggest the development of internal motivation in the context of ensuring consistency between pre-school and primary education.

CAD addresses two tasks: it informs teachers about the difficulties that students face while learning at the same time as identifying the need to revise the teaching strategy,

Table 1. **Test accomplishments by fourth graders and the causes of reluctance to attend school**

Causes	Number of Respondents	%[2]	Mathematics (in percent)	Romanian (in percent)	Russian (in percent)
The material is very complicated and I don't understand it	2 584	8.6	64.8	66.4	71.9
There is a lot of homework	1 251	4.2	69.2	70.3	77.9
My knowledge is not always assessed correctly	**503**	**1.7**	**68.0**	**68.6**	**81.4**
I can't express myself in the classroom	467	1.6	73.5	75.5	84.6

and it allows students to demonstrate the level they have achieved through the implementation of corrective actions. CAD falls nicely into the framework of formative assessment, and that is why, in grades I–IV, priority is given to the formative measurement of learning outcomes. Thus, primary level students are provided with favourable conditions for success through accomplishing certain behaviours at a comfortable pace and in the individual context of personality formation. The desired effect implies the maintenance of psychophysical health of primary level schoolchildren, formation of internal motivation, development of self-esteem on the basis of their self-assessment abilities, promotion of interpersonal communication in the context of mutual assessment, support for learning competencies and dynamics of self-learning and self-development.

The reform targets the problem which originates from the following: intuitive assessment performed by teachers without assessment criteria, the subjective attitude of teachers with regards to students, and a process of assessment based on the student's personality or behaviour, rather than deliverables. The 'CAD Framework in Basic Education' reform contributes to the development of such an assessment culture in pedagogues, which should lead to the formation and application of students' capability for self- and mutual assessment.

2. This percentage represents a percent of respondents from a sample of the total no. of respondents who shared that they were reluctant to attend school

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CRITERIA-BASED ASSESSMENT THROUGH DESCRIPTORS IN BASIC EDUCATION: PROJECT SUMMARY

Pilot project brief

The project was launched in June 2015 and brought to a close in September 2019, with financing from the RM MECR. The project was implemented countrywide. The main beneficiaries were students in grades I–IV. The target audience consisted of pedagogues teaching grades I–IV and researchers working on the development of assessment tools. The financing came to USD 84 319 for the whole period of project implementation. The CAD framework has continued to be implemented in grades I–IV in all schools of the RM till the present day.

Results framework

The main activities of the project targeted the achievement of the following objectives:

1. Creating the CAD concept in the context of the RM Code of Education and regulatory documents on education that guide assessment activities;

2. Developing a culture of assessment in teachers based on the perspective of CAD within the context of competence-centred learning and trends in assessment modernisation;

3. Using students' results for differentiated and individualised learning and interpreting them during formative activities and in the process of student achievement recovery.

4. Using the main notions of CAD (deliverables, criteria and descriptors) within the strategies of assessment when designing and organising the learning process in grades I–IV and in the process of ensuring consistency between the primary school and gymnasium levels.

5. Studying how assessment affects the formation of mechanisms of independent behaviour in students

It was possible to achieve the set objectives through a number of comprehensive activities and the collection of data through the External Monitoring of CAD Implementation in Primary Education (MECR, 2017b). The project results and activities are presented in Table 2.

Theory of change

The need to improve the impartiality and consistency of the assessment activities of the educational process participants caused a number of measures and activities to be implemented at all three levels of the CAD system: the national, rayon (municipal) and school contexts. As shown in Figure 1, the implemented activities included the development of documents guiding the CAD process, as well as CAD methodologies and design models, and the arrangement of courses to train national trainers, primary school managers and teachers. The main results of the work performed were the CAD Implementation Plan piloted at the national level and the regulatory framework developed to ensure the assessment reform in the country. The CAD implementation process was supported by methodologies and methodological manuals (guidebooks) on CAD, as well as methodological roadmaps for learning process organisation in the period 2015–2019. The training sessions were attended by 53 national trainers, 35 specialists from the Department of Education, Youth and Sports (DEYS) responsible for primary education, 7 774 teachers and 1 255 managers of educational institutions (EIs). Some 139 179 students started using criteria in the process of their self-assessment of learning outcomes.

Thus, we can assume that *the CAD methodology and methodological guidebooks prepared and implemented in primary education can improve the assessment culture of pedagogues and develop capabilities of self- and mutual assessment in students* since systemic and continuous methodological support will be ensured from the national to the rayon (municipal) and school levels.

Enabling conditions for the project's implementation

An important factor and condition for the project's success was the annual training of teachers in CAD (four years in a row for each of the primary school grades). As a result, 2017 saw the introduction of the MECR budget line item for the financing of the mandatory courses for 25% of teachers (2 000 primary school teachers). That measure confirmed the importance of the implementation of the CAD reform and its impact on the country's education system.

Table 2. **Results framework**

Project feature	CAD implementation in primary school		
	School level	Rayon/municipality[3] level	National level
Activity	• Deliver 1 170 school workshops on CAD implementation (one workshop per year in 2015–2020 in 234 EIs). • Draft 234 annual school reports on CAD implementation.	• Carry out 175 meetings of rayon/municipal methodological unions to explain the CAD process. • Draft 175 annual reports on CAD implementation.	• Develop the Methodology of Criteria-based Assessment through Descriptors (MCAD) (3 research coordinators). • Carry out 5 training sessions for 53 national trainers. • Carry out annual professional development courses for teachers. • Develop outputs and criteria for subjects (5 working groups). • Carry out external monitoring in 234 EIs (2017).
Output/ direct result of each activity	• 234 school managers trained in tracking and implementing CAD in an EI. • 469 teachers trained in using CAD. • 234 annual school reports presented to the DEYS.	• 35 specialists from the DEYS trained in tracking CAD implementation. • 175 annual reports submitted to the MECR (1 per year in 2015–2020 from 35 DEYS specialists).	• 6 published methodologies (2015–2019). • 4 published methodological guidebooks (2015–2019). • 53 national trainers educated in CAD.
Outcome/ expected result of the project	• 234 school managers supporting teachers and students in using CAD in classrooms. • 469 teachers using CAD to assess learning outcomes. • 11 725 students using success criteria in the process of mutual assessment/self-assessment.	• 35 specialists from the DEYS tracking CAD implementation at the rayon/municipality level.	• 3 coordinators updating the research and methodological information on CAD due to the recent changes/reforms in education, improving the methodology for the external monitoring of CAD. • 5 working groups improving CAD deliverables and the criteria for their implementation in the methodology. • 53 national trainers carrying out external monitoring.

Thus, one of the enabling conditions was the *budget financing of the project*, which ensured high-quality training of teachers on the basis of the published materials: methodologies, guidebooks and didactic manuals.

During the period of teacher training, *experience exchanges*, open lessons on the CAD system, the exchange of materials and examples of school documents became especially important.

Administrative and logistic procedures guided all the specialists towards common objectives, mobilised teachers' initiative and ensured productive interaction between them.

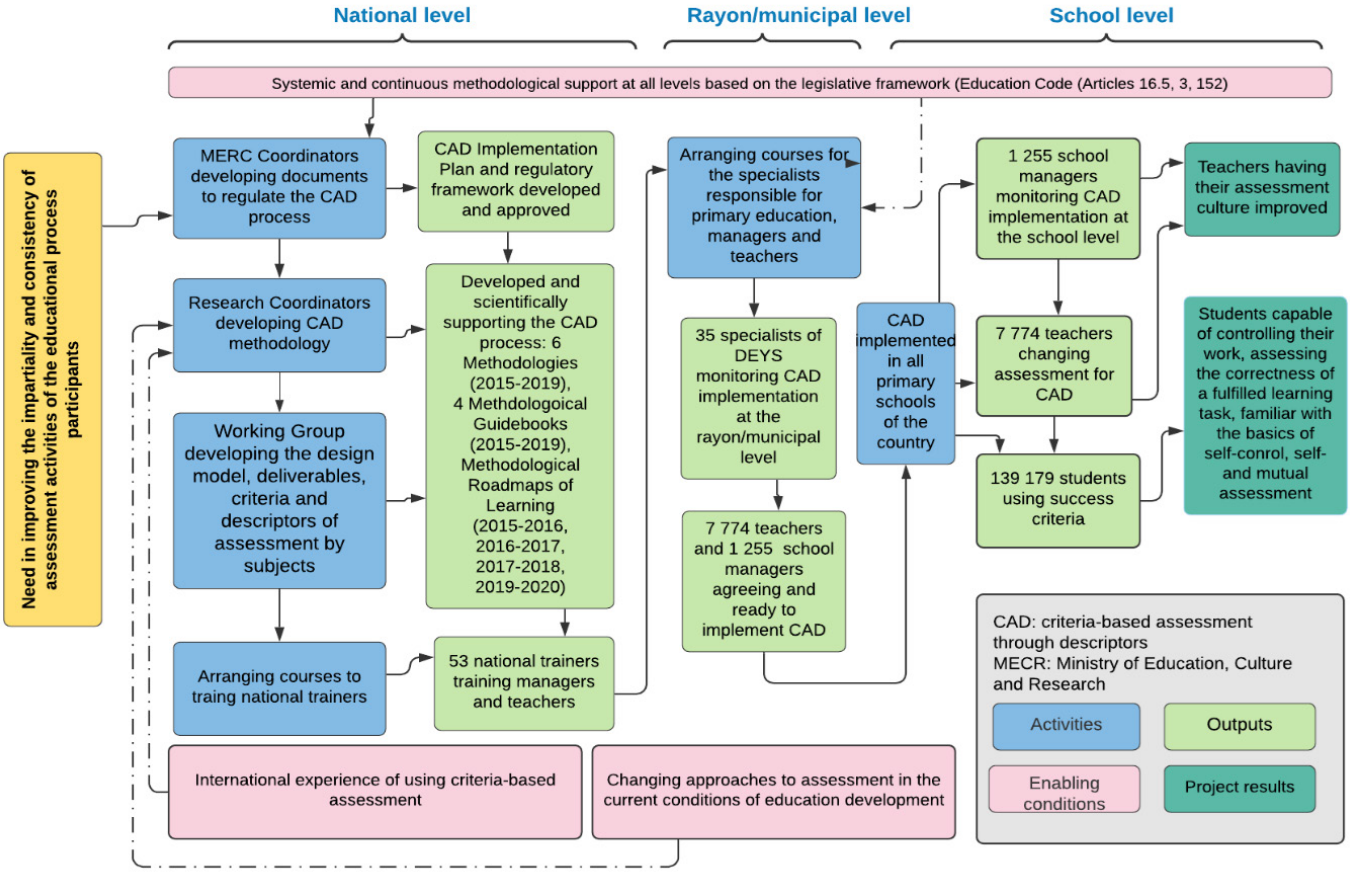
Monitoring and accountability processes took place in the form of external monitoring (at national and rayon levels) and internal monitoring (at school level).

A communication strategy ensured timely and accessible information support in the process of the CAD implementation at all levels.

The organisational culture was based on behaviour rules and ethical principles of quick feedback, maximum trust in pedagogues, immediate responses to the challenges in CAD implementation and adaptation to them, open communication and experience exchanges.

3. 'Municipality' here and throughout the text refers to 'municipiu' in Moldova, which is an urban centre of population that plays a special role in the economic, social, cultural, scientific, political and administrative life of the country and has important industrial and commercial infrastructure and institutions of education, health and culture.

Figure 1. **Theory of change**



Existing risks regarding the project

The biggest risk that the project faces is the lack of consistency between primary schools and secondary schools (gymnasiums) in the implementation of CAD and criteria-based assessment with marks, as has been reflected in the *Methodological Framework for the Consistent Implementation of Criteria-based Assessment through Descriptors in Grades IV and V* (IPS, 2018b) and the *External Monitoring Methodology for Criteria-based Assessment through Descriptors in Primary Education* (MECS, 2017).

The methodology for CAD consistency in secondary schools envisages CAD implementation only in relation to certain school subjects (fine arts, music education, technology, physical training), while other disciplines are not taken into account. This poses a risk of intuitive assessment at this stage of schooling by the teachers of these disciplines. This can also cause the absence of a uniform approach in assessment among secondary school teachers. The start of secondary schooling can cause an additional problem in assessment: the transition from quality indicators and descriptors used in the assessment of primary school achievements to marks that are calculated to hundredths in secondary schools.

In primary school, quality indicators using percentages make up a big part of assessment: 90%–100% denotes 'very good' quality, 65%–89% indicates 'good' quality and 34%–64% means 'satisfactory' quality. These percentage ratios allow several students who are assessed as having different marks to find themselves in one group when they are in primary school. The percentage approach identifies three categories of students in accordance with quality indicators, while the system of marks identifies the group of students behind each mark.

For that reason, many of the students who had 'very good' indicators of quality (100%–90%) in grades I–IV in a number of subjects can find themselves in grade V with a mark below 10. Based on these considerations, during the last years of primary school, it is necessary to explain to children what their marks mean and what the difference is between a mark and a quality indicator, thus preparing them for grade V. Primary level students have to get used to the transition from CAD to CADM, the latter of which combines mark-based and criteria-based assessment.

As regards the risks, one has to take into account working with children who have Special Educational Needs (SEN): this is an area that has not been emphasised by the research coordinators who developed the CAD concept for primary schools. Additionally, there is a risk regarding the adaptation of CAD to the conditions of distance learning and assessment. So far, pedagogues are not ready to fully adapt the use of CAD to the specifics of distance learning, which, no doubt, requires

time and practice. Among the additional assumptions, one has to highlight the targeted training of parents to help them comprehend the CAD processes; this was only partially implemented in 2018 and remains an open question. This is due to the fact that parents have to fully understand the importance of criteria-based assessment for its successful implementation of CAD in the daily practices of their children.

3

INNOVATIVE SPECIFICS OF 'CRITERIA-BASED ASSESSMENT THROUGH DESCRIPTORS IN BASIC EDUCATION' PROJECT

Research methodology

The main sources of data were the 'External Monitoring of the CAD Implementation in Primary Education' publication (MECR, 2017b) and the 'Current Evaluation of the Implemented CAD' questionnaire, which was additionally developed in November 2020 (see Annex 2). Within this methodology, the external monitoring of CAD and, additionally, the questionnaire that was developed and administered became the main tools used for tracking the obtained results, as shown in Table 3.

Table 3. CAD monitoring stages

Stage	Monitoring tool	Monitoring level	Number of monitored teachers	Number of educational institutions	Number of monitoring performers
2017	External monitoring of CAD	National (at the level of the RM MECR)	469 (48 teachers from Russian schools and 421 teachers from Romanian schools)	155 (72 urban and 83 rural)	53 national trainers and 35 specialists from the DEYS that worked as observers, 3 national coordinators that developed reports of visits to EIs and processed the monitoring data
2020	'Current Evaluation of the Implemented CAD' questionnaire	National (at the level of the Teachers' Association of Moldova – AGIRoMd)	126 (72 teachers from Russian schools and 54 teachers from Romanian schools)	118	5 team members from the KIX EAP learning cycle course team

It should be noted here that the number of respondents constitutes a sample from the total number of respondents countrywide that used CAD in the process of teaching in primary schools. The external monitoring of CAD implementation carried out in the RM in 2017 proved to be the first tracking tool with the intention of identifying teachers' deep understanding of CAD in primary education and the needs in terms of continuous training for CAD implementation.

Within the external monitoring of CAD (MECR, 2017b), after two years of CAD implementation, the sample included 469 primary school teachers (6% of the total number of primary school teachers) from all regions of the RM: north, south and centre. Of these, 218 teachers represented urban schools, and 251 teachers were from rural schools. Since the training had been delivered countrywide in two languages – Russian and Romanian – 48 teachers from Russian schools and 421 teachers from Romanian schools were selected as respondents. In total, the monitoring involved 155 EIs of various types (or 12% of all primary school EIs in the country).

The external monitoring data (MECR, 2017b) constitute secondary data that were collected as part of an already administered evaluation study in the country. The main methods of data collection used at the stage of the external monitoring of CAD implementation in primary education (MECR, 2017b) were observations, interviews, focus-group discussions and desk reviews. The data collected on various EIs were given to the RM MECR for consolidation and analysis. For each target group, specific methods were used, as shown in Table 4 below.

In order to study the opinions of the first target group – managers responsible for primary education – the following methods were used:

Table 4. Methods of data collection for external monitoring (MECR, 2017b)

Data collection methods	Target group	Number of respondents
Interviews, focus-group discussions	Managers responsible for primary education	234
Observations, interviews, focus-group discussions, desk reviews	Primary school teachers	469
Focus-group discussions	Students	11 725

- *Unstructured interviews* that allowed the collection of more data about the CAD implementation process and the gathering of information specifically relevant to the given EI. For example, a problem appearing in the majority of schools would result in quick corrections and updated descriptions (explanations) in the regulatory documents on CAD.

- *Focus-group discussions* (see Annex 2) to identify the quality of the CAD implementation by evaluating teachers' performances in an institution, analysing the assessment strategies used by the teachers of a given EI, identifying CAD's impact on teachers' proactivity and finding out teachers' general opinions about the importance of CAD.

For the second target group – primary school teachers – the following methods were used:

- *Observations* to evaluate the quality of the learning process after CAD implementation based on teachers implementing various types of assessments in the classroom; students organising self- and mutual assessments under teachers' guidance; the provision of assessments criteria to check competencies in various subjects and the depiction of students' results using descriptors.

- *Unstructured interviews* to identify how teachers understand the basics of CAD, how successful they are in terms of CAD implementation and the challenges they face.

- *Focus-group discussions* (see Annex 2) to identify the quality of CAD implementation using the assessment of teachers' needs with regard to professional development and methodological consultations on CAD matters, their self-assessment of their interactions with students and parents and the identification of methodological resources that can be used to implement CAD.

- *Desk reviews* to evaluate the school documentation collected in terms of its compliance with the requirements of CAD methodologies and methodological guidebooks. The following documents were reviewed and analysed: the long-term plan for the school year, short-term plans for the classes attended by an observer, class registers and student portfolios. The analyst checked how well the documents complied with the requirements of the CAD methodology and methodological guidebooks.

In our work with the third target group – students – we used the method of focus-group discussions (see Annex 2) to identify the quality of the CAD implementation by evaluating the general condition of students in the ungraded assessment mode and identifying the situations of success or failure considered important by a student him/herself in terms of CAD.

The second evaluation tool – the 'Current Evaluation of the Implemented CAD' questionnaire (2020) (see Annex 2) – had the objective of evaluating CAD implementation at its current stage of development. The questionnaire constituted a new tool for getting additional data, which would be important for the evaluation of the methodological support provided to the teachers after 2017, since the country did not have external monitoring, and there were no dynamic data on the advantages and disadvantages of the assessment reform under implementation.

The sample included 126 respondents from 118 educational institutions in the country: 72 teachers from Russian schools and 54 teachers from Romanian schools. The participating teachers represented various regions of the country, similar to the external monitoring exercise. The questionnaire was published in Google Forms (see Annex 2.5) and accessed through a link. It included the following questions:

1. What percentage of teachers have completed the full CAD training over five years?

2. What is the coverage of professional development courses for teachers after the implementation and amendments to the CAD methodology of 2017?

3. How aware are teachers of the CAD methodological documents after 2017?

4. Which problems related to CAD implementation are topical for teachers today? Which methodological information is missing?

5. How difficult is it to implement CAD in terms of interactions with students and parents? Which aspects of interactions should be described in greater detail when the relevant methodological support is being developed?

6. How has the CAD process affected students' achievements and their condition under CAD?

7. Which documents and manuals prepared at the school level are used by teachers as additional resources to reflect an objective picture of students' achievements?

8. What is the degree of CAD implementation in online schooling? Which additional methodological manuals are necessary for teachers?

9. Can one state that under CAD students have formed the ability to carry out self- and mutual assessment?

The questionnaire delivered the primary data that was collected within the KIX EAP Learning Cycle to evaluate the innovativeness of the work fulfilled. The results of this evaluation are presented in the next section

Pilot project innovation: summary of the evaluation results

The general characteristic under evaluation is the cascade system of the implementation of CAD, with its activities ranging from those at the national level to others at the school level; this system strengthens reforms and allows the institutionalisation of the use of innovations by teachers and students. The main elements of this innovative feature are CAD methodology and methodological guidebooks, which help teachers implement CAD at all levels.

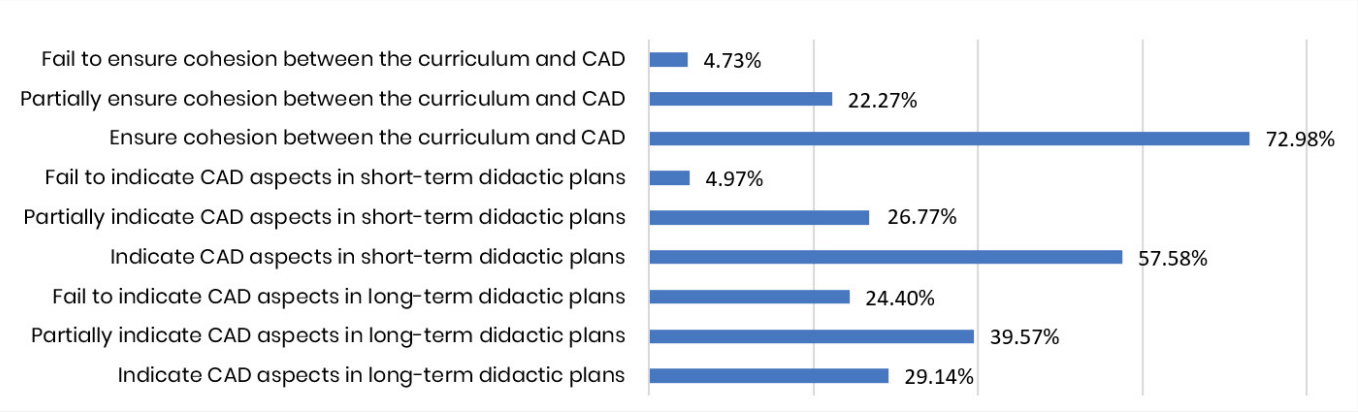
Having analysed the data on this innovative characteristic, we came to conclusions that certify impacts and their direct contribution to the achievement of the project goals:

- According to the external monitoring data (MECR, 2017b):

- 234 school managers developed plans for CAD implementation and monitoring at the level of the EI;
- 11 725 students were using criteria for self- and mutual assessment;
- In the process of tracking the didactic planning compliance with the CAD requirements, it was established that the majority of pedagogues (469 teachers) had been using CAD in their practices and complying with the set requirements, as shown in Figure 2.

The analysis of CAD implementation (see Figure 3 below) also identified that the majority of teachers had been using CAD and creating conditions for its implementation in the practice of school results assessment. Some teachers developed their own packages of teaching materials to facilitate the application of CAD, as well as individual forms to track students' results.

Figure 2. Didactic planning in accordance with the CAD requirements (MECR, 2017a)



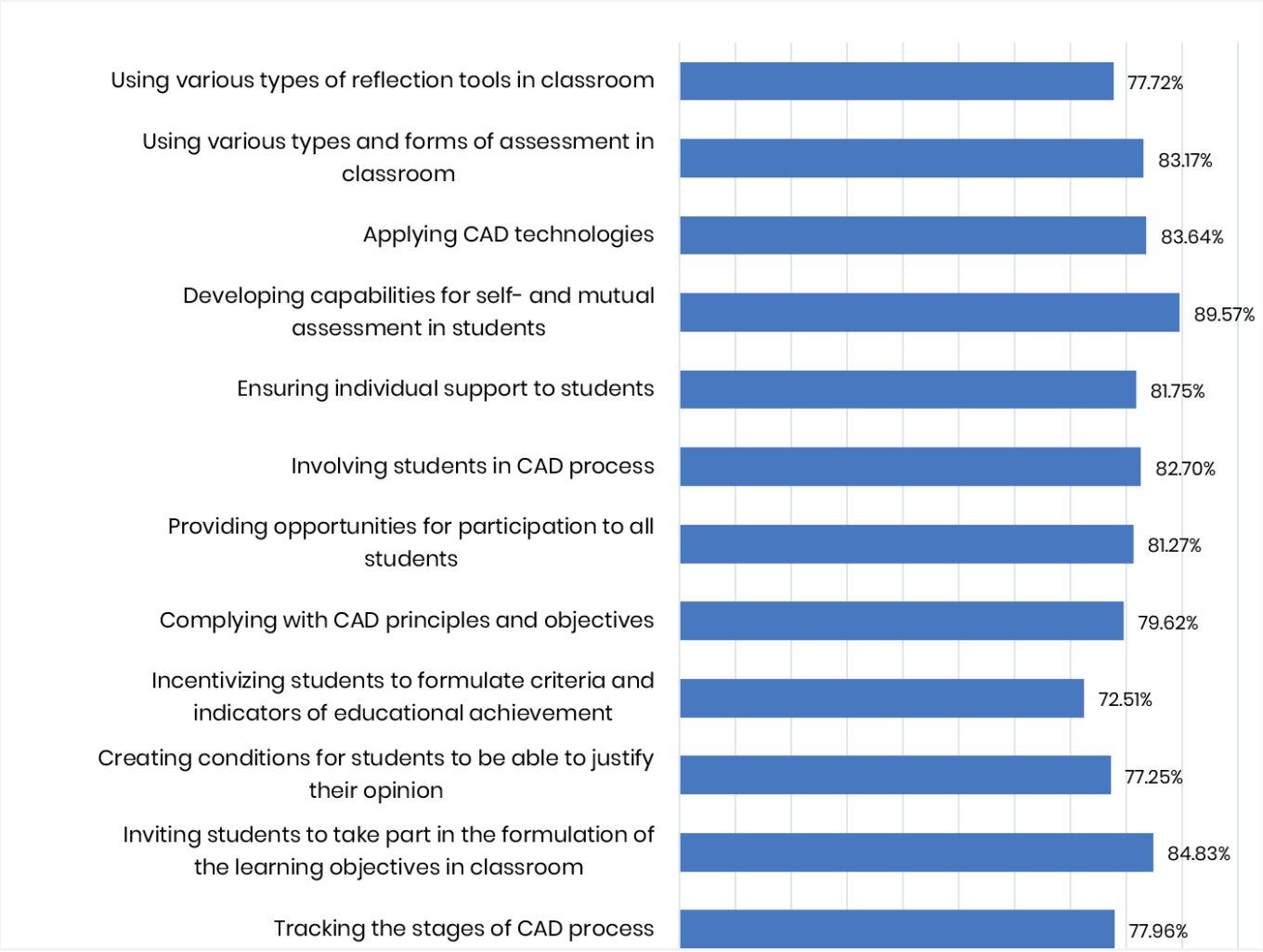
Within the national activities of the MECR that targeted the production of the MCAD and a professional development programme for the national trainers and teachers, the following results were achieved:

1. The international experience of criteria-based assessment implementation was consolidated using examples from Belorussia, Romania, Russia, France, Kazakhstan and Switzerland;

2. Research coordinators developed the methodological basis and conceptual framework of CAD (main provisions, principles, objectives and concepts: criteria, descriptors, deliverables);

3. Working groups of subject specialists identified deliverables and criteria for subjects with due regard for the curriculum content;

Figure 3. Analysis of the CAD implementation practice (MECR, 2017)



4. Six methodologies (MECR, 2015–2019), four methodological guidebooks (Marin et al., 2018a, 2018b, 2018c, 2018d) and the Methodological Roadmaps of Learning (MECR, 2016–2021) were developed, approved and published on the MECR website, ensuring the scientific foundation for the CAD process;

5. Activities took place to provide methodological support for CAD implementation: programmes were developed and implemented to educate 53 national trainers and teachers.

The success of the activities at the national level was predetermined by the strategic vision of the CAD process in the country, which had been developed on the basis of international experiences in CAD implementation. The cascade system of implementation, starting from the national level, supported CAD throughout the hierarchy. The necessary component was the CAD methodological support ensured by the methodologies and guidebooks, which allowed teachers to efficiently rectify a number of conceptual aspects of CAD after 2017. In particular, the lessons learned through CAD practices allowed CAD tools to be made more practical for teachers: teacher diagrams became redundant, simplified forms and tools were used for designing long- and short-term plans and the methodology for all primary school classes was unified.

Regarding the activities at the rayon (municipal) level, training workshops, meetings, round-table discussions and methodological councils on CAD implementation were used to achieve the following results:

1. Plans for CAD implementation were developed and introduced in each of the 35 rayons and municipalities in the RM;

2. In 2015–2020, 5 rayon (municipal) methodological unions were organised to explain the CAD processes;

3. Some 35 specialists from the DEYS were trained in monitoring CAD implementation.

The success of the activities at the rayon (municipal) level was ensured by the independent initiatives of the DEYS specialists when developing plans for CAD implementation and monitoring.

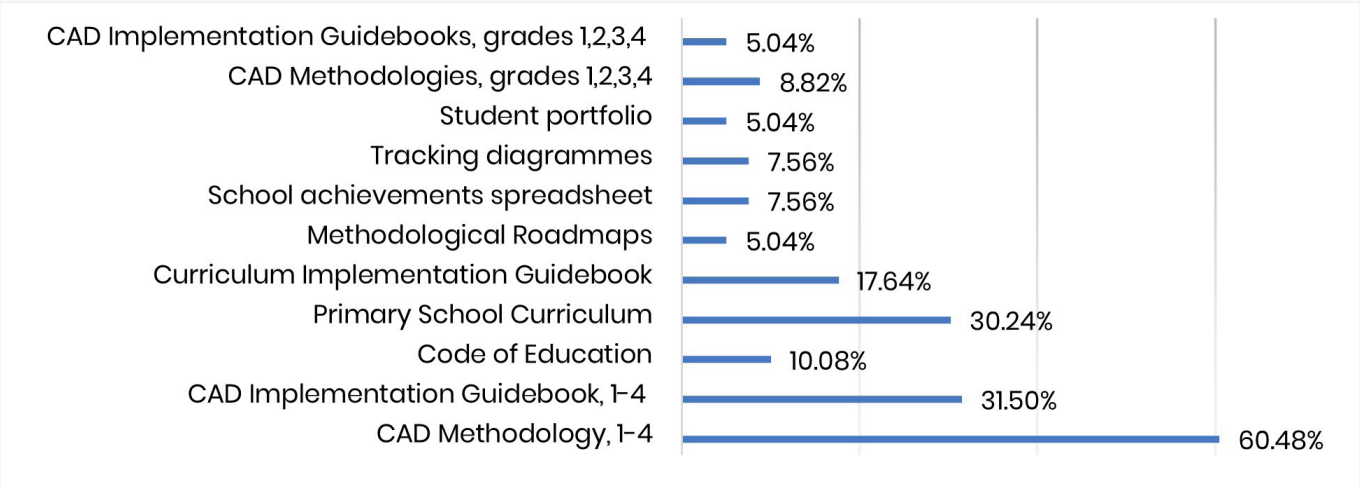
They carried out a number of methodological activities to explain CAD in accordance with the needs of teachers from rayons (municipalities). The DEYS specialists voluntarily expanded their powers, and this resulted in positive achievements.

The project's success is confirmed by the findings from 'Current Evaluation of the Implemented CAD' questionnaire (2020):

- All 126 teachers interviewed were using CAD in their practices. The teachers had formed a culture of assessment after studying the methodology and methodological guidebooks on CAD implementation and attending various types of workshops, training sessions, etc.
- Of the main documents providing the methodological framework for CAD, teachers named the CAD methodology and CAD implementation guidebook and highlighted these documents as a top priority, as shown in Figure 4 below.

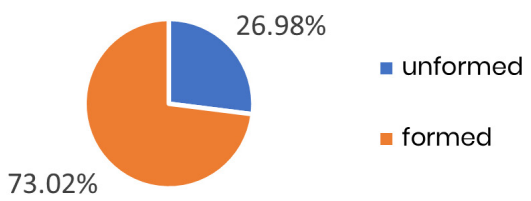
These voiced titles allow a conclusion to be drawn with regard to the teachers' awareness of the recent changes in the area of methodological support for CAD.

Figure 4. Teachers' awareness of the CAD documents



- Students formed the capability to perform a self- and mutual assessment on the basis of the assessment criteria used for various deliverables of learning activities in different disciplines. This opinion was shared by an overwhelming majority of the interviewed teachers (73.02%), as indicated in Figure 5. It demonstrates how correctly organised work on the ground helps form students' competencies (for example, carrying out self- and mutual assessment of the class assignments performed). Teachers' opinions also demonstrate the potential for improvement in the formation process of self- and mutual assessment capabilities in students

Figure 5. The capability to perform self- and mutual assessment among students



4

POTENTIAL SCALING OF THE PROJECT: 'CRITERIA-BASED ASSESSMENT THROUGH DESCRIPTORS AT THE GYMNASIUM LEVEL IN BASIC EDUCATION'

Project design aspects: theory of change, results and activities

The responsibility for the potential scaling up of the reform and innovation rests with the RM MECR. The objective is to implement the MCAD at the gymnasium level. This is due to the acute need to further promote criteria-based assessment reform in the country and ensure the consistency of the progressive assessment system for students at all levels of basic education. The project beneficiaries will be students in grades V–IX, including those with SEN. The target audience is represented by secondary school teachers from all regions of the RM. The plan is to introduce criteria-based assessment in 2022–2027.

The scaling-up strategy entails the expansion of the MCAD from the level of primary education to that of secondary in combination with the preserved system of marks (to become MCADM). Thus, the resulting system of criteria-based assessment through descriptors and marks (CADM) will reflect the symbiosis of two models: CAD and the system of marks. It is proposed that **the main component of scaling up** should be the CAD methodology and methodological manuals, which will support learning in the secondary cycle at the national, rayon (municipal) and school levels. It was precisely this component that proved to be the most important for the success of the CAD reform in primary schools. The existing methodological support for primary schools will allow secondary school teachers to easily expand their practices to include the new assessment strategies focused on self-assessment, confidentiality, transparency, a positive attitude and success. Teachers will be well-positioned to comply with the psychological, pedagogical and didactic principles of CAD. School-wide activities and professional development at the level of the institution, rayon and country, initiated by teacher-practitioners, will give birth to a new assessment culture and ensure continuity at the secondary level. The existing curriculum will allow criteria of success to be developed in all school subjects and CAD to be practised at the secondary level. The psychological comfort of primary school graduates will be ensured by well-trained CADM pedagogues, who will teach in the first year of secondary school, i.e. in grade V.

Thus, **if we synthesise the CAD concept for primary education and adapt it to the system of marks, transforming it into the MCADM, it will lead to improvements in the assessment culture of secondary school teachers and the development of the capability to perform self- and mutual assessment in students in grades V–IX, owing to the ensured systemic and continuous methodological support from the national to the rayon (municipal) and school levels.**

The decision to promote CADM at the secondary level has been taken due to several prerequisites and enabling factors. One of them is a series of documents underlying the importance of this reform: government strategy, legislative acts and research studies that guide and prioritise the reform.

The RM Code of Education, Article 44, 'Assessment of Learning Outcomes' (2014), indicates that the assessment of learning outcomes should aim to evaluate the degree of development in the students' competencies specified in the Standards of Learning Efficiency (MECR, 2012), which state the subject areas and their corresponding competencies, with indicators given for three levels: primary, gymnasium and lyceum. Each subsequent level deepens the content of the competencies formed in the previous one. Teachers have to continuously assess students through formative and summative assessment. The EI is autonomous in selecting its chosen forms and strategies regarding learning outcomes assessment, provided that there are no violations of curriculum requirements.

In the gymnasium cycle, summative assessment and certification of educational achievements are ensured by the national authority on the evaluation of knowledge and certification of educational achievements, which acts in accordance with the Regulation on the Assessment of Learning Outcomes and the Organisation of Final Examinations (MECR, 2020a). Taking into account the fact that summative

assessment uses marks, it is important that gymnasium students are assessed both on the basis of criteria and quantitatively to prepare them for the final assessment.

The Education Development Strategy 2014–2020 (RM Government Resolution, 2014) identifies several strategic lines to ensure quality of education. Strategic Line 5 specifies ways to design and institutionalise an efficient system of assessment, monitor and ensure quality in education by offering Task 5.1 'Development of the National System of Educational Standards'. As regards to priority measures, the following are considered: development and implementation of performance standards and indicators to evaluate and control quality in the system of basic and professional secondary education, and the development of an appraisal system for pedagogical workers in accordance with the professional standards.

Based on the Referential of Assessment issued in 2014, attention will be given to the criteria and descriptors in relation to marks, which will form the basis for the development of schooling deliverables. A United Nations Children's Fund (UNICEF) report on the analysis of the assessment practices and tools of the education system of the RM states that the country is showing some positive trends in education reforms that match the vision of the 'Education Strategy 2014–2020'. As regards student assessment on the basis of competencies, the emphasis is on formative assessment, and that constitutes one of the strongest elements introduced into the system of basic education, though its implementation needs further improvement. The transition to criteria-based assessment to ensure the impartial assessment of obtained knowledge triggers additional actions (UNICEF, 2019).

To ensure equity and quality in the RM education system, the international study of PISA-2018 (MECR, 2019b) recommends the following:

- Increasing the percentage of those students who have reached the minimum knowledge threshold in reading, mathematics and science. This process can bring positive results in the case of CADM being implemented.
- Retaining qualified teachers in the education system. Special importance should be given to the systemic and professionally organised training of teachers, including in CADM.
- Reducing achievement gaps caused by social and economic factors to ensure equity in education. The CADM process smoothens the interaction between students from different social and economic backgrounds.
- Reducing achievement gaps between urban and rural EIs to ensure high-quality education for all students.

Since assessment affects students, teachers and others responsible for making decisions about the quality of the educational process, changes will not be sudden: the intensity of the transformations that have already been implemented will grow. Yet, they will prevent discrimination against students, which was sometimes observed in the classic assessment system.

The CADM framework will constitute a system of continuous and differentiated teaching, learning and assessment, owing to the introduced criteria, descriptors and marks that will fulfil the function of the objective assessment of students' achievements. Thus, students will experience favourable conditions to succeed through the achievement of behaviours at a comfortable pace and in the individual context of personality formation.

Operational aspects of project implementation

It will be easier to implement the project at the gymnasium level, since the process will be based on the existing capacity of the MECR and partners that have been involved in the primary school project and acquired indispensable experience. Thus, at the level of the MECR, MECR coordinators and research coordinators who have developed the CAD concept for primary education will continue to be involved. In addition, two MECR coordinators will be made responsible for the gymnasium chain, and two research coordinators will be involved as specialists in secondary education. The process of CADM implementation will mobilise 35 specialists from the DEYS, who will monitor CADM at the rayon (municipality) level. Some 18 961 teachers and 1 255 managers will be invited to attend mandatory professional development courses delivered by institutions with relevant accreditation from the National Agency on Quality in Education and Research. In the 2021–2022 school year, 158 637 students in grades V–IX will be covered by CADM (see Part II of Annex 3).

Considering the positive experience of the cascade system implementation in primary schools, where all the levels of school education management were mobilised to achieve the shared objective and teachers received comprehensive support, CADM will be similarly implemented by the following:

- Coordinators from the MECR who will develop documents to regulate the CADM process;
- Research coordinators who will develop MCADM;
- DEYS specialists responsible for primary education who will organise local workshops, round-table discussions and methodological consulting on MCADM implementation;
- Teachers of gymnasium grades who will implement MCADM provisions and the requirements set out by the methodological guidebooks. Teachers of various subjects at the gymnasium level will become familiar with CAD, cooperate with primary school teachers on the

achievement descriptors for each subject and find out which concepts the students have mastered and which skills they have developed.

If the MECR initiates the described assessment reform at the gymnasium level, partner cooperation can be sought from UNICEF; Soros Foundation and the Public Policy Institute; Babeş-Bolyai University (Cluj-Napoca, Romania); the Institute of Pedagogical Science (Bucharest, Romania); the DEYS of Moldova; Moldovan universities (the Kishinev State Pedagogical University named after I. Creange, Alecu Russo Balti State University, the National University of Moldova); and the KIX Europe, Asia, Pacific Hub, which can all potentially respond to the MECR proposal and support the assessment reform at the gymnasium level. The RM IPS can be the project champion as it has already implemented and promoted the reform, gaining rich experience in the organisation of activities to train teachers and managers for CADM implementation and monitoring.

Financial aspects: cost efficiency

Financial costs with regard to the gymnasium level have been calculated on the basis of estimates for primary schools, confirming that the potential project is viable. The estimates given below reflect a uniform approach to CAD in the context of all school subjects at the gymnasium level of schooling and cover the total number of project beneficiaries and human resources, namely:

- 5 coordinators from the MECR and 5 research coordinators;
- 42 national trainers (in 14 subjects) who will train managers and teachers in CADM on all subjects;
- 35 specialists from the DEYS who will track CAD implementation at the rayon (municipality) level;
- 18 961 teachers and 1 255 school managers who will implement CADM and change the assessment system to a criteria-based one at the EI level;
- 158 637 students who will use criteria for self- and mutual assessment.

An absolute innovation will be the development of methodological roadmaps of CAD for inclusive education, which was not taken into account during the assessment reforms in primary schools. The estimates stated below constitute the costs per school year. The comparison with the reform cost in primary schools has only been performed for one school year, since full exact data for all years of the reform in primary schools are missing. Thus, in this case, we only present expenses for the 2017–2018 school year. The RM's state budget expenses for the implementation of the CAD reform in 2017–2018 totalled 1 468 464 leus (USD 84 319). This was the total of the expenses for grades I–III, which amounted to 962 184 leus (USD 55 249) (without teacher training), and those for grade IV: 506 280 leus (USD 29 070) (including the training of 2 000 teachers).

The cost of the new project implementation in the 2021–2022 school year will be 555 280 leus **(USD 31 884)**[4]. The list of activities and tentative estimates for the subsequent years of the planned project implementation (2023–2027) are given in Annex 1 (see Table 1.3), totalling 267 000 leus per year (USD 15 275). In comparison with the cost per year of implementation in primary schools, the saving is 913 184 leus **(USD 52 435)**. The saving can be explained by the fact that the implementation of the assessment reform in grades I–IV took place gradually in accordance with the 'Lesson Study' method[5], which required certain time for analysis and consolidation and for the developers of the CAD methodology to ensure the efficiency of the assessment methods and tools.

- The proposed calculation of costs for the gymnasium level excludes an increase in the number of manuals and their publication for the trainee teachers since, at present, the training is taking place online due to COVID-19. The expenses will grow if training takes place through the traditional face-to-face mode.
- Savings were also achieved due to the removal of the 'Developing Methodological Roadmaps for CAD Consistency in Grades 4–5' document from the list of activities.
- The number of experts for positions Nos 1–2 (see Annex 1, Table 1.2) was adapted in accordance with the number of subjects in the Plan of Study: 14 school subjects at the gymnasium level.

Annex 1 (Table 1.2) presents the distribution of financial costs across the planned activities for the development of materials and the delivery of training on CADM implementation in grades V–IX with due regard for inclusive education.

Limitations and potential problems

Limitations and potential problems were also analysed with consideration to the experience gained in primary schools. Therefore, the forecast of potential challenges presents a realistic picture and aims to support the smooth implementation of the project at the gymnasium level. The following challenges and limitations can take place during CADM implementation:

4. Detailed calculations are presented in Annex 1 (Table 1.2).
5. 'Lesson Study' refers to a pedagogical approach that constitutes a special form of research during action in a classroom and targets the improvement of knowledge in teaching practices. Lesson Study is attended by groups of teachers who jointly plan, teach, observe and analyse the learning and teaching, documenting their conclusions. When going through the Lesson Study cycle, teachers can introduce innovations and improve pedagogical approaches, which are later transferred to their colleagues through Lesson Study open sessions or the publication of a document describing their work.

- **Political challenges:** Frequent changes in the MECR's management can hamper the systemic implementation of the assessment reform in the gymnasium cycle as the reform is expected to take more than five years; in this case, ongoing support and understanding on the part of the MECR staff is absolutely necessary for the reform's success.

- **Economic challenges:** Absent or partial financial support from the MECR due to the national economic crisis and epidemiological situation of COVID-19 can negatively affect the implementation of the reform in gymnasium classes; this reform requires continuous investments similar to those in primary schools, with steady financing being one of the main factors of success.

- **Methodological challenges:** These refer to the difficulties that the project working group can face when forming criteria and descriptors for all 14 school subjects for grades V–IX; when ensuring the evolutionary changes in deliverables by grades, since in each subsequent grade within the same subject several new criteria are added for each deliverable; when fixing a clear relation between the deliverable, criteria and descriptors; when selecting deliverables in relation to the competencies under assessment and subject to control as set forth in the Gymnasium Curriculum (MECR, 2019a); when facing the complicated adaptation of CAD to the conditions of inclusive classes, as well as distance learning and assessment, since this will take place for the first time with no previous experience from primary schools; when dealing with time constraints for the internal monitoring carried out by school managers; and when facing managers who may reject methodological support and gradual monitoring, thus making teachers immediately subject to CADM controls.

5

RECOMMENDATIONS

The transition from primary to secondary education constitutes an important period in students' lives. At this stage, children experience difficulties related to their inevitable adaptation to the gymnasium cycle, with its diversity of styles in teaching and assessment. These changes, which one has to get accustomed to within a short period of time, can cause stress. Moreover, the transition to grade V and changes in the external environment coincide with a whole series of changes in the body of a teenage child. Therefore, there is a need for concerted efforts from all the parties in order to successfully overcome these difficulties in the implementation of CAD.

Namely, one has to ensure continuity in CAD implementation in grades IV and V through the following: immediate responses to the problems emerging in CAD implementation; development of strategies and practical solutions to improve learning, outcomes and address issues; and research activities to form recommendations, draw conclusions, generalisations, forecasts, etc.

The main conclusions that have to be taken into consideration when organising CADM implementation at the gymnasium level are based on the positive experiences of primary schools and are listed below:

- Teachers have to comply with the psychological, pedagogical and didactic principles of CAD;
- School-wide activities and professional development at all levels initiated by teacher-practitioners give birth to a new culture of assessment and ensure continuity at the gymnasium stage;
- The existing methodological support allows gymnasium teachers to easily introduce the new assessment strategies focused on self-assessment, confidentiality, a positive attitude and success into their practices;
- The psychological comfort of primary school graduates will be ensured by gymnasium teachers well-prepared in the CADM framework;
- The existing curriculum allows the development of success criteria for all school disciplines and the implementation of CAD at the gymnasium level.

In order to ensure consistency and the successful implementation of CAD, we propose the following activities:

- Generalising the experience of CAD implementation in primary classes of the RM and other countries at the secondary level;
- Identifying the exact timeframe for the gradual implementation of CADM regardless of changes in the MECR's management;
- Searching for financing sources for CADM implementation;
- Preparing and publishing CADM methodology and methodological guidebooks;
- Launching competitive processes to identify the composition of working groups to develop deliverables, criteria and descriptors;
- Creating schooling deliverables based on the competencies that are subject to assessment in each grade and for each subject according to the 2019 curriculum;
- Ensuring mandatory systemic training of gymnasium teachers and managers responsible for gymnasium education at the school level and within professional development courses;
- Carrying out additional activities to train teachers at the rayon (municipal) and school levels.

In order to successfully implement the cascade system in gymnasiums, one has to address this at the *national level* and ensure timely financing from the MECR, the efficient coordination of all efforts and control by national and research coordinators.

At the *rayon (municipal) level*, it is important to discuss and approve the CADM implementation plan for gymnasiums, identify the timeframe for CADM monitoring, arrange additional methodological activities to explain CADM matters, carry out joint rayon (municipal) sessions with methodological committees and teachers of primary and secondary schools for experience sharing and ensure timely support and advice is published on the DEYS websites.

At the *school level*, gymnasium teachers of various subjects have to familiarise themselves with CAD and cooperate with primary school teachers on matters related to the descriptors of achievements for each subject and learn which concepts the students have mastered and which skills they have formed at the same time bearing in mind that gymnasiums are where students start expanding their knowledge in all domains. Managers need to ensure a process of mutual attendance of classes by gymnasium teachers, design a plan for CADM implementation in their respective EIs and arrange discussions with students and parents about the CADM implementation process and any problems and challenges to find joint solutions.

Taking into account the need to develop MCADM and methodological manuals that will support the assessment process, one has to consider the general ideas and psychological and pedagogical underpinnings of the CAD process in primary education, as well as the specifics of a learning process organisation in the gymnasium cycle, including the psychological features of children of this age group; the various subjects and various teachers and, thus, the specific styles of learning and teaching. It is necessary to consider the experience of primary schools in arranging the training workshops for national trainers, secondary school managers and teachers (see Annex 3), but the design of the assessment reform should be adapted to the conditions of a combined model of CADM. The changes, which should happen during the assessment process at the gymnasium level, imply that assessment will now be organised on the basis of criteria using descriptors and marks.

The above-mentioned actions allow the formulation of the main objective of scaling up the innovation: identification of a general strategy to ensure continuity in CAD implementation in grades IV and V, which will consequently cause an efficient adaptation, development of students' personalities and achievement of curricula results expressed in the form of school competencies.

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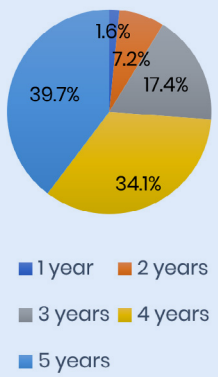
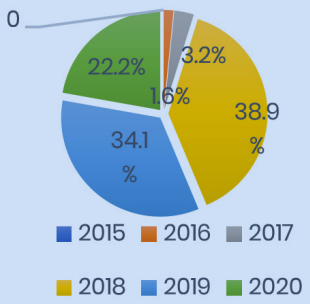
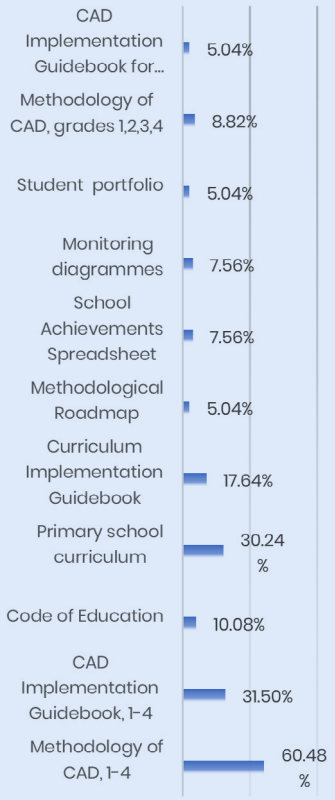
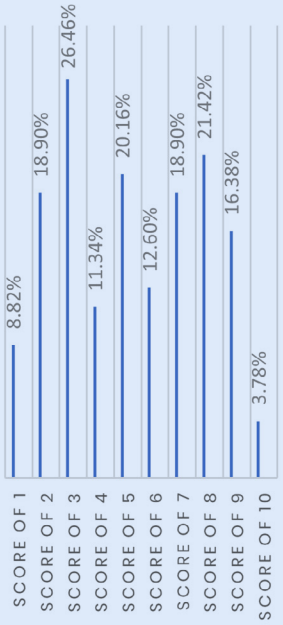
ANNEXES

ANNEX 1. DETAILED ANALYSIS OF THE QUESTIONNAIRE

Table 1.1. Questionnaire findings (2020)

Lines of monitoring	Number of teachers	Percentage ratio	Conclusions
Length of time working in the CAD system	1 year: 2 respondents (1.6%); 2 years: 9 respondents (7.2%); 3 years: 22 respondents (17.4%); 4 years: 43 respondents (34.1%); 5 years: 50 respondents (39.7%).		Of the 126 respondents, 50 had undertaken the full CAD training (5 years of work experience in CAD is equal to the timeframe for the existence of CAD in Moldova). About 3 or 4 years of work experience with CAD also attests to the teachers' understanding of the dynamics of assessment development in the country and an awareness of the methodologies and methodological guidebooks published in the identified period, with explanations on the organisation of CAD (43 + 50 = 93 people). Respondents who had been implementing CAD for 1–2 years were mostly young specialists (2 + 9 = 11 people).
Recent attendance of courses on CAD	2016: 2 respondents (1.6%); 2017: 4 respondents (3.2%); 2018: 49 respondents (38.9%); 2019: 43 respondents (34.1%); 2020: 28 respondents (22.2%).		Of the 126 respondents, only 6 people had taken professional training courses as early as 2016–2017, whereas 120 people had attended courses since then to improve their awareness of matters relating to CAD implementation and to study the additional methodological guidebooks updated after 2017.
Awareness of the CAD documents	CAD methodology for grades 1–4, 2019: 48 respondents (60.48%); CAD implementation guide for grades 1–4, 2019: 25 respondents (31.5%); Code of Education of the RM: 8 respondents (10.08%); Primary Education Curriculum: 24 respondents (30.24%);		Among the main documents methodologically underpinning the CAD, teachers voiced the CAD methodology for grades 1–4 (48 respondents) and the CAD implementation guidebook for grades 1–4 (25 respondents) and highlighted these documents as priorities. The fact that they were mentioned concludes that teachers are aware of the recent changes in the CAD methodological resources. A small number of teachers voiced the methodologies and guidebooks developed specifically for various grades (7 and 4 respondents, respectively). 8 people referred to the Code of Education (there are articles with information on CAD).

	Guide for Primary School Curriculum Implementation: 14 respondents (17.64%); Methodological roadmap for learning: 4 respondents (5.04%); School achievements spreadsheet: 6 respondents (7.56%); Monitoring diagrams: 6 respondents (7.56%); Student portfolio: 4 respondents (5.04%); Methodology for grades 1,2,3,4: 7 respondents (8.82%); CAD implementation guidebook for grades 1,2,3,4: 4 respondents (5.04%).		After the curriculum reform in Moldova, when great attention was paid to the curriculum and guidebook for primary education, teachers began to see the relation between the content of curricula and CAD concepts. That is why 24 people mentioned the Curriculum as being a document related to CAD, while the guidebook was selected by 14 respondents. 4 people identified the link with the methodological roadmaps for learning issued for each school year. Only 6 people considered the school register of achievements to be an explicit CAD document. 4 people referred to the student's portfolio, while 6 people named the document that was abolished in the methodology – monitoring diagrams – and continued to use it (either due to ignorance regarding the changes in the methodology or due to the deep implementation of CAD). On the whole, the responses attest to the teachers being thoroughly prepared in CAD through the use of a number of documents.
Problems related to CAD implementation	The main questions formulated by the teachers were as follows: • How can parents' perception of CAD be improved? • Why does the current (targeted) assessment fail to affect the summative assessment in CAD methodology? • How can one perform criteria-based assessment in primary grades under the conditions of online education? • How to assess children with special needs based on CAD in all of the subjects? • How can one improve the technology of assessment through practical work? • What are parents' general opinion about CAD in the country? • What is the opinion of secondary school teachers who teach children after CAD? • Is it possible to introduce mark-based assessment for the main subjects in grade IV to ensure consistency across gymnasiums? • Which approaches of working with parents can help to make them to support and understand CAD? • Why do textbooks fail to indicate the deliverables and success criteria? This would guide students in terms of the fulfilment of a specific assignment. • Why is it necessary to use various symbols for the assessment of the learning outcomes of a child (VG, G, S and I, L, C)? • Which document can provide information about CAD implementation results at the country level? • How has the new system of assessment affected, in general, the educational process in the RM?		The main problems that these questions can be reduced to are as follows: - CAD's impact on the education system of the RM; - improving CAD processes in primary education; - student assessment; - efficient forms of interaction with parents; - consistency with the gymnasium chain; - the assessment of children with special needs. Responses to the questions asked could improve the methodological support given to teachers and help them to comprehend the direction of further developments in the CAD processes.

	• What is the object of assessment in the formative approach to achievements assessment, and is it possible to assess something else in addition to the results of subject learning (knowledge of and skills in a subject)? • How can one use CAD more efficiently online? • Is it possible to decrease the number of sheets in the school achievements spreadsheet? • In the budget planning, will the financial expenses of a teacher and the EI be taken into account when developing formative assessment in the form of tests, pictures, tables, etc.? What about expenses to print out achievement spreadsheets? • How can one reconcile CAD with the time factor necessary to master the school material in accordance with the subject curricula when there are often no modern textbooks? • How can one achieve consistency after the transition from the primary to the secondary level? • How can the continuity of criteria-based assessment implementation in grades V–VI be (informally) ensured? • Are gymnasium teachers ready for CAD implementation? • How can one prepare grade IV students for a painless transition to grade V, where marks are given using hundredths of a score? • Is it possible to transition in grade IV to the 'MARK+CRITERIA' assessment for the painless adaptation of students progressing to the gymnasium level? • Will there continue to be CAD implementation in senior classes on the main subjects? • Why can't gradual formative assessment (GFA) results be added to summative assessment (SA 6) (the final assessment would be more objective)? • Will CAD be used in all subjects regarding senior grades? • Under CAD, is it possible to use marks from 1 to 10 along with the descriptors to prepare students for gymnasium assessment?		
How difficult it is to implement CAD in terms of interaction with students	Score of 1: 7 respondents (8.82%); Score of 2: 15 respondents (18.9%); Score of 3: 21 respondents (26.46%); Score of 4: 9 respondents (11.34%): Score of 5: 16 respondents (20.16%); Score of 6: 10 respondents (12.6%); Score of 7: 15 respondents (18.9%); Score of 8: 15 respondents (21.42%); Score of 9: 13 respondents (16.38%); Score of 10: 3 respondents (3.78%).		One can evaluate how difficult it is to interact with students by observing the chart as the highest percentage corresponds to a score of 3 (26.46%), which demonstrates insignificant difficulties in the interaction with students. The remaining data shows a rather detailed analysis of the findings. One has to understand that the difficulties depend on: - teacher seniority; - length of time working with CAD (teachers who have undertaken the full training experience fewer problems, and partial training correlates with more problems); - awareness of the most recent CAD methodology etc.

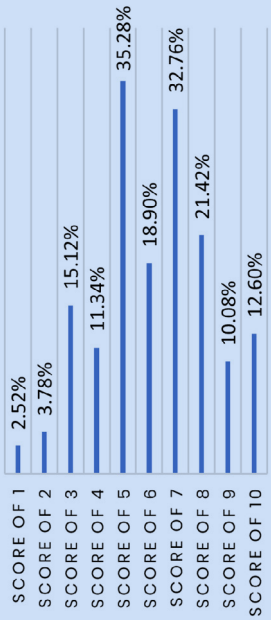
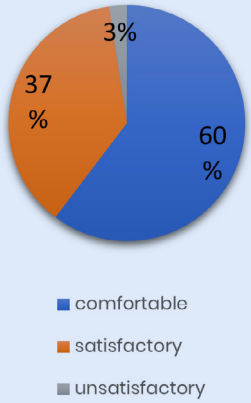
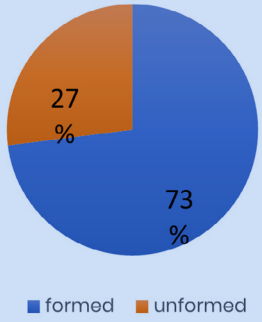
How difficult it is to implement CAD in terms of interaction with parents	Score of 1: 2 respondents (2.52%); Score of 2: 3 respondents (3.78%); Score of 3: 12 respondents (15.12%); Score of 4: 9 respondents (11.34%); Score of 5: 28 respondents (35.28%); Score of 6: 15 respondents (18.9%); Score of 7: 26 respondents (32.76%); Score of 8: 17 respondents (21.42%); Score of 9: 8 respondents (10.08%); Score of 10: 10 respondents (12.6%).		Based on the chart, one can evaluate the difficulty level when it comes to interacting with parents as the highest percentage corresponds to a score of 5: 28 respondents (35.28%). However, the highest figures are found on the right-hand side of the scale, and that allows a conclusion to be drawn regarding persistent difficulties in terms of interaction with parents. There is a need to develop methodological manuals for teacher interaction with parents under CAD.
How the CAD process affects the condition of students and learning outcomes	Comfortable: 76 respondents (60.31%); Satisfactory: 47 respondents (37.3%); Unsatisfactory: 3 respondents (2.39%).		76 teachers (60.31%) claimed that primary school students feel 'comfortable' with regard to the CAD process, while 47 respondents (37.3%) chose the 'satisfactory' response, and only 3 respondents (2.39%) selected 'unsatisfactory'. The data attest to the teachers coming to the conclusion that CAD is a student assessment process that does not correlate with a stressful situation and that allows progress to be made towards educational achievements under the given conditions.
Students' capability to perform self- and mutual assessment	Formed: 92 people (73.02%); Unformed: 34 people (26.98%).		According to the teacher's responses, students have formed the capability to perform self- and mutual assessment. This is an opinion stated by 92 teachers (73.02%). It attests to work on the ground that is effective at forming students' capabilities (including those needed to perform the self- and mutual assessment of school assignments).

Table 1.2. Activities planned for the development of materials and training on CADM implementation in grades V–IX, including the context of inclusive education

No	Activities	Indicators/ Results	Costs of activities	Total 555 280 leus (USD 31 884)
1	Development of methodology for CADM in grades V–IX	Developed and approved methodology	1 expert coordinator × 40 hours × 100 leus; 14 experts × 40 hours × 100 leus	60 000
2	Development of the 'Criteria-based Assessment through Descriptors and Marks' methodological guidebook for grades V–IX	Developed and approved guidebook	1 expert coordinator × 20 hours × 100 leus; 42 experts x 20 hours x 100 leus	86 000
3	Development of the methodological roadmaps on CAD in the context of inclusive education	Developed and approved methodological roadmaps	1 expert coordinator × 40 hours × 100 leus; 10 experts × 40 hours × 100 leus	44 000
4 4.1 4.2 4.3	Translation of the following documents into Russian: Methodology of Criteria-based Assessment through Marks for Grades V–IX Guidebook for Criteria-based Assessment through Descriptors and Marks in Grades V–IX Methodological Roadmap on Criteria-based Assessment through Descriptors in the Context of Inclusive Education.	3 documents translated into Russian	3 documents× 50 pages ×150 leus/page	22 500
5 5.1 5.2 5.3	The publishing of the following documents: Methodology of Criteria-based Assessment through Marks for Grades V–IX Guidebook on Criteria-based Assessment through Descriptors and Marks in Grades V–IX Methodological Roadmap on Criteria-based Assessment through Descriptors in the Context of Inclusive Education	4 documents published, with 2 000 Romanian and 500 Russian copies of each	A book with a B5 format, 96 pages, 2 + 2 colours, a multicoloured cover: issue 2 × 2 000 copies = 64 000 leus (8 leus/copy); issue 2 × 500 copies = 38 000 leus (19 leus /copy); Publishing costs for 4 books of 96 pages = 21 000 leus	72 000
6 6.1 6.2 6.3	Distribution of the following documents in the DEYS: Methodology of Criteria-based Assessment through Descriptors and Marks in Grades V–IX in the Romanian and Russian Languages; Guidebook on Criteria-Based Assessment through Descriptors and Marks in Grades V–IX in the Romanian and Russian Languages; Methodological Roadmap on Criteria-based Assessment through Descriptors in the Context of Inclusive Education in the Romanian and Russian Languages.	4 documents of 2 versions, with 2 000 copies in the Romanian language and 500 copies in the Russian language, published and distributed in the DEYS	6% of the total cost of publishing	3 780

7	Services to train national trainers in the implementation of CADM	Training services provided	2 experts in CADM × 100 leus/hour × 30 hours	6 000
8	Services to train national trainers in the implementation of CAD in the context of inclusive education	Training services provided	2 experts in CAD × 100 leus/hour × 30 hours	6 000
9	Services to train teachers/managers in the implementation of CADM	Training services provided	80 groups × 30 hours × 100 leus/hour	240 000
10	Services to train assistant teachers in the implementation of CAD in the context of inclusive education	Training services provided	5 groups × 30 hours × 100 leus/hour	15 000

Table 1.3. Activities planned for the training in CADM implementation in grades VI–IX

No	Activities	Indicators/ outcomes	Costs of activities	2022	2023	2024	2025
1	Services to educate national trainers in the implementation of CADM	Training services provided	2 experts in CADM × 100 leus/ hour × 30 hours	6 000	6 000	6 000	6 000
2	Services to educate national trainers in the implementation of CAD in the context of inclusive education	Training services provided	2 experts in CAD × 100 leus/hour × 30 hours	6 000	6 000	6 000	6 000
3	Services to train teachers/ managers in the implementation of CADM	Training services provided	80 groups × 30 hours × 100 leus/ hour	240 000	240 000	240 000	240 000
4	Services to train assistant teachers in the implementation of CAD in the context of inclusive education	Training services provided	5 groups × 30 hours × 100 leus/ hour	15 000	15 000	15 000	15 000
			Total	267 000	267 000	267 000	267 000

ANNEX 2. DATA COLLECTION TOOLS

2.1 Focus-group discussions as the method for CAD external monitoring: focus-group discussions with primary school teachers and managers

Recommended questions:

- Where did you take the national courses on MCAD implementation?
- Which professional development events on MCAD implementation have you attended at the school level?
- How many meetings on MCAD does the methodological committee schedule per year?
- What were the methodological consultations about?
- Which methodological resources did you use for CAD implementation?
- What are your individual needs in terms of professional development relating to CAD implementation?
- How do you inform parents about their children's learning outcomes? How often/seldom? What are the positive results? What improvements can you propose in this area?
- What is the objective of communication with parents? To what extent is this task fulfilled?
- How do you manage to inform parents about the students' achievement spreadsheet?
- How do the parents get information about the CAD methodology?
- Please indicate whether each of the following is absent/present:
- long-term plans developed on the basis of a student-centred approach and with due regard for the CAD-guided formation of competencies;
- short-term plans developed on the basis of a student-centred approach and with due regard for the CAD-guided formation of competencies.

Requirements and conditions:

- Exact times are established for managers.
- Teachers receive explanations for the purpose of their visits and discussions. The best possible conditions should be created for peer-to-peer discussions.
- Teachers participate.
- The manager responsible for primary education participates.
- The focus-group discussions take place in a classroom/methodology room at a round table.
- The observer sits among the teachers and not in front of them.
- The discussion flows easily, in a relaxed manner, with a smile.
- Nothing is subject to comments: the purpose is to just collect information.
- Each focus-group discussion should last no more than 30 minutes.

2.2 Focus-group discussion with students

Recommended questions:

- How do you feel at school?
- Is it easy or difficult for you to study?
- What are you assessed for?
- Who assesses the way you are learning?
- How are you assessed?
- In your opinion, which type of assessment is better?
- When is it easier to study?
- How do you understand/assess your success?
- When is it difficult for you?
- What happens to you when you are not fully successful?
- What do your parents expect from you?

Requirements and conditions:

- Only the manager responsible for primary education and the representatives of the child participate.
- The focus-group discussions take place in a classroom at a round table.
- The observer sits among the students and not in front of them.
- The discussion flows easily, in a relaxed manner, with a smile.
- Nothing is subject to comments: the purpose is just to collect information.
- Each focus-group discussion should last no more than 30 minutes.

2.3 Focus-group discussion with parents

Recommended questions:

- Do you ask your child about what has happened at school on a daily basis?
- What questions do you ask your child?

- How much information do you have about criteria-based assessment through descriptors?
- What activities have been organised in your child's class due to the implementation of criteria-based assessment through descriptors?
- How do you get information about the results of your child's assessment?
- How often do you receive information about the results of your child's assessment?
- What do you know about the assessment criteria?
- How deeply is your child involved in the assessment of his/her own achievements?
- To what extent has criteria-based assessment through descriptors improved and streamlined learning and contributed to the learning success of your child?
- Are you satisfied with your child's interest in schooling and their learning outcomes?
- Are you satisfied with the interaction between the class teacher and parents?

Requirements and conditions:

- Parents of students in grades I–II participate.
- The manager responsible for primary education participates.
- The focus-group discussions take place in a classroom at a round table.
- The observer sits among the students and not in front of them.
- The discussion flows easily, in a relaxed manner, with a smile.
- Nothing is subject to comments: the purpose is just to collect information.
- Each focus-group discussion should last no more than 30 minutes.

2.4 External evaluation general reporting form

Implementation of criteria-based assessment through descriptors on the basis of the methodology of criteria-based assessment through descriptors (MCAD)

Section 1. General information

1.1. Rayon/municipality
1.2. Person responsible for CAD monitoring at the local level
1.3. Position of the person responsible for CAD monitoring at the local level
1.4. E-mail:
1.5. Phone number:
1.6. Period of monitoring:
1.7. Date:
1.8. Observer signature:

Section 2. Training and professional consultations for a teacher working with the MCAD

No	Indicators	Number of teachers being monitored	Number of teachers having undertaken training/ consultations		Number of courses/ consultations		Period of training (number of teachers)			Number of teachers who have not undertaken training/ consultations on the MCAD	
			1 grade	2 grade	1 grade	2 grade	2015	2016	2017	Number of teachers	%
2.1.	The teacher has taken national courses on MCAD implementation										
2.2.	The teacher has taken professional development courses at the local level on MCAD implementation										
2.3.	The teacher requests methodological consultations on MCAD implementation										
2.4.	The teacher has the CAD methodology, guidebook and methodological portfolio necessary for CAD implementation										
2.5.	The teacher identifies personal needs in professional development related to the implementation of CAD in primary education										

Achievements
Reasons for teacher non-participation in trainings
Recommendations

Section 3. CAD planning

No	Indicators	Number of teachers being monitored	Number of teachers having taken training/ consultations	Number of teachers who		
				Make plans	Perform certain aspects of planning	Make no plans
3.1.	The teacher has long-term plans developed on the basis of a student-centred approach and with due regard for the CAD-guided formation of competencies					
3.2.	The teacher has short-term plans developed on the basis of a student-centred approach and with due regard for the CAD-guided formation of competencies					
3.3.	The teacher ensures cohesion between the school curriculum and the CAD process					

Achievements
Problems with the development of plans
Recommendations

Section 4. Practices of CAD implementation

No	Indicators	Number of teachers being monitored	Number of teachers		
			Always	Sometimes	Never
Teacher actions					
4.1.	Follows the stages of CAD				
4.2.	Calls students to participate in the formulation of the lesson objectives				
4.3.	Creates conditions for students to reason their opinions				
4.4.	Calls students to participate in the formulation of criteria and descriptors of achievements				
4.5.	Follows the principles and objectives of CAD				
4.6.	Gives all children an opportunity to participate				
4.7.	Involves students in the process of assessing their own learning progress on the basis of criteria and descriptors of achievements				
4.8.	Develops capabilities of assessment and self-assessment in children				
4.9.	Ensures individual support for students				
4.10.	Distinguishes CAD technology (instrumental and non-instrumental)				
4.11	Uses various reflexive tools in a class				
Students' actions					
4.12	Express opinions on the educational approach implemented in the classroom				
4.13	Know the assessment criteria, deliverables and descriptors of achievements				

Achievements
Problems
Recommendations

Section 5. Using CAD implementation tools

No	Indicators	Number of teachers being monitored	Number of teachers		
			Always	Sometimes	Never
5.1.	School achievement spreadsheets for students are filled in according to the indicators and descriptors of personal achievements				
5.2.	Students systematically replenish their individual portfolios with cards of assessment, self- and mutual assessment, etc.				
5.3.	The teacher systematically replenishes the class assessment portfolio with various monitoring tools in accordance with the requirements of planning and the school curriculum approved by the MECR				

Achievements
Problems
Recommendations

Section 6. Cooperation with parents/legal representatives of a child under CAD

No	Indicators	Number of teachers being monitored	Number of teachers		
			Always	Sometimes	Never
6.1.	The teacher systematically informs parents about the learning outcomes of their child				
6.2.	The teacher interacts with parents to improve the learning outcomes				
6.3.	The teacher has the students' achievement spreadsheet				
6.4.	Parents are informed about the CAD methodology				

Achievements
Problems
Recommendations

General conclusions
Recommendations for improvement

2.5 'Current Evaluation of Implemented CAD' questionnaire (2020)

1. Surname, name

2. Educational institution, locality

3. Contact phone

4. E-mail address

5. Total length of teaching experience

6. Length of time working with the CAD system
   - 1 year
   - 2 years
   - 3 years
   - 4 years
   - 5 years

7. Which year did you last take a CAD course?
   - 2015
   - 2016
   - 2017
   - 2018
   - 2019
   - 2020

8. Name 5 documents regulating the CAD process in the RM?

9. Indicate 3 questions regarding CAD that you would like to get a response to, having gained experience in CAD implementation.

10. Evaluate how difficult it is to implement CAD in the interaction with students on a scale from 1 to 10 (where '1' stands for the minimum difficulty, and '10' denotes the maximum difficulty):
    1 2 3 4 5 6 7 8 9 10

11. Evaluate how difficult it is to implement CAD in the interaction with parents on a scale from 1 to 10 (where '1' stands for the minimum difficulty, and '10' denotes the maximum difficulty):
    1 2 3 4 5 6 7 8 9 10

12. Do you think that the elimination of marks has affected the learning outcomes of students?
    - Yes, it has had a positive effect
    - Yes, it has had a negative effect
    - No, it has not had any effect

13. How do you assess a child's condition to be under CAD?
    - Comfortable
    - Satisfactory
    - Unsatisfactory

14. Which documents do you use for tracking students' achievements?
    - Diagrams recommended by the MECR
    - My personal diagrams
    - The register and spreadsheet of achievements

15. How do you communicate the learning outcomes of a child to his/her parents or legal representatives?
    - At a teacher-parent meeting
    - During the process of individual consultations
    - Through information letters towards the end of the semester
    - Through the 'student portfolio' form
    - Through the announcement of summative assessment results (in the student's academic diary, via e-mail)

16. Evaluate the degree of CAD implementation in online schooling from 1 to 10 (where 1 stands for the minimum and 10 for the maximum degree)
    1 2 3 4 5 6 7 8 9 10

17. Which requests related to the CAD process would you make to the authors responsible for correcting the CAD methodology?

18. Can your students make self-/mutual assessments based on criteria?

ANNEX 3. SCALABILITY MATRIX

Part 1. The scaling proposal

Scaling components (indicate the successful features of the innovation to be scaled)	CAD methodology and methodological guidebooks help implement CAD
Scaling goal (indicate the end of scaling)	MCAD implementation at the gymnasium level
Scaling type/approach (up/deep/out)	Expanding the MCAD to cover the gymnasium level
Scaling strategy (subtraction, simplification, institutionalisation, etc.)	Replication of the MCAD from the level of primary education to the gymnasium level, retaining the system of marks (MCADM)
Scaling entity (organisation that will implement the scaled pilot-project/innovation)	Ministry of Education, Culture and Research of the Republic of Moldova
Time–horizon of scaling (indicate the key scaling milestones and respective time-frame)	2019–2021 Stage 1. Implementing MCADM in subjects such as fine arts, technology, music education and physical training. 2022–2027 Stage 2. Implementing MCADM in other subjects.

Part 2. Scaling Feasibility Matrix

CRITERIA	(A) PILOT PROJECT/ INNOVATION AS IT IS NOW	(B) RECOMMENDED MODIFICATIONS FOR SCALING
1. Project Design		
1.1. Theory of change components		
• **Intended change [ii]:** an assumed result or change that the programme has to achieve and that constitutes the core of all the elements of the theory of change	1. Primary school teachers will have their assessment culture improved. 2. Primary school students will be able to control their activities, assess the correctness of the assignments fulfilled and master the basics of self-control and self- and mutual assessment.	1. Gymnasium teachers will have their assessment culture improved. 2. Gymnasium students will be able to control their activities, assess the correctness of the assignments fulfilled and master the basics of self-control and self- and mutual assessment.

• Key activities	• At the national level, the MECR developed the CAD concept and methodology, as well as the programme of professional development for national trainers and teachers. • Training workshops, meetings, round-table discussions and methodological councils on CAD implementation were carried out at the rayon/municipal level. • At the school level, training workshops, meetings, round-table discussions and methodological councils on CAD implementation took place.	• At the national level, the MECR will analyse experiences of CAD implementation in primary schools and those related to MCAD implementation in fine arts, technology, music education and physical training. • At the national level, the MECR will develop the concept and methodology of CADM and create a professional development programme for national trainers and teachers. • Training workshops, meetings, round-table discussions and methodological councils on CADM implementation will be carried out at the rayon/ municipal level. • At the school level, training workshops, meetings, round-table discussions and methodological councils on CADM implementation will be organised.
• Key outputs	At the national level: • 3 research coordinators developed the conceptual framework and methodology of CAD. • Working groups, composed of subject specialists, identified deliverables and criteria regarding the subjects they represented: Working Group No 1 (2015) of 7 people; Working Group No 2 (2016) of 12 people; Working Group No 3 (2017) of 13 people; Working Group No 4 (2018) of 17 people; and Working Group No 5 (2019) of 15 people. • 6 methodologies (2015–2019), 4 methodological guidebooks (2015–2019) and methodological roadmaps for learning (2015–2016, 2016–2017, 2017–2018, 2019–2020) were developed and provided a scientific underpinning for CAD implementation (available on the website of the MECR of the RM: https://mecc.gov.md/ro/content/invatamint-general). • 4 training sessions for national trainers introduced the basics of CAD. • 53 national trainers prepared managers and teachers. At the rayon level: • 35 plans to implement CAD were published on the websites of the DEYS for each rayon in the country. • 5 rayon/municipal methodological unions were established to explain the CAD process in accordance with the CAD work plan for each education department in the country. • 35 DEYS specialists attended training on tracking CAD implementation, and it was outlined in the External Monitoring Report for CAD Implementation in Primary Education, 2017. At the school level: • 269 school managers (at the level of EIs covered by external monitoring) prepared plans to implement and monitor CAD (*the annual reports of managers were sent to the DEYS at the end of the school year*). • 5 annual methodological union meetings took place at the beginning of the school year to cover matters relating to CAD implementation (2015–2020) in each EI (*the minutes of the methodological union meetings and a summary of the activities devoted to CAD were published on the websites of EIs and the DEYS during 2015–2020*). • 126 teachers were trained in applying CAD (at the level of EIs covered by external monitoring) (*Results of the 'Summary of KIX Innovations' Report 3*).	At the national level: • 3 + 2 research coordinators will develop a CAD conceptual framework and methodology. • One working group will be established to include 14 specialists on all subjects of the gymnasium cycle, who will identify deliverables and criteria by subject. • One CADM methodology will be developed to explain the conceptual aspects of CADM in gymnasiums. • 14 methodological guidebooks will be developed for all the subjects of the gymnasium cycle. • Annual methodological roadmaps for the learning process organisation will describe and scientifically underpin the CADM process. • There will be annual sessions with national trainers to study the basics of CADM at the gymnasium level. • 42 (14 x 3) national trainers will train managers and teachers to master information about CADM in all subjects. At the rayon level: • 35 plans on CADM implementation will be presented on the websites of the DEYS for each rayon. • Annual rayon/municipal methodological union meetings will be arranged to explain the CADM process. • 35 DEYS specialists will participate in training to monitor CADM implementation. At the school level: • 1 255 school managers will prepare plans for CADM implementation and monitoring. • Annual meetings of methodological unions at the beginning of the school year will be devoted to matters of CAD implementation in each EI in the country. • 18 961 teachers will be trained in how to apply CADM.

• Key intermediate outcomes	Teachers and students using CAD in their practices.	Teachers and students using CADM in their practices.
• Key long-term outcomes	1. Primary school teachers will have their assessment culture improved. 2. Primary school students will be able to control their activities, assess the correctness of their fulfilled assignments and master the basics of self-control and self- and mutual assessment.	1. Gymnasium teachers will have their assessment culture improved. 2. Gymnasium students will be able to control their activities, assess the correctness of their fulfilled assignments and master the basics of self-control and self- and mutual assessment.
• Key assumptions	1. Teachers were ready to comply with the psychological, pedagogical and didactic principles of CAD. 2. School-wide activities and professional development at the institution, local and central levels initiated by teacher-practitioners caused the development of a new assessment culture. 3. The MECR financially supported the implementation of CAD (2015–2019: development of the CAD concept; 2019: CAD courses).	1. Teachers will be ready to comply with the psychological, pedagogical and didactic principles of CADM. 2. MCAD implementation within 4 years attests to the students' readiness to proceed with the gymnasium level of schooling. 3. School-wide activities and professional development at the school, rayon and national levels initiated by teacher-practitioners will give birth to a new culture of assessment and ensure continuity at the gymnasium stage. 4. The existing methodological support will allow gymnasium teachers to easily introduce new assessment strategies focused on self-assessment, confidentiality, transparency, a positive attitude and success into their practices. 5. The psychological comfort of primary school students will be ensured by teachers (from 1 September 2019, those teaching in grade V), who will be well-trained in the CADM framework. 6. The existing curriculum will allow the development of criteria of success for all school subjects and the practising of CAD at the gymnasium stage. 7. The CADM system will reflect the symbiosis of 2 models: CAD and the system of marks. 8. Financing will be provided for the gymnasium level (to develop the CADM concept and methodology).
1.2. Theory of change statement	If one develops the CAD methodology and methodological guidebooks and introduces them into primary education, it will improve the culture of teacher assessment and contribute to the development of the skills of self-/mutual assessment in students, since systemic and continuous methodological support from the national to the rayon/municipal and school levels will be ensured.	If one synthesises the CAD concept for primary education and adapts it to the system of marks, transforming it into CADM, it will improve the culture of teacher assessment in the gymnasium cycle and contribute to the development of the skills of self-/mutual assessment in students in grades V–IX, since systemic and continuous methodological support from the national to the rayon/municipal and school levels will be ensured.

1.3. Contextual factors/ Enabling conditions (includes political, social, economic and cultural spaces)	• The Code of Education of the RM, Articles 3, 16 and 152. *Article 16.* Assessment and assessment scale (5). In primary education, the assessment of learning outcomes shall be criteria-based and ensured through descriptors. Article 152. This Code becomes effective within 30 days of the publication date, except for Article 16, Item 5, where the assessment of learning outcomes through descriptors becomes effective in 2015, starting from grade I. *Article 3.* Main concepts. The following important concepts will be used in this Code: Descriptors are qualitative criteria of assessment that describe the level of competencies formed in a student and allow the identification of the degree of their manifestation (low, medium, high). In accordance with the achieved level, descriptors allow the attribution of quality indicators (satisfactory, good, very good). • **Psycho-pedagogical approaches to the organisation of the assessment process** (CAD methodology): focus on the personality of the assessee (educatee), his/her individual and age characteristics; his/her motivation for studying; confidentiality; success; the transparency and involvement in the assessment process of the child/parent/legal representative of the child; compliance and efficiency; the integration of the educational process (teaching-learning-assessment); the prioritisation of self-assessment; flexibility in choosing tools of assessment; and the interlink between formative and summative assessment.	• The Code of Education of the RM. Article 44 (1) • Education Development Strategy 2014–2020 ('Education-2020'). The RM Government Resolution No 944, dated 14.11.2014. https://mecc.gov.md/sites/default/files/1_strategia_educatia-2020_3.pdf STRATEGIC LINE 2: ENSURING THE RELEVANCE OF EDUCATION FOR LIFE, AN ACTIVE CIVIC POSITION AND SUCCESS IN ONE'S CAREER Task 2.2. Ensure the relevance of learning in primary and secondary education. Priority measure: 2.2.6. Develop assessment standards for students of pre-university EIs. **STRATEGIC LINE 5: THE DESIGN AND INSTITUTIONALISATION OF EFFICIENT ASSESSMENT, MONITORING AND QUALITY CONTROL IN EDUCATION** Task 5.1. Develop the national system of education standards. Priority measures: 5.1.2. Develop and introduce performance standards and indicators to evaluate and control quality in the system of basic and professional secondary education. 5.1.5. Develop the system of the assessment of pedagogical workers (including foramen of professional and vocational education) in accordance with the professional standards. **STRATEGIC LINE 6: STREAMLINING EDUCATION RESOURCES MANAGEMENT** Task 6.2. Achieve efficiency in education finance. Priority measures: 6.2.1. Develop and introduce mechanisms of financing pre-school, primary and secondary education based on compliance with educational priorities, the results obtained, the number of students and their special needs based on 'value for money' analysis, budget programmes and costs per student. • 'Referential of Assessment-2014' (criteria, descriptors related to marks).
1.4. Characteristics of target beneficiaries (demographic, socio- economic, gender and other socio-cultural factors)	Beneficiaries: students in grades I–IV; Target audience: pedagogues teaching grades I–IV, researchers; Target regions: the RM.	Beneficiaries: students in grades I–IV, V–IX, students with SEN; Target audience: teachers, researchers; Target regions: the RM.
1.5. Relevance (link to national development priority; political and social buy-in)	• Education Development Strategy 2014–2020 ('Education-2020'). The RM Resolution No 944, dated 14.11.2014. https://mecc.gov.md/sites/default/files/1_strategia_educatia-2020_3.pdf **STRATEGIC LINE 2: ENSURING THE RELEVANCE OF EDUCATION FOR LIFE, AN ACTIVE CIVIC POSITION AND SUCCESS IN ONE'S CAREER** **Task 2.2. Ensure the relevance of learning in primary and secondary education. Priority measures:** 2.2.6. Develop assessment standards for students of pre-university EIs.	**<u>Sustainable Development Goal 4</u> (United Nations Development Programme (UNDP), Moldova):** Quality education. National target 4.7. By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, the promotion of a culture of peace and nonviolence, global citizenship and the appreciation of cultural diversity and of culture's contribution to sustainable development. https://www.md.undp.org/content/moldova/ro/home/sustainable-development-goals.html

	• The Code of Education of the RM Article 6. Educational ideal The educational ideal of a school in the RM is about forming a personality that is self-motivated and capable of self-development and that not only has a system of knowledge and competences that are in demand in the labour market, but also possesses the freedom of opinion and action and is open to intercultural dialogue while learning national and global values.	
1.6. Comparative advantage (analysis of competing solutions aimed at achieving the same objective)	There was consolidated the experience of criteria-based assessment implementation in other countries: - Belorussia ('Nashtobuzu' concept); - Romania (database of achievement descriptors); - Russia (Zankov's system); - France (criteria of success and criteria of assessment); - Nazarbayev's school (criteria-based assessment with marks); - International Baccalaureate School (Geneva): criteria- and descriptor-based assessment.	Consolidate the experience of CAD implementation in primary school of the RM and other countries at the gymnasium level. Assessment affects students, teachers and other educational agents responsible for taking decisions about the quality of educational process. The changes that are not accidental become more and more intense and give the right to speak about the students descrimination, which can happen sometimes in classical education. The CADM framework consitutes a system of both uniform and differentiated elements of teaching, learning and assessment owing to the introduced criteria, descriptors and marks that will perform the function of certification of what a student has achieved and the teacher has fixed as a result of comparison between the student's given answer and the ideal model identified beforehand through the criteria of success.
2. Operational arrangement and cost estimates (How and How much)		
2.1 Implementation capacity (systems, infrastructure, and human resources)	Human resources: • 3 coordinators from the MECR and 3 research coordinators; • 35 specialists from the DEYS monitoring CAD implementation at the level of the rayon/ municipality; • 7 774 teachers and 1 255 school managers implementing CAD and changing the system of assessment to the criteria-based one at the level of the EI; • 139 179 students.	Human resources: • 3 + 2 coordinators from the MECR and 3 + 2 research coordinators; • 35 specialists from the DEYS monitoring CAD implementation at the level of the rayon/municipality; • 18 961 teachers and 1 255 school managers implementing CADM and changing the system of assessment to the criteria-based one at the level of the EI; • 158 637 students.
2.2. Adaptability of organisational factors • Administrative and logistics procedures; • Supervision and accountability processes; • Communication strategy; • Organisational culture;	*Administrative and logistical procedures* allowed all specialists to be guided towards the shared objectives, mobilising the initiative of teachers and facilitating productive communication between them. *Supervision and accountability processes* took place during the external monitoring at the national and rayon levels and during the internal monitoring at the school level. *The communication strategy* was aimed at ensuring timely, accessible information support in the process of CAD implementation at all levels. *The organisational culture* was based on the rules of behaviour and ethical principles of quick feedback, maximum trust in teachers, a system of quick responses to challenges in CAD implementation and adaptation to them, open communication and experience exchanges.	

		Teachers of various specialities are supposed to get acquainted with CAD and cooperate with primary school teachers on matters related to the descriptors of achievements for each subject and find out which concepts students have managed to master and which skills they have formed while, at the same time, understanding that a student starts expanding his/her area concepts in all domains at the gymnasium level. During the first weeks of September, gymnasium teachers have to administer a test where students use concepts they learnt in primary classes. The test result should guide the teacher when working in a different manner. During grade IV, students can get accustomed to recording marks in a schematic way. Based on the final tests, descriptors of achievements can be associated both with quality indicators and marks. In grade V, there is another nuance in relation to primary education, which consists of the fact that students are not often asked questions during lessons, and their interest in a subject can diminish. Therefore, teachers have to focus on methods of participation, so that students have the impression that new horizons of knowledge are opening up to them. One has to bear in mind the trends typical of this age group: searching, studying and discovering. Thus, there is a need for primary school teachers to cooperate with gymnasium teachers so that the threshold is more easily overcome. In the primary cycle of schooling, it seldom happens that a student is not asked a question during the day. He/she can always talk at home about his/her participation in classes. In the subsequent grades, there are days when a student is not asked a question, and this is not because of the teacher's inability to organise the process of teaching and learning, but because of the fact that the teacher listens to the students who have been asked a question or noticed. However, there are shy children who think that no one notices them or wants to ask them questions. As time goes by, some students can develop a negative attitude to learning. In order to successfully integrate students into the gymnasium cycle, there is a need for open, peer-to-peer and sincere dialogues between primary and secondary school teachers. If one teacher approaches the problem from the position where one party controls the other, the dialogue productivity will be close to zero, and they will lose the attention of their children. If the teacher does not want to cooperate and does not care about the students' adaptation to the process of learning in the gymnasium, it is impossible to have any dialogue at all.
2.3. Ownership (level of ownership by the implementers at the design and evaluation stages)	**Implementing officials:** • Coordinators of the MECR developed documents regulating the CAD process. • Research coordinators developed the MCAD. • Specialists responsible for primary education in the DEYS arranged training workshops, round-table discussions and methodological consulting on MCAD implementation locally. • Pedagogues teaching grades I–IV implemented MCAD ideas and the requirements outlined in the methodological guidebooks.	**Implementing officials:** • Coordinators from the MECR will develop documents regulating the CADM process. • Research coordinators will develop the MCADM. • Specialists responsible for primary education in the DEYS will arrange local training workshops, round-table discussions and methodological consulting on MCADM implementation. • Pedagogues teaching gymnasium grades will implement MCADM ideas and the requirements outlined in the methodological guidebooks.
2.4. Partnership (key stakeholders buy-in and support; existence of Champions)	**Partners:** UNICEF, Soros Foundation and the Institute of Public Policy, Babeş-Bolyai University (Cluj-Napoca, Romania), the Institute of Pedagogical Science (Bucharest, Romania), the DEYS of Moldova, Moldovan universities (the Kishinev State Pedagogical University named after Ion Creanga, Alecu Russo Balti State University, Moldova State University).	**Partners:** UNICEF, Soros Foundation, the Institute of Public Policy, Babeş-Bolyai University (Cluj-Napoca, Romania), the Institute of Pedagogical Science (Bucharest, Romania), the DEYS of Moldova, Moldovan universities (the Kishinev State Pedagogical University named after Ion Creanga, Alecu Russo Balti State University, Moldova State University). **Champion:** the Institute of Pedagogical Science of Moldova (implementing agency and promoter).

	Champion: the Institute of Pedagogical Science of Moldova (implementing agency and promoter).	
2.5. Cost feasibility and effectiveness	Teacher training expenses were covered by the following sources: • Budgetary financing of 2% from the budget line for the life-long education of the institution (2015–2017). • Extra-budgetary financing (teachers paid for the courses themselves) (2018–2019).	Initial training will happen with financial support from the MECR. CADM implementation financing seems sustainable since there is an opportunity for self-generating finance (teachers will pay for the courses themselves).
2.6. Resilience to risk	• The biggest project risk is the absence of consistency between the primary schools and gymnasiums regarding the implementation of CAD and criteria-based assessment with marks (Methodological Framework for the Consistent Implementation of Criteria-based Assessment through Descriptors (CAD) in Grades IV and V, Methodology for the External Monitoring of the Implementation of Criteria-based Assessment through Descriptors in Primary Education). • The methodology for CAD consistency in the gymnasium cycle ensures CAD implementation in several school subjects (fine arts, music education, technology, physical training), while other subjects are not covered, and that creates a risk of intuitive assessment at this stage of schooling. • Among the risks, one has to take into account the work with children with SEN: a topic outside the focus of attention of the research coordinators who developed the CAD concept. • The risk associated with adapting CAD to the conditions of distance learning and assessment.	• Add articles on CADM to the Code of Education and other documents; • Gymnasium teachers, parents and students resisting the process of CADM assessment at the first stage of its implementation; • Potential need for curriculum reform for the gymnasium cycle; since the most recent reform happened in 2019, the modifications can be described in the annual methodological roadmap for learning.

3. Feasibility Assessment Summary

Expanding CAD to cover gymnasium classes can be achieved under the following conditions:

1. *Corrective measures prior to the start of the scaling up:*
- Develop and introduce into the Code of Education an article about CADM implementation at the gymnasium level;
- Update the National Curriculum in the light of the assessment reform (modifications can be described in the annual methodological roadmaps for learning);
- Consolidate experiences of CAD implementation in primary classes of the RM and other countries at the gymnasium level.

2. *Monitoring during the scaling up:*
- Internal monitoring under the supervision of managers responsible for gymnasium classes;
- Development of forms, indicators and tools by specialists.

3. *Limitations and potential problems:*
- Absent or partial financial support from the MECR;
- Difficulty of adapting CAD to the conditions of inclusive classes;
- Difficulty of adapting CAD to the conditions of distance learning and assessment.

KIX EAP Learning Cycle Case Study, September 2021

20, Rue Rothschild I P.O. Box 1672
1211 Geneva 1, Switzerland
+41 (0) 22 908 45 47
norrag.kix@graduatenstitute.ch

@KIXEAP

norrag.network

norrag.org/kix-eap

gpekix.org/regional-hub/kix-eap