RWCT'S IMPACT ON ROMANIAN TEACHERS' CLASSROOM INSTRUCTION AND REFLECTION PRACTICES

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Introduction

Ever since the *Reading and Writing for Critical Thinking* (RWCT) program was introduced in Romania in 1997, educators from various segments of the Romanian education system - from primary school through higher education - have come to know about it, and thousands have completed this continuous professional development program for teachers of all disciplines. Unquestionably, the terminology introduced by the program into teachers' professional discourse - such as the Romanian equivalents of Evocation-Realization of Meaning-Reflection (ERR) framework, the names of the numerous reading, writing, discussion and cooperative learning strategies - is widely spread throughout the system, having been picked up in a number of publications and also promoted in system-wide educational projects that included a teacher training component. Nonetheless, in the context of Romanian students' relatively poor performance in international comparative literacy skills assessments in the last decade, and the recent attention paid by the European Commission to making every teacher a literacy teacher, we have been interested in what elements of the RWCT program teachers who completed it are still using and how.

By 2020, the European Commission aims to reduce the percentage of 15-year-olds classed as "low-achieving" as measured by OECD's PISA tests to less than 15% (Europe 2020). Said percentage in Romania currently stands at around 40. At the EU-level, the highest percentage of very poor readers (those scoring below the low benchmark) was recorded in Romania, where 16% of pupils were not able to recognise, locate, and reproduce explicitly stated details from the texts (PISA, 2009). RWCT Romania holds the view that the RWCT program has the potential to help the Romanian education system to achieve the highly ambitious goal of more than halving its percentage of "low-achieving" 15-year-olds. In our present study, we wanted to see what impact the RWCT program has had on those secondary school teachers' instruction practices and reflection habits who completed the program 5-7 years prior to this research.

Background information. Context of the research

The Reading and Writing for Critical Thinking (RWCT) professional development program for teachers has been implemented in Romania since 1997[1]. Order 5416/21.12.2000 of the Romanian Ministry of National Education mentions the "critical thinking" program as an in-service teacher training program which educators in the pre-university education system could choose to attend, and if they did, they would get credit for maximum 20 hours out of the 40 hours of continuous professional development which the Order mandated teachers should cover within every 5-year period.

In 2002, about 20 RWCT teachers and teacher trainers registered the Romanian Reading and Writing for Critical Thinking Association (in Romanian: Asociatia Lectura si Scrierea pentru Dezvoltarea Gandirii Critice Romania). The purpose of setting up this legal entity was to ensure the sustainability of the RWCT project results. A strategy to ensure the extension of the RWCT program to new groups of teachers in Romania was for RWCT Romania to enter into a partnership with the Babes-Bolyai University of Cluj, a publicly funded provider of continuous professional development, to deliver specific modules of RWCT within the in-service teacher training program called "Magister" (2002-2006). In this context, RWCT trainers were hired by the Babes-Bolyai University to deliver modules such as "Critical thinking - a skill for the knowledge-based society", "RWCT as an instructional alternative", "Argumentation techniques", "Cooperative learning techniques", "Writing Workshop", "Lesson planning to promote critical thinking", "Particularities of assessment in group work", "The ERR framework and the integrated teaching of Romanian language and literature", "Expository text reading and writing techniques". These modules were delivered either as part of mandatory courses, or as elective modules, and as a consequence, interested teachers could not take up the entire RWCT program and benefit from all aspects of its quality assurance system (RWCT Project Certification Standards and Procedures, 2000). For this reason, in 2006, when the Romanian legal framework for the accreditation of teachers' continuous professional development programs set by Order of the Ministry of Education and Research no. 4611/ 2005 allowed it, RWCT Romania sought accreditation for the entire RWCT program independently. It was the requirement of Order 4611/2005 that name the training program proposed for accreditation should consist of no more than four words[2]. However, as the Romanian translation of RWCT consisted of seven words, RWCT Romania decided to call the program "Gandire critica. Invatare activa" (i.e. "Critical Thinking. Active Learning" - CTAL). The 89-hour, 5-module, 25-credit program was accredited in 2006 (Decision no. 71/ 11.10.2006) by the relevant department of the Ministry of Education and Research[3] for a 3-year period. During this time, 360 teachers in 17 groups (Cluj-Napoca - 4,

[1] In-Country RWCT Review - Romania, 2009 (unpublished)
[2] Anexa la O.M.Ed.C. nr. 4611/ 2005, art. 20, p. 7
[3] Centrul National de Formare a Personalului din Invatamantul Preuniversitar

Năsăud - 1, Târgovişte - 1, Râmnicu Valcea - 1, Baia Mare - 4, Slobozia - 4, Botoşani - 1 and Dej -1) completed the training program successfully, obtaining an officially endorsed certificate and 25 credit points.

According to the CTAL program documentation, the program pursued the followed aims:

1. To present practical methods of teaching based on philosophically consistent and theoretically sound ideas;
2. To place teaching within a comprehensive instructional framework that guides instructional decision making;
3. To empower teachers to take responsibility for their own professional growth;
4. To promote open, collegial, collaborative relations between educators in order to facilitate sharing ideas;
5. To support teachers in their efforts to develop their students' critical thinking skills, their skills to engage in critical reflections, and to take responsibility for their own learning, to form independent opinions and show respect for the opinions of others;
6. To engender participant confidence based on successful implementation of the program in their own educational setting;
7. To prepare participants to disseminate their learning.

The expected outcomes were that by the time the teachers complete the CTAL course, they should be able to plan and deliver lessons that contribute to the development of critical thinking skills; employ modern instruction strategies; lend themselves to interdisciplinary and cross-curricular extensions; favor the education of individuals for whom information is merely the starting point rather than the final purpose of learning. Specifically, the teachers were expected to be able to:

- describe the three phases of the teaching-learning frame called Evocation - Realization of Meaning - Reflection (ERR);
- place the various teaching-learning strategies in the adequate phases of the ERR framework;
- plan lessons based on the ERR framework observing the curriculum and using teaching materials available in the Romanian education system; and
- use the teaching strategies in the classroom.

The 89-hour course was divided into the following modules:

a. Critical thinking and reading - 20 hours
b. Cooperative learning for the development of critical thinking skills - 16 hours
c. Lesson planning - 12 hours
d. Critical thinking and writing - 16 hours
e. Particularities of assessment in lessons that develop critical thinking skills - 16 hours
f. Monitoring and assessment of the learners - 9 hours

According to the CTAL course description, evaluation of the participants' competences was done based on the rubrics for RWCT teachers as presented in the RWCT Project Certification Standards and Procedures. The evaluation methodology had to comply with official requirements as well (i.e. portfolio and public presentation of a selected piece from the portfolio). Evidence for making judgments on the teachers' learning was collected through direct observation by the trainers during the training workshops, teacher portfolio review, the teacher's presentation of a selected piece from the portfolio and the interview. The teacher portfolio contained at least the following pieces:

- one set of questions to encourage inquiry-driven learning;
- two lesson plans based on the ERR framework and using instruction strategies learned in the course;
- the teacher's reflections on the two lessons for which the lesson plans are shared;
- selected samples of the students' work done during or in connection with the two lessons for which the plans are shared;
- an essay in which the teacher reflects upon his/her learning during the course.

The teachers' evaluation of the CTAL course was done through a final evaluation form administered in the presence of an official external evaluator from the Ministry of Education's relevant office[4]. Information collected in this manner was processed by the course management and included in the final report on the CTAL course, which was prepared for the Ministry of Education.

The internal evaluation of the course delivery that RWCT Romania conducted at the end of the 2006-2009 accreditation period, the results of which became part of the rationale in the new accreditation document developed in 2011[5], revealed that the success of the CTAL course was mostly due to the collegial approach marked by shared learning; the highly practical and applied nature of the course; the sustained support that the trainers provided during the course delivery and after the course was completed as the teachers were experimenting with the transfer of their new learning into the classroom; the multiple paths of further professional development that the participating teachers were provided, such as access to national and international conferences, publication of articles; the possibility to become an RWCT trainer and then certifier as per the RWCT program standards and procedures of accreditation, and benefit from the professional support of education experts from over 30 countries throughout the world thanks to the mediation of the RWCT International Consortium and of the International Reading Association, which initiated the RWCT project. When The Reading and Writing for Critical Thinking International Consortium announced its plan to conduct RWCT impact assessment research, RWCT Romania proposed

[4] Centrul National de Formare a Personalului din Invatamantul Preuniversitar

[5] Asociaţia Lectura şi Scrierea pentru Dezvoltarea Gândirii Critice România. Documentaţie întocmită în vederea acreditării cursului de formare continuă pentru cadre didactice Gândire Critică. Învăţare Activă, 2011 (internal document)

to investigate the impact of its CTAL course on teachers 5-7 years after the program was completed.

When referring to the training program/ course in which the strategies and reflection practices were promoted, we will use RWCT and CTAL interchangeably. CTAL will be used when we want to emphasize reference to the accredited course, while RWCT will be used to refer to the teaching and reflection practices.

Acknowledgments

We would not have been able to carry out this study had we not had the generous support of RWCT teachers, trainers and representatives of institutions whom we partnered with during the delivery of the CTAL course in 2006-2009. Our thanks go to the members of the Romanian RWCT Association Maria Pavelescu, Constanța Stăncescu, Anca Petriuc and Simona-Elena Bernat, as well as Borbala Kovacs, who helped us improve the teacher questionnaire; to Simona-Elena Bernat, Cristiana-Nicoleta Biță, Claudia Macaria, Mirela Mihăescu, Monica Onojescu, Laura-Elena Runceanu, Ion Sandu, Petronia Scripcariu and Gelu Todoruț, who helped us distribute the teacher questionnaire; to course graduates who completed the questionnaire, and to those who graciously allowed us to observe them teach and answered further questions about their literacy instruction and reflection practices; to Laura-Elena Runceanu and Iudit Sera, who helped with data processing; and to Laura-Elena Runceanu and Borbala Kovacs for their feedback on the research report.

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Research design

Aims and objectives

This study aimed to explore the influence of the *Critical Thinking. Active Learning* (CTAL) training program on the literacy instruction practices and reflection habits of secondary school teachers who completed the CTAL course in 2007-2009 in Romania. More specifically, the objectives of the study were:

1. To identify which program-specific reading-writing strategies the teachers use;
2. To identify what types of professional reflection practices the teachers engage in;
3. To document cases of exemplary practice regarding the use of reading-writing strategies and reflection among secondary school teachers.

We decided to focus on secondary school teachers on the one hand because this category has proved more resistant to implementing RWCT in the classroom (invoking lack of time and curricular constraints) than primary school teachers, and on the other hand because their work impacts Romanian students' results in both national level examinations - which are increasingly designed to resemble international assessments - and international comparative assessments (e.g. PISA, TIMMS). We wanted to see what impact the CTAL program has had on secondary school teachers who completed it 5-7 years ago.

Data collection methods

The methods we used included:

- *document analysis* to identify the subjects and to collect background information about the history of the RWCT program (including the CTAL course) in Romania.

- *survey* using a teacher questionnaire (see Annex 1): a first draft of the questionnaire was developed in English and shared with education experts and practitioners, whose input was built into a second version of the questionnaire. This second version was translated into Romanian and piloted on some members of RWCT Romania who are secondary school teachers and who attended the annual general meeting in 2013. Based on findings from this pilot and on input from the senior researcher overseeing the research project, the final form of the questionnaire was developed in English and translated into Romanian.

- *classroom observation*: a classroom observation form was developed (see Annex 2) starting from the RWCT program standards and procedures. However, after piloting the form in the observation of a lesson taught by a highly experienced RWCT teacher who teaches mathematics, we concluded that using the observation form would not yield enough or detailed enough information as the categories require repeated observation over a number of lessons and interviewing the teacher. Upon the recommendation of the senior researcher, we agreed to observe the lesson and record as much as possible of what is seen and heard without using a specific observation form, and subsequent to the lesson observation and interview, use the categories in the form to process what was seen and/or heard.

- *semi-structured interviews* (before and after the lesson observation and independent of classroom observation): an interview guide was developed based on the RWCT Project Certification Standards and Procedures (see Annex 3) for the interview prior to and after the lesson observation. For the interviews not related to classroom observation, the teachers were asked to further elaborate on the open-ended questions in the teacher questionnaire.

Data collection was carried out in January-June 2014.

The documents reviewed included:

i. the CTAL course registry and course accreditation documents to collect information about the subjects and about the CTAL course;
ii. official public policy documents (orders, national curriculum) issued by the Romanian Ministry of Education to place the program in the context of the Romanian education system;
iii. reports produced by RWCT Romania to identify information about the RWCT program and other subsequent projects including elements of RWCT other than the CTAL course;
iv. the initial RWCT program guidebooks in English and Romanian languages, as well as specialist literature used as reference for the reading and writing strategies described in the study and explained in the Glossary.

Out of the 360 teachers who completed the CTAL course in 2007-2009, 170 were pre-primary or primary school teachers, and were therefore not targeted in this study. Our data collection targeted all of the 190 secondary school teachers. These teachers were identified in the CTAL course register of RWCT Romania. Nominal lists were prepared and questionnaires sent directly to the targeted teachers or to persons who had agreed to help us distribute the teacher questionnaire. In the teacher questionnaire, we asked the respondents to state whether they would agree to be contacted and asked for further information. Of the 100 returned valid questionnaires, 43 contained the respondent's contact and implicit agreement to share further information. Based on (a) the quality of the

answers provided to the open-ended questions in the questionnaire, (b) the discipline taught (content area disciplines favored over language), and (c) geographic proximity, we put together a shortlist of nine teachers, whom we contacted by email and/or telephone to explore their openness to being observed teaching and being interviewed, and if so, arrange a convenient time for classroom visit preceded and followed by an interview. Where classroom observation could not be arranged for reasons pertaining to the teacher's or researcher's availability at specific times to fit with the school timetable, interviews were conducted face-to-face and by Skype conference. We managed to observe and interview four teachers (one mathematics teacher, one history teacher and two Romanian language and literature teachers), and interview two more teachers (one Romanian language and literature teachers, and one natural sciences – chemistry and physics – teacher). Of the four observed, one was observed both directly and indirectly, by watching a recording of parts of the lesson.

The mathematics teacher was from an older generation of RWCT teachers (who attended RWCT training in 2000-2001 and was certified as an RWCT trainer and certifier). Although it was not planned to include such a teacher in the research at the beginning when the research design was developed, the decision to include her was dictated by the need to be able to describe exemplary practice in teaching mathematics using reading and writing strategies as promoted in the RWCT program and reflection on teaching practices as a mathematics teacher would do. Otherwise, it would not have been possibly to describe such practices for mathematics teachers.

Data processing

In all, 100 valid teacher questionnaires were collected. The answers were coded and recorded in SPSS 22, and frequencies were extracted.

The coding of the open questions was done as follows:

- for questions 2 and 3 (see Annex 1):
    - if the strategies named appeared in question 1, we used the code attributed to them in question 1 (1÷20); if not, we used a different code to signify 'others'. The reason for this was that we primarily wanted to check how many respondent would name strategies from the CTAL course, and which ones.
    - for the explanation of the purpose and manner of strategy use, we decided on the same two major categories for both purpose and manner: ' relevant' and 'irrelevant'. We checked whether the respondents provided relevant explanation for their purposes of applying the most frequently used reading

and writing strategies, and whether they described relevantly how they use these strategies. The reason for this simplistic choice of coding was that the vast majority of answers were not extensive enough to allow for more refined categories such as e.g. for the purpose of use: 'to evoke prior knowledge', 'to monitor comprehension', 'to explore new ideas', 'to record response', 'to improve study skills', 'to encourage reflection', etc. , for the manner of use: 'consistent with teaching in the CTAL course', 'inconsistent with teaching in CTAL course'. To exemplify irrelevant answers: 'the strategy works well in the classroom', 'there are worksheets and workbooks structured like this and it is simple to use the strategy in those', 'the students are asked to think in French and compelled to use written French', 'I teach mathematics', etc.

  - For a consistency check between the answers to open questions 2 and 3 and the answers to closed question 1, we decided to look at whether the teachers who chose 'most frequently used reading and writing strategies' from the list of 20 strategies in question 1 would be consistent in answering questions 2 and 3: e.g. if they chose to describe and explain the Directed Reaching-Thinking Activity as the most frequently used reading strategy, did they also attribute the highest relative frequency to this reading strategy when answering question 1? Similarly, if they chose e.g. learning logs as the most frequently used writing activity, did they also attribute the highest relative frequency to this writing activity when answering question 1? By highest relative frequency we mean the highest frequency that the respondent stated overall for the strategies in their answer to question 1. The 'consistency' check was not possible for the responses which referred to teaching strategies other than those listed in question 1. We recorded 'consistent' responses (i.e. the respondent named strategies to which she also attributed the highest relative frequency in question 1); 'partly consistent' responses (i.e. the respondent named some strategies to which she attributed the highest relative frequency, and some to which she did not attribute the highest relative frequency in question 1), 'inconsistent' responses (i.e. the respondent named strategies to which she did not attribute the highest relative frequency in question 1); and 'no answer /not applicable' responses (i.e. when the respondents did not describe any 'most often used' strategies or where they chose to name and describe strategies other than the ones listed in question 1).

- For open question 4.1, in which we asked the respondents to provide an explanation for their choice of answer to the closed question 4 ('How important do you consider reflection on your teaching practice is for your professional development? Please, circle the relevant answer.'), we grouped the teachers' responses into the following major categories:
  - reference to their students' results;

- reference to progress in the teaching career and/or improvement of teaching practices;
- reference to professional fulfilment and/or learning for the sake of personal growth
- irrelevant answer (e.g. 'because every teacher must always be understood and very well informed'; 'it contributes to harmonious physical development').

- For open question 6.4, we decided on the following categories of courses and, for each, recorded the number of hours mentioned by the respondents:
  - Didactics/ instruction
  - ICT
  - Curriculum
  - Evaluation/ assessment/ quality assurance
  - Management
  - Counseling
  - Inclusive education
  - Training in connected occupations (trainer, mentor etc.)
  - Others

Descriptive data about the respondents

Of the 100 respondents, 47 teach languages (Romanian, Romani or foreign languages), 11 social studies, 14 mathematics, 13 natural sciences, 10 technology, 3 arts and sports, and 2 religious education. The high rate of language teachers among the respondents is explained by the fact that of the 190 secondary teachers who completed CTAL, 108 were language teachers. In Romania, the literacy curriculum – reading and writing – in secondary schools is equated to the so-called 'language and communication' curriculum, which includes mother tongue (Romanian and ethnic minority languages) and foreign languages. The name of the RWCT program and the above fact about the Romanian curriculum may account for the situation whereby language teachers made up over half of the CTAL program participants. Although the name 'CTAL' does not include the terms 'reading' and 'writing', by the time the program was officially accredited, we believe it was better known by its original name (Reading and Writing for Critical Thinking/RWCT) or by its shorter version, 'the critical thinking program'. The concentration of language teachers may also be a reflection of the fact that the curricula of these disciplines may have undergone the most radical changes in the last 20 years. In fact, four of the 17 groups of teachers who completed the CTAL course consisted almost exclusively of language teachers (two groups of Romanian teachers recruited in partnership with the *Ioana Em. Petrescu Romanian Language and Literature Teachers' National Association* and two groups of Romani teachers recruited in partnership with the *Resource Center for Roma Communities*).

As concerns the respondents' gender, 12% were male teachers, and 88% female teachers, which is different from the gender pattern of the school teacher in Romania. According to EUROSTAT as cited in the 2012 Eurydice report[6] (Key Data on Education in Europe 2012, p.122), in Romania in 2009, 27.6% of the ISCED 1-3 level teachers were male.

Discipline taught by gender is reflected in Chart 1 below. Most male respondents teach social studies or mathematics, who together make up over half of the total number of male respondents. Of the female teachers, over half are language teachers, and over a quarter are natural sciences or mathematics teachers.

[6] http://eacea.ec.europa.eu/education/eurydice/documents/key_data_series/134en.pdf (accessed 09.06.2014)

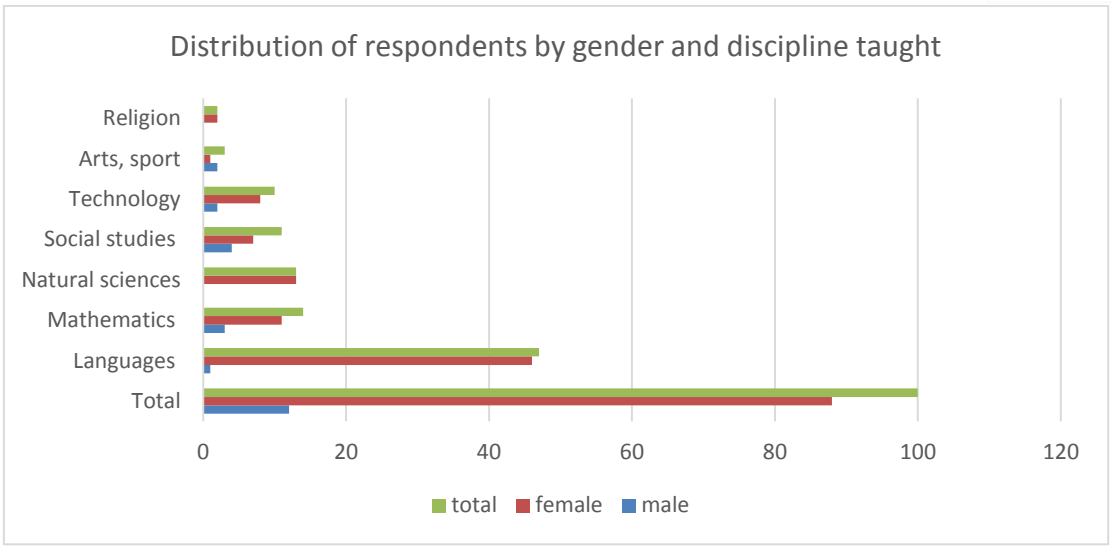

Chart 1. Respondents' distribution by gender and by discipline taught (%).

We asked the participants about the length of their teaching experience at the time they enrolled for the CTAL course. The reason why we collected this set of data was because we anticipated that the less experienced teachers' practice would be more influenced by their learning in the CTAL course. Chart 2 below reflects the distribution of the respondents in the various teaching experience categories by disciplines taught. The category of 4-10 years' experience carries the most weight (46 out of 100 respondents; i.e. 46%). Together, the 4-10 years and 11-20 years of teaching experience stand for 73% (73 out of 100 respondents).

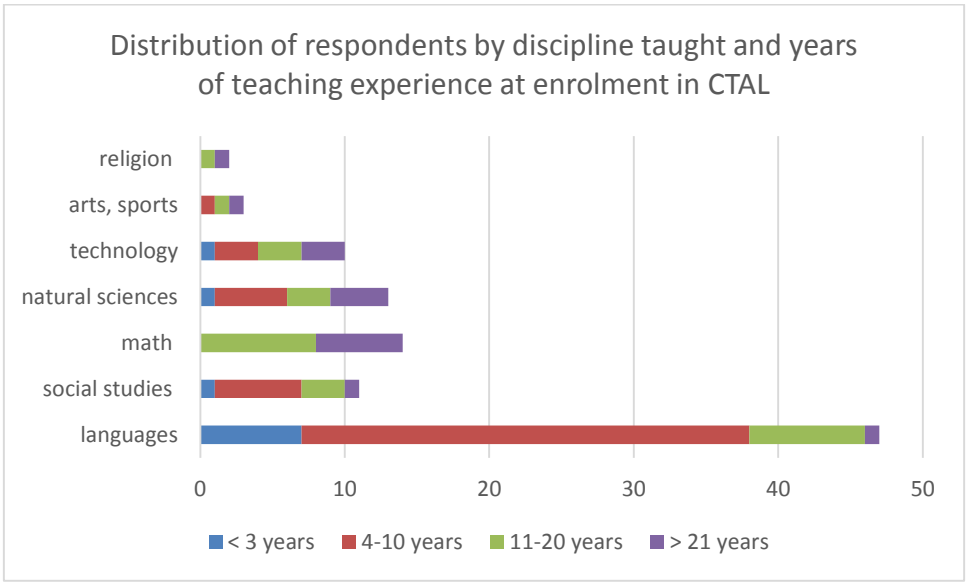

Chart 2. Respondents' distribution by discipline taught and teaching experience at the time of their enrolment in CTAL (number of respondents)

Another aspect we looked at in connection with the respondents' professional experience was whether and what kind of in-service teacher training courses they attended after

completing CTAL. We found that of the 100 respondents, the number of those who did not attend any courses or did not respond to the question was quite high - 21. As the Romanian Ministry of Education requires that teachers collect 90 credit points from in-service training courses every five-year period, it is more likely that the respondents did not write about the courses they completed. The 79 respondents who listed these courses covered together 325 courses, which is an average of 4.1 courses / respondent, totaling 21,728 hours of training, which results in an average of 275 hours of training/ respondent (non-answers excluded). The number of training hours is more relevant to mention than the number of courses, as the courses have different lengths, from about 10 hours to over 200 hours.

The highest number of in-service training hours was spent on ICT related courses - over 7,500 hours/ 105 courses in all (32 people covered one ICT course each; 13 people completed 2 ICT courses each, 5 people attended 3 ICT courses each, and 8 people did 4 ICT courses each). In popularity, ICT was followed by courses on didactics / instruction: 3,668 hours of training/ 55 courses in all (2 people completed 3 such courses each, 10 people 2 didactics courses each, and 29 people completed 1 didactics course each). The third most popular category of training courses attended by our respondents was in various other education related professions such as trainer, mentor, facilitator etc. In all, 54 such courses were completed totaling 3,656 hours of training (15 people completed 1 such course, 4 people completed 2 each, 9 people 3 courses each, and 1 person completed 4 such courses). The high popularity of the latter category of courses may reflect the fact that as teachers are poorly paid in Romania - a beginner teacher employed in a public school gets the equivalent of just somewhat above 200 Euros a month -, they are compelled to look for qualifications in other professions (and they do so primarily in qualifications related to education). Other courses that the respondents completed can be grouped under the following categories: curriculum issues, assessment, school counselling, inclusive education, management and others (this latter category includes courses that could not be grouped otherwise as their title did not allow for inferences to be made about their content).

In sum, our respondents were mostly female (88 out of 100), mostly language teachers (47 out of 100), most with 4-20 years of teaching experience at the time of their enrolment in CTAL (73 out of 100), who on average attended 275 hours of training after they completed CTAL, about a third of which was spent on ICT-related training, and a sixth of which was spent on instruction-related training.

Findings

Glossary

As in this chapter we will use the names of various reading and writing strategies which were included in the teacher questionnaire, below we will provide a short description of each. The primary source for the entries below was the initial RWCT guidebooks. These guidebooks were not published commercially, but were printed in-house and distributed to RWCT program participants. For this reason, where possible, we provide alternative references.

Anticipation guide (Gunning, 2003) - an instructional technique designed to activate and have students reflect on background knowledge. It consists of three to six carefully worded controversial or debatable statements which get the students involved in thinking about a topic before they read about it.

Argumentative essay writing - structured writing activity in which the students are asked to write supporting ideas and opposing ideas to express their position on a debatable issue. The argumentative essay is a genre that requires the writer to investigate a topic, collect, generate, and evaluate evidence, and establish a position on the topic.

Cinquain - A five-line unrhymed form poem, used as a device to encourage students to synthesize their understanding and reflect on a topic. See also http://www.readwritethink.org/classroom-resources/lesson-plans/composing-cinquain-poems-quick-51.html (accessed on 12.06.2014)

Clustering - Sometimes referred to as cognitive or semantic mapping, clustering is a strategy for displaying the relations between parts of a topic.

Double-entry journal - a two-column response journal in which students record ideas from a text they read in the left-hand column and their reaction to them or connections they make in the right hand column. (International Reading Association, http://www.readwritethink.org/files/resources/printouts/DoubleEntry.pdf) (accessed on 12.06.2014)

DRTA (Directed Reading-Thinking Activity) (Gunning, 2003) - an adaptation of the directed reading activity in which students use preview and prediction strategies to set their own purposes for reading.

Graphic organizer - a tool that uses visual symbols, graphic elements, to organize information, thoughts or ideas, and represent relationships between them.

INSERT - Interactive Noting System for Effective Reading and Thinking, a procedure that begins with searching prior knowledge and asking questions for marking texts, and then marking the different kinds of information that are found in the texts.

Jigsaw (Gunning, 2003) - a cooperative learning strategy which has students organized in home groups and expert groups. In the home group, the students divide up a task, then they regroup into expert groups, and finally return to the home group to share with the other members what they have learned in the expert groups.

Key terms/Predicting from terms - a pre-reading activity in which students are provided with a list of 4-5 essential words from a narrative text they are going to read and asked to anticipate the story.

KWL (Know - Want to Know - Learned) (Gunning, 2003) - a technique designed to help readers build and organize background and seek out and reflect on key elements in a reading selection.

Learning log / 3-minute essay - a type of journal in which students record and reflect upon concepts that they are studying (Gunning, 2003); students make entries in their logs during the last three to five minutes of class or after each completed week of class. See also http://olc.spsd.sk.ca/De/PD/instr/strats/logs/index.html (accessed on 12.06.2014)

Literature Circle with Roles (Short & Kaufman, 1995 cited in Steele, Meredith & Temple, 1999) - a structured cooperative learning strategy which has students gather in small groups to discuss a piece of literature in depth. Students are assigned different roles. In training, this activity was generally also exemplified for social studies teachers, and accordingly called 'History Circle with Roles', 'Geography Circle with Roles', etc.

Paired reading - Paired summarizing - a cooperative learning strategy developed by Don Dansereau, cited in Steele, Meredith & Temple (1999); it is used in teaching content area where reading material might be complicated or laden with factual material.

Quadrants - a reader response strategy in which students use a quadrant to organize their response to reading (introduced in Romania by Alison Preece, Canada). See also Effective Teaching Strategies and Tools at http://www.clayton.k12.ga.us/departments/instruction/toolsandstrategies.pdf, p. 27 (retrieved on 12.06.2014)

Questioning the Author - discussion strategy developed by Beck, McKeown, Hamilton, & Kucan (1997) cited by Steele, Meredith & Temple (1999), which first calls students' attention to the gaps and general need for clarification of texts, and second, leads them to question the texts in ways that result in deeper understanding.

Quick write - (Gunning, 2003) - a strategy in which, after reading, students are given three minutes to tell what they have learned about a topic, raise questions, request additional explanations, or voice concerns.

Freewriting - (Gunning, 2003) A form of writing in which students write for a brief period on an assigned or self-selected topic without prior planning and without stopping.

RAFT - (Gunning, 2003) - a structured approach to writing that helps students focus on four key elements: role of the writer, audience, format and topic.

Reciprocal Teaching (Palincsar & Brown, 1986 cited in Gunning, 2003) - collaborative learning technique in which students take turns leading a discussion about segments of expository text. They learn to use four key reading strategies: predicting, questioning, clarifying and summarizing.

Rotating review - a cooperative learning strategy which has students share information with each other. It can be used to review previously taught material or to prepare students to write an essay. See also http://keystoteachingsuccess.blogspot.ro/2009/04/rotating-review.html (retrieved on 12.06.2014)

Think-aloud (Gunning, 2003) - a procedure in which a person describes her thought processes while engaged in reading, writing or other cognitive activity.

In addition to the above strategies, as reference is included in the text to a specific framework for learning used in the RWCT-program, we are providing a definition of that framework: **Evocation – Realization of Meaning – Reflection (E-R-R) framework** (Steele, Meredith and Temple, 1999): a three-phase constructivist framework for learning, which begins with the *evocation stage*, in which students are encouraged to summon their prior knowledge about a topic, make predictions, and generally set purposes for their reading or inquiry. It is followed by the *realization of meaning stage*, in which students are exposed to new content through text, lecture, or other mediums and are expected to integrate the ideas or content into their own existing understanding. The framework culminates in the *reflection stage*, in which students consider what they have learned within the context of their existing thinking in order to reconstruct their knowledge to accommodate their new learning experiences.

Reading and writing strategies in use in CTAL teachers' classrooms

The first objective of the study is to identify which program-specific reading-writing strategies the teachers who completed the CTAL course use. To this end, in the teacher questionnaire (see Annex 1) we included a list of 20 reading and writing strategies (see Glossary for a short description of each) that were all part of the CTAL course, and asked the respondents to state how frequently they use them in their instruction on a scale going from 'every week or so' to 'every month or so' to 'a few times a year' to 'never'. In addition, we wanted to learn which two reading and which two writing strategies the teachers use most often, for what specific purposes and how. The teachers could name and explain the use of reading and writing strategies other than the 20 listed in the questionnaire. Also, if the respondents did not use any reading or writing strategies, they were asked to explain why they did not do that.

Frequency of strategy use

We have found that **each of the 20 reading and writing strategies is used by at least one respondent once a week or so**. Also, no respondent chose 'never' for all the strategies, meaning that **each respondent uses at least one strategy at least a few times a year**. However, **there are strategies that some respondents never use**. Overall, this is a positive finding, considering that the teachers completed the course 5-7 years ago, which indicates that the CTAL course proved useful for the teachers.

Some strategies are used more frequently than others (see Chart 3 below). **The most often used are graphic organizers, DRTA and KWL**: these simultaneously meet the criteria that at least a 33% of the respondents use each of them on a weekly basis, and only up to 9% never use them. While the frequent use of graphic organizers may be explained by the fact that they take relatively little time and they are easily applicable in all disciplines, this is not true for DRTA and KWL.

Directed Reading-Thinking Activity (DRTA, Stauffer, 1975, cited in Steele, Meredith and Temple, 1999) engages students in previewing and prediction strategies to set their own purposes for reading. In the RWCT /CTAL training, DRTA was introduced as a strategy for reading narrative text, in combination with a so-called predictions chart (a 3-column table with as many lines as stopping points in the story; the columns are labelled: What do you think will happen?/ What makes you think that?/What has happened?). This activity has students read a story and stop at carefully selected points to make predictions and explain their reasons for them, and then read on to check their predictions. After reading the first part of a story, the students are asked to anticipate how the story will go on, and also to

explain what makes them think that, in other words what evidence they have found in the text thus far and / or in their experience to support their predictions. Then the students read on to check their predictions. This cycle is repeated two or three times during the reading of a story. As such, it clearly lengthens the reading time, as students need time to make their thinking transparent to their peers and/or the teacher, so time-effectiveness cannot be the reason for the high frequency of DRTA use among the CTAL teachers.

KWL (Ogle, 1986) is a structure that encourages active reading of expository text. KWL stands for Know-Want to Know-Learn, the process of making meaning that begins with what students know, moves to the articulation of questions related to what they want to learn about the topic, and continues as students record what they have learned. As such, it can be used to frame several lessons, but if can also be used at some depth to frame students' learning in one lesson only (for a one-lesson use of KWL closely directed by the teacher, see the case study on teaching history). Like DRTA, KWL also takes more time than just having the students read an expository text and answer comprehension questions.

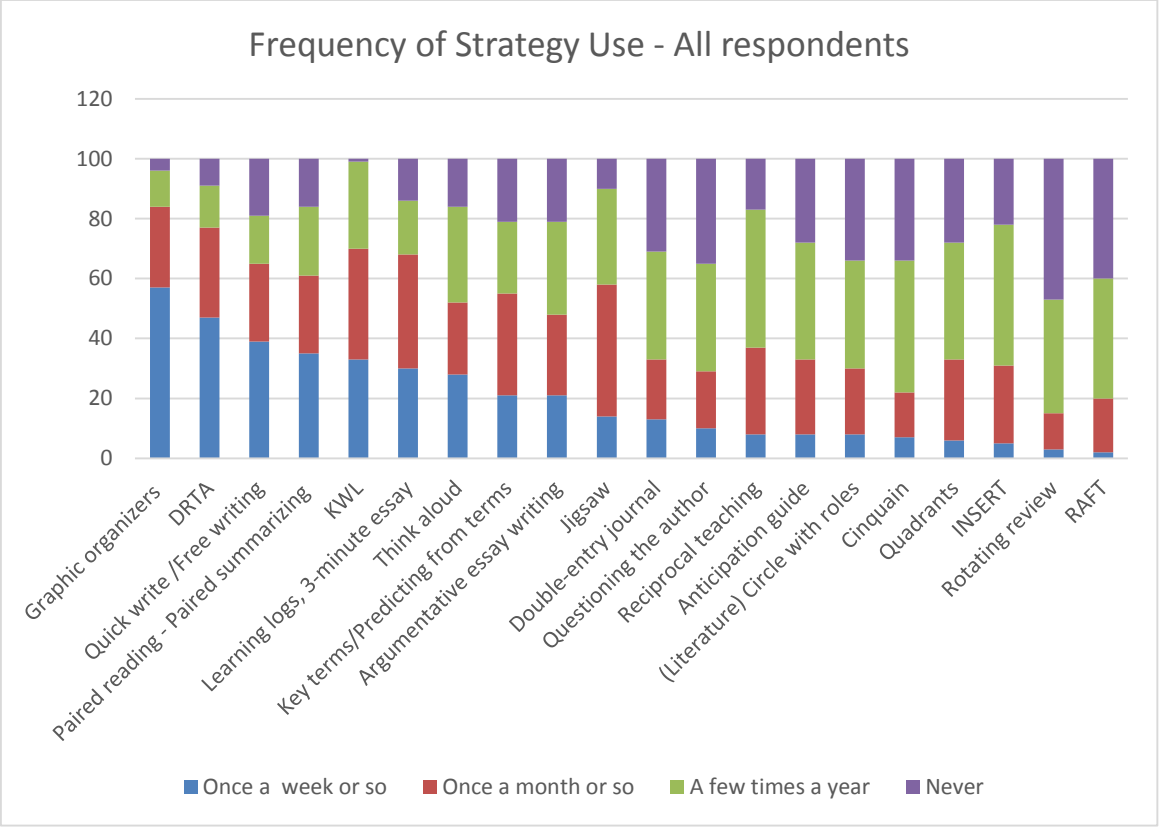

Chart 3. Frequency of reading and writing strategy use (all respondents) (number of respondents by categories of frequency for each strategy)

Therefore, the frequent use of DRTA and KWL may be explained by:

- the perceived usefulness of these reading strategies (DRTA is mentioned by 30 respondents and KWL by 18 as the most frequently used reading strategy, as shown below);
- the fact that the teachers may have learnt them or at least heard about them even prior to CTAL, as these strategies had been promoted by RWCT trainers in different teacher training programs implemented under the auspices of the Ministry of Education in 2003-2008 and in publications resulting from these projects.[7]
- the fact they can be directed closely by the teacher, and the teacher does not feel that she is giving up control of the group of students for a long time.

At the other end of the frequency spectrum (see Chart 3) are **RAFT (Role-Audience-Format-Topic), Rotating Review, Cinquain and (Literature) Circle with Roles, which are the least often used on a weekly basis**. These literacy activities simultaneously meet the criteria that only up to 8% use them once a week or so, and over 34% of the respondents never use them. While (Literature) Circle with Roles and Rotating Review – both cooperative learning activities – take relatively long, as they include both reading and writing, and so the teacher may feel that she transfers control over the learning process for a significant time to her students, RAFT and especially Cinquain can be short: the time required by RAFT depends on the format of the writing chosen, and Cinquain, a five-line fixed form poem consisting of 11 words, is a quite short reflection activity. Therefore, it is not likely that the reason for the infrequent use of the above strategies can be related to time constraints only.

The more likely explanation for the respondents' less frequent use of the Rotating Review and of the (Literature) Circle is – as also suggested in the first case study - that since they are cooperative learning activities, teachers may be hesitant about using them for fear of creating apparent chaos in the classroom. Another possible explanation – which, however, would hold for all writing activities - lies in the general perception of writing as a rather difficult and scary task. From anecdotal evidence, we know that teachers are seldom prepared to support students through the writing process, and they tend to focus exclusively on the end product of writing activities. Related to writing activities in the classroom, one of our interviewees explained, "Teachers still often dictate to students, which contributes to maintaining a culture in which people do not trust that their ideas are worth writing down, and so they prefer to let the 'smarter' people do the writing, and resign themselves to quoting others." Furthermore, RAFT and Cinquain may be perceived as activities that encourage creativity rather than critical thinking. However, (Literature) Circle with Roles is mentioned as the most frequently used reading strategy by 4 respondents (language

[7] See the guidebook "Invatarea intr-un mediu incluziv" [Learning in an inclusive environment], published within the PHARE 2003 program "Acces la educatie pentru grupuri dezavantajate" [Access to Education for Disadvantaged Groups] of the Romanian Ministry of Education. Also, see references to the RWCT guidebook first published in Romanian in 2000 in the Romanian Language and Literature Curriculum and the Mathematics Curriculum for Second Chance education produced within the PHARE 2003 program "Acces la educatie pentru grupuri dezavantajate" [Access to Education for Disadvantaged Groups] of the Romanian Ministry of Education.

teachers), and Cinquain is mentioned as the most frequently used writing strategy by 3 respondents (also language teachers).

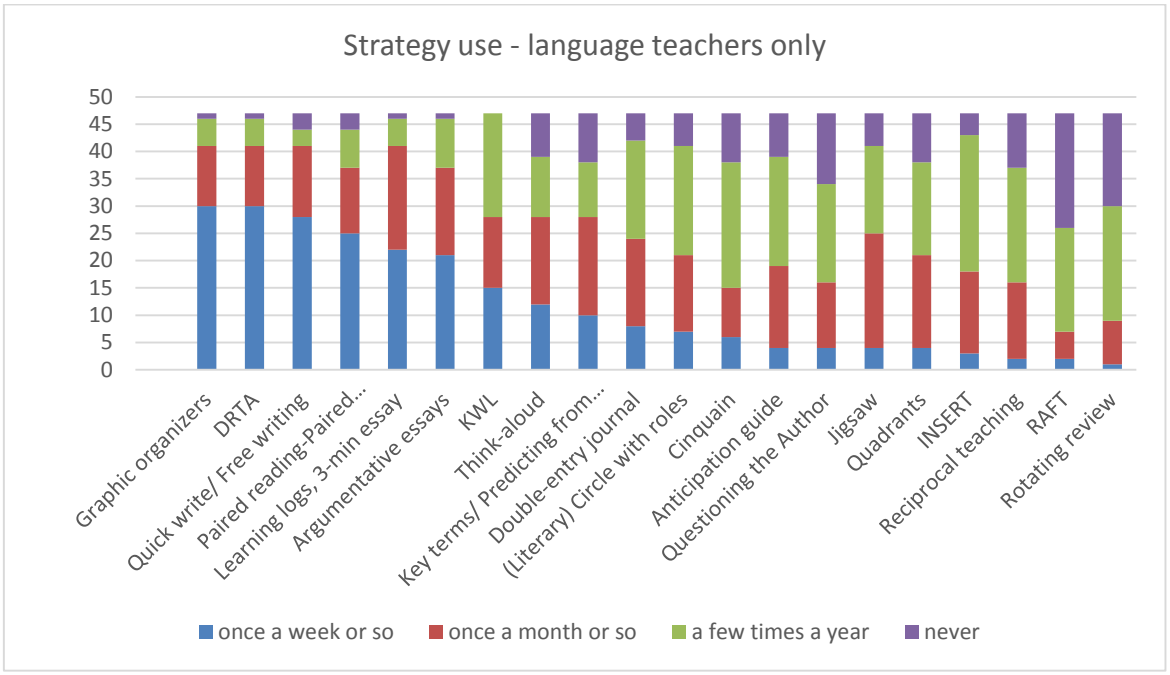

Chart 4. Frequency of reading and writing strategy use (language teachers only) (number of respondents by categories of frequency for each strategy)

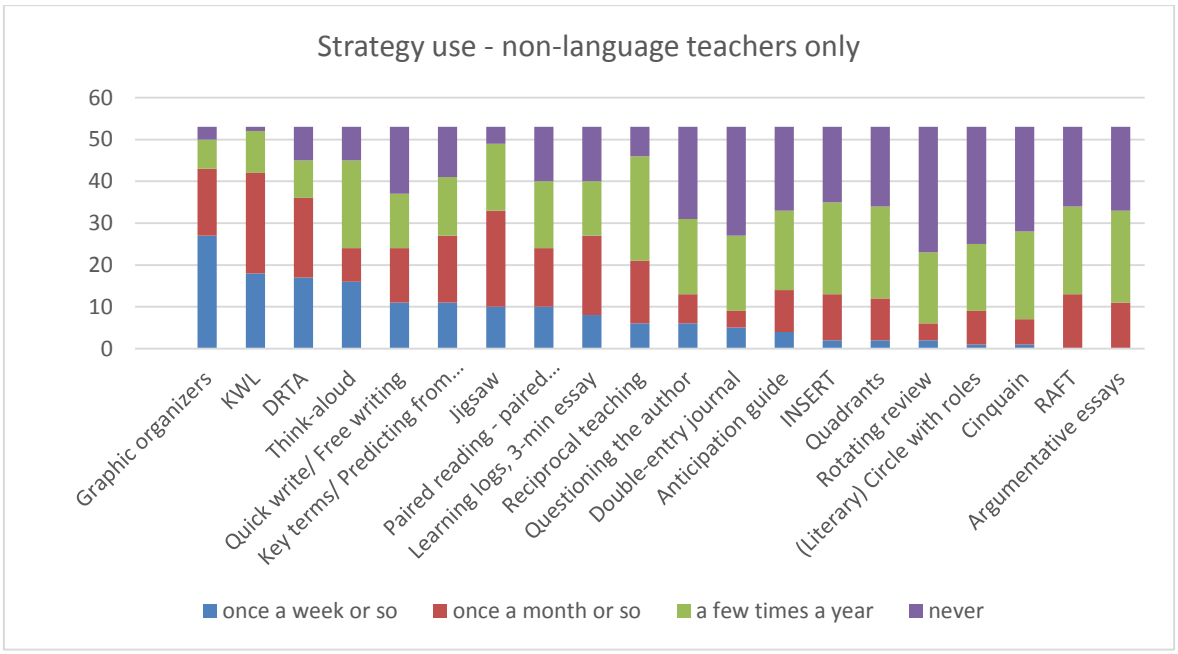

Chart 5. Frequency of reading and writing strategy use (only other than language teachers) (number of respondents by categories of frequency for each strategy)

We have noticed quite **significant differences between the use of the 20 listed strategies by language teachers** (mother tongue and foreign languages) **and by non-language teachers** (social studies, mathematics, natural sciences, technology, arts, sport and religious

education). Notwithstanding, **even if the group of respondents is divided into these two subgroups, teachers in each subgroup use each strategy at least on a monthly basis**.

Some of the findings related to the frequency of reading-writing strategy use as related to the discipline taught are (see Charts 4 and 5 above):

- **Fewer non-language teachers use the listed strategies on a weekly basis than language teachers**. In the Romanian school culture, in general, reading and writing activities are rarely associated with the teaching of non-language disciplines. The teachers' initial training in instruction does not include methods or strategies to develop literacy skills through the teaching of various disciplines other than languages. As such, it should not be surprising that non-language teachers tend to use reading and writing activities less frequently.

- While graphic organizers are the most frequently used strategies by both language teachers and non-language teachers probably for the reasons explained above, other than that, **the two subgroups tend to prefer different sets of strategies**.

- **Argumentative essay writing is used with a very different frequency by language and non-language teachers**. While 44.6% of the language teachers use it once a week or so, none of the non-language teachers uses it on a weekly basis. Conversely, only 2.1% of the language teachers never ask their students to write argumentative essays, while of the non-language teachers, 37.7% never have their students write such essays. As we try to explain this finding, we should keep in mind that critical thinking and argumentation are strongly connected. According to the RWCT program, "thinking critically involves taking ideas and examining their implications, exposing them to polite skepticism, balancing them against opposing points of view, constructing supporting belief systems to substantiate them, and taking a stand based on those structures." (Steele *et al*, 1998). The writing of an argumentative essay would require the writer to do most, if not all, of the above listed in quotation. For this reason, **it is surprising that the non-language teachers who have completed the RWCT/ CTAL training use argumentative essay writing relatively infrequently**. Another fact to keep in mind is that the Romanian national curriculum especially for the upper secondary education social studies states that critical thinking is a basic value to promote. Also, the national curriculum for secondary education targets the development of argumentation skills (listed among the specific competences to develop across the social studies curricula). However, while the curriculum for Romanian language and literature clearly states that one of the key competences to develop in students is to argue orally or in writing in support of an opinion, none of the other curricula state this. This is a **potential explanation for the different uses of argumentative essay writing in classrooms of non-language teachers**. Moreover, the fact that argumentative essay writing is so rarely done by non-language teachers may reflect the current practices in the national evaluation system and also the fact that non-language textbooks do not include writing tasks such as argumentative essay writing: students are only asked to write argumentative essays in their language lessons and examinations. So **the different types of tasks in the national examination and in the textbooks may also account for the radically different frequency of**

the use of argumentative essay writing by language and non-language teachers. Lastly, in their initial training, regardless of the discipline they are trained to teach, teachers themselves may not be taught how to write argumentative essays. The expectation is that the student teachers will already know how to write an argumentation. However, there is plenty of evidence in the Romanian mass media[8] about the widespread phenomenon of plagiarism or – more recently – of websites where interested people may commission papers to be written by hired service providers. This may mean that **some teachers are themselves uncertain how to write an argumentation, and hence they may be unsure how to use argumentative essay writing with their students in teaching their respective disciplines**.

- **Learning logs**, which encourage students to become reflective, and which help them develop their learning skills (a key competence specified in the Romanian national curriculum) **are also very differently used**: 46.8% of the language teachers use them once a week or so, while only 15% of the non-language teachers use them the same frequently. Moreover, 24.5% of the non-language teachers never use them, as compared to only 2.1% of the language teachers who never use them. The reason may be that not all teachers understand the importance of *writing for learning*, including metacognitive writing such as in learning logs, perhaps because they themselves don't do it so often (to compare, see our findings on teachers' written reflection practices). Another reason may be that non-language teachers find that asking the students to write about their learning would take too much time out of the regular 50-minute lesson time away from the actual learning of the discipline, while language and literature teachers – for whom improving the students' written expression skills is an explicit goal – may find that by asking them to write learning logs they are working directly toward achieving a goal of their discipline.

- As for KWL, **it was predictable that non-language teachers would use this strategy more often than language teachers** given the fact that it was designed for reading (and learning from) expository text (see explanation above). KWL is mentioned by 18 teachers as their most frequently used reading strategy, and by 8 teachers as their most frequently used writing strategy (see below).

In conclusion, the different uses of the reading and writing strategies listed in the questionnaire by language teacher, on the one hand, and by non-language teachers, on the other hand, are to some extent understandable (e.g. different frequencies of using KWL due to the different nature of text used in the discipline). However, more often than not, the fact that non-language teachers use certain reading or writing strategies less often than the language teachers reflects the fact that **the non-language teachers may not be ready to use a wider variety of reading and writing strategies, they may not understand how some reading and writing strategies can be used for teaching their discipline, or may not understand the relevance of using specific reading and writing activities to develop their**

[8] http://stirileprotv.ro/stiri/actualitate/facultatile-cumpara-softuri-care-detecteaza-lucrarile-copiate-dar-studentii-sunt-cu-un-pas-inainte.html; http://redactarelacomanda.ro/; http://www.lucrari-de-licenta.eu/ etc. (accessed on 26.07.2014)

students' thinking. This further signals that in CTAL training, **more support should be provided especially for non-language teachers to help them identify how they can use the various reading and writing strategies in the teaching of their disciplines without compromising the specific content of the respective discipline**. In addition, **more guided writing activities should probably be incorporated in the CTAL training to help all teachers understand the relevance of writing for learning and to become more confident writers themselves.**

Most frequently used reading and writing strategies – for what purpose and how

In addition to pointing out the frequency with which they use the listed strategies, the teachers were asked in two open questions to name two reading and two writing strategies that they use the most often, and for each explain the purpose(s) and manner of use (see Annex 1). The reason for including these two questions was a) to allow the respondents to name and discuss other strategies than the ones listed (the respondents could however opt to refer to the 20 strategies listed in question 1); b) to allow for judgment on the quality (especially relevance) of the respondents' use of the reading and writing strategies listed, which would indicate to what extent they understand the literacy instruction strategies promoted in the CTAL program. Also, if the respondents did not use any reading or writing strategies, they were asked to explain why they do not do that.

The first finding in this respect is that **the respondents mostly named both reading and writing strategies from among the 20 listed in question 1**, which were promoted in the CTAL program. This reinforces the earlier finding that the CTAL course participants still use what they learned 5-7 years ago. However, **29% of the respondents also named other reading and/or writing strategies**, such as 'learning through discovery' (i.e. read a text and identify relevant information for the topic of the lesson; this strategy is named in the history curriculum as a recommended learning strategy), reading and questioning (questions guide the reading or the re-reading of text), the "Giasson model" (named as such by the respondent; Jocelyne Giasson promotes explicit teaching of comprehension strategies in reading), explanatory reading, letter writing, brainstorming. Some of the respondents who pointed out strategies other than those in question 1 named approaches that appear to be less specific (e.g. 'learning through discovery') than the strategies promoted in CTAL and listed in question 1, while some others seemingly used a different name for a strategy listed in question 1 (e.g. 'reading and questioning', which from the explanation provided appears to be the same as DRTA). This **re-naming** or limited specificity **may indicate the teachers' uncertainties about the strategies promoted in CTAL**.

The responses to the open questions 2 and 3 were also analyzed for consistency and relevance. As shown in Chart 6, most respondents (80%) were consistent or at least partly consistent in answering questions 2 and 3, on the one hand, and question 1, on the other hand. This reassures us that most of the relative frequencies provided in response to question 1 (frequency of strategy use) are quite likely correct.

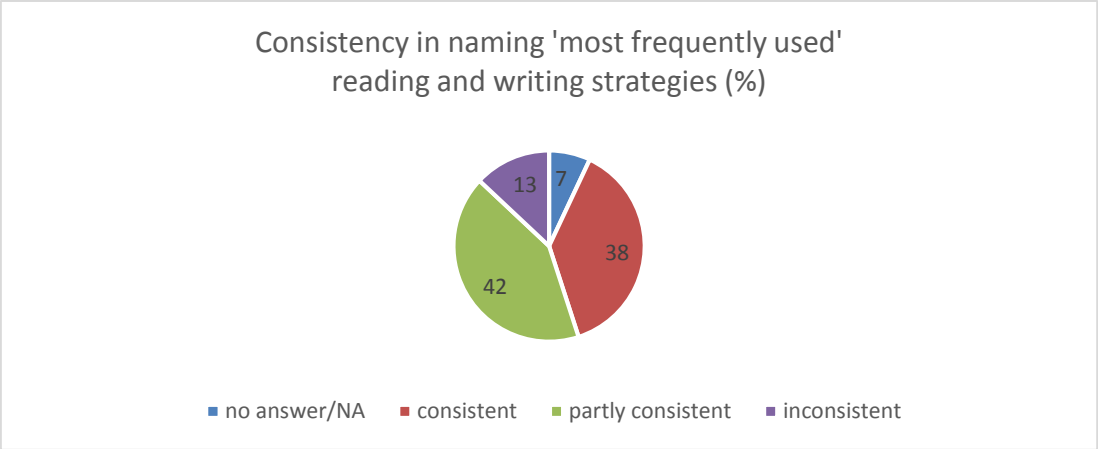

Chart 6. Consistency in naming 'the most frequently used' reading and writing strategies (%)

Similar to the findings from the answers to question 1, the answers to question 2 reaffirm that DRTA, Paired reading-paired summarizing, and KWL are the most often used reading strategies (see Chart 7). INSERT, however, a seemingly simple comprehension self-monitoring strategy, did not appear to be so frequently used from the answers provided to question 1. This finding is to some extent confusing, and would necessitate further investigation.

From among the writing strategies (see Chart 8), the respondents' predominant choice for argumentative essay writing, learning logs / 3-minute essays, quick write/ freewriting and graphic organizers seems to be confirming the answers to question 1.

When asked for what purpose(s) and how they use the reading and writing strategies they stated they apply most frequently, the respondents often provided superficial answers. This raises the question whether teachers actually use the strategies as taught in the course or whether the reason for their superficial description could be that they are unsure how they should use those strategies. (For detailed description of how one Romanian language and literature teacher uses especially graphic organizers, see the first case study.)

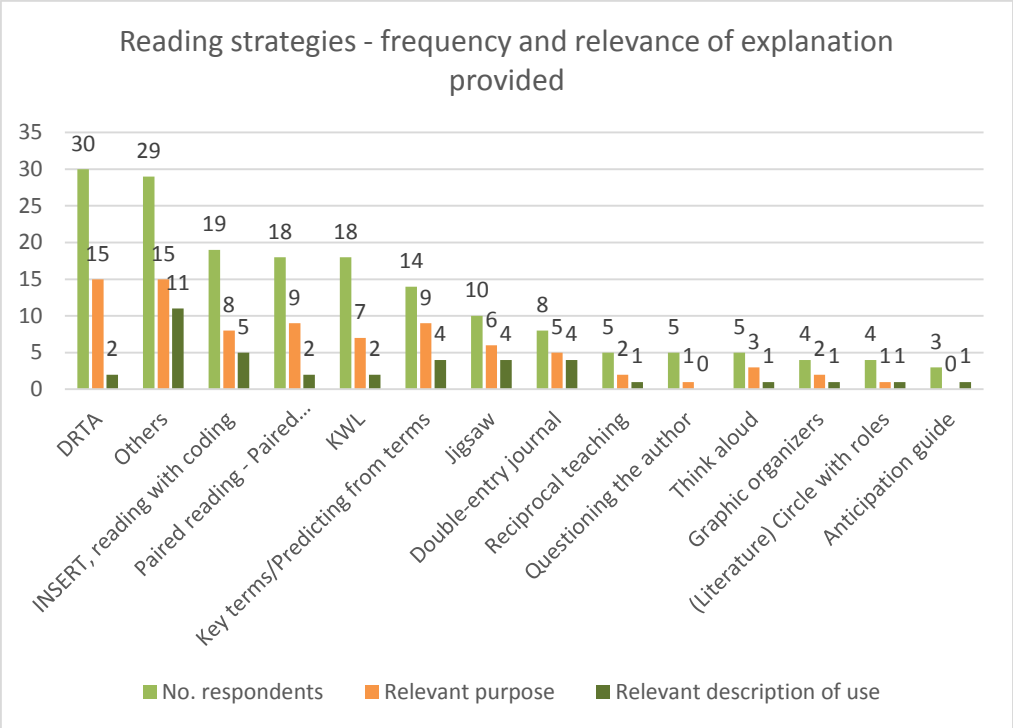

Chart 7. Frequency of reading strategies most often used and of relevant explanations for the purpose and manner of their use (absolute numbers) (NB: 14 non-responses; the chart only includes strategies named by at least three respondents)

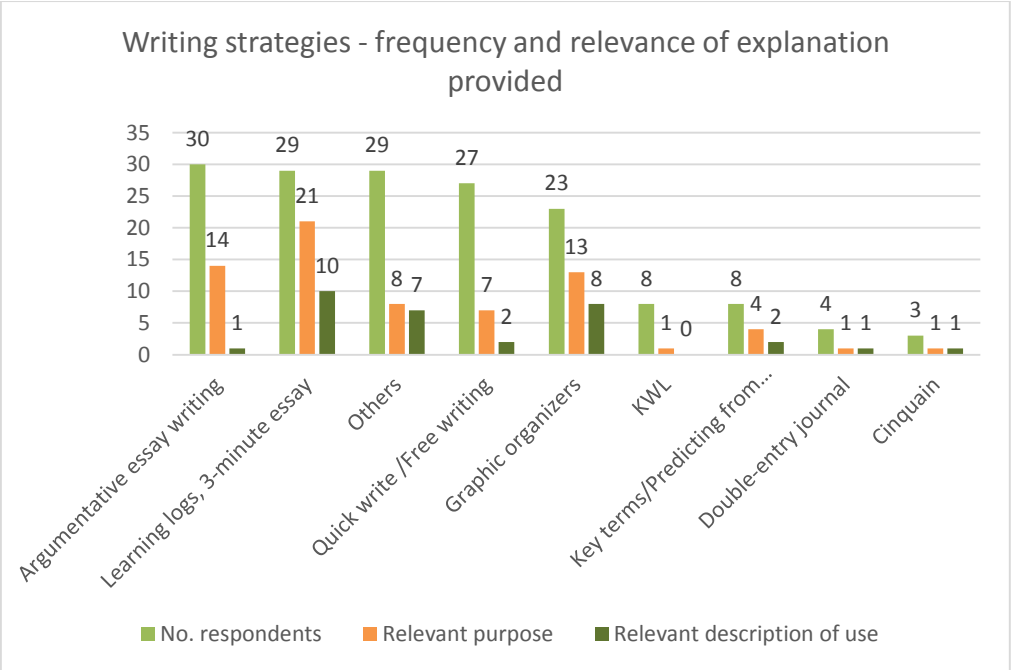

Chart 8. Frequency of writing strategies most often used and of relevant explanations for the purpose and manner of their use (absolute numbers) (NB: 20 non-responses; the chart only includes strategies named by at least three respondents).

Teachers provide more relevant answers to the question 'for what purpose(s)' they apply the strategies than for how they use them. The reasons for this may be: the insistence in the course that teachers use strategies with a purpose within the E-R-R framework, but at the same time, no insistence on using the strategies themselves precisely as demonstrated (as if they were recipes, e.g. step 1, step 2, etc.); the fact that the two questions were to be answered in the same space and the respondents may have overlooked the second part of the question; the respondents may not actually use the strategies in the form that they were taught in the course, and may have been hesitant to describe the adjusted manner in which they use the strategies; the general Romanian school culture (as explained by one interviewee) in which writing is looked upon as a difficult and "scary" task, which may have prevented the teachers from providing full answers to questions 2 and 3.

The explanations for the non-use of reading and writing strategies that the respondents provide are also rather superficial. Some mathematics and physics teachers point out that they cannot use reading and / or writing strategies on account of the discipline they teach, making it sound as if self-explanatory that their discipline will not allow use of literacy activities, e.g.: "I teach mathematics", explains a mathematics teacher, probably implying that the discipline cannot be taught using reading and writing strategies; "it is inappropriate for physics, it is inappropriate for the discipline I teach [*our note*: to use reading and/ or writing strategies]", explains a physics teacher.

Some of the respondents mention that they use some reading and writing strategies in the "dirigintie" (counselling) lessons (e.g. DRTA, predicting from terms, learning logs, 3-minute essays, think-alouds). Many of the teachers who teach non-language discplines fail to explain relevantly how they use the various strategies they name, although they state that e.g. "KWL is very useful for the discipline I teach". A mathematics teacher who names KWL and DRTA as the most frequently used reading strategies fails however to provide a relevant explanation, "I believe that both strategies are appropriate for teaching and learning of mathematics." This teacher uses KWL a few times a year, and DRTA about once a month. Another mathematics teacher names Jigsaw as a reading strategy she often uses, but only explains that it is appropriate for the discipline she teaches. The same teacher points out free writing and learning logs as the most frequently used writing strategies, but only explains that the resons she uses them is because her students like them. For more detailed descriptions of how teachers use the various strategies, we have collected data during the classroom observations, and have shared these in the case studies below.

There is a significant percentage of teachers who do not provide any explanation at all either to the question about the purpose, or to the one about the manner of strategy use (see Table 1). The purpose and manner of application of writing strategies is less often explained (20% non-responses) than that of the reading strategies (14% non-responses).

Discipline taught	total respondents (absolute numbers)	% of respondents providing no explanation for reading strategies	% of respondents providing no explanation for writing strategies
Languages	47	10,6	8,5
Social studies	11	9,1	9,1
Mathematics	14	21,4	57,1
Natural sciences	13	15,4	23,1
Technology	10	10,0	10,0
Arts, sport	3	66,7	100,0
Religion	2	0,0	0,0
Total	**100**	**14**	**20**

Table 1. The rate of non-responses to the questions asking for explanation for the most often used reading and writing strategies by disciplines taught (out of total respondents per discipline taught)

Considering the above quotes from mathematics and physics teachers, it is interesting to note that – excluding art and sport teachers, who by virtue of their disciplines understandably use few or no reading and writing strategies other than perhaps in counselling lessons – the two categories of disciplines that have the most non-respondents are the mathematics and natural sciences teachers (including physics teachers): over 57% of the mathematics teachers and over 23% of the natural sciences teachers do not respond to question 3 (open question about writing strategies) at all. This fact suggests again that the mathematics and natural sciences teachers may not know how to use literacy strategies in teaching their respective disciplines, and indicates that more attention should be paid in the CTAL training especially to how the mathematics and natural sciences teachers understand the reading and writing strategies and how prepared they are to use them in their instruction practice.

The case of mathematics teachers is rather interesting: while 57.1% fail to explain why or how they use writing strategies, only 21.4% fail to answer the same questions for the reading strategies, although one tends to think that mathematics learning involves more writing than reading. In the case study on mathematics teaching, we show that mathematics teaching can and should make use of both reading and writing for the purpose of supporting the students to make their thinking transparent.

Teacher reflection

The second objective of our study was to identify what types of professional reflection practices the teachers engage in. One of the goals of the CTAL in-service teacher training program was to empower teachers to take responsibility for their own professional growth. It is well-known and widely accepted that professional growth depends on reflection (Dewey, 1916; Schon, 1987; Osterman, 1990; Snowman, McCown, and Biehler, 2012). To learn about the reflection practices of the teachers who completed the CTAL course, we asked three questions in the teacher questionnaire: two multiple choice questions, and one open-ended question.

How important is reflection?

In Question 4, we asked the respondents to rate the importance of reflection on their teaching practice from the perspective of their professional development. We found (Table 2) that almost all consider reflection important (32%) or very important (66%), which tells us that **teachers are aware of the importance of reflection**.

How important do you consider reflection on your teaching practice is for your professional development?	Frequency of answers (%)
Very important	66
Important	32
Not so important	1
Don't know/No answer	1
Total	100

Table 2. Frequency of scales of importance attributed to reflection on one's teaching practices from the perspective of professional development.

If we analyze the responses by disciplines taught (Chart 9), **we find some significant differences between how important teachers of different disciplines think reflection is**. As compared to the pattern emerging from the total group of respondents, we find no major differences in the groups of language and natural sciences. Of the technology teachers, 80% find reflection very important. Of the social studies teachers, 54.5% find reflection very important, and 45.5% important. However, in the subgroup of mathematics teachers, the pattern is almost reverted as compared to the total respondents: 35.7% of the math teachers consider reflection very important, while 57.1% consider it merely important. As one of our interviewees - a highly experienced mathematics teacher – explains, the abstract nature of mathematics especially in upper secondary school may prevent teachers from engaging students in reflection on the relevance of their learning for everyday life; the teachers themselves may therefore find it less relevant to reflect and thus they do not develop the habit of reflection. The same teacher speculates that the comparatively less

importance attributed to reflection may be due to most mathematics teachers' self-sufficiency: mathematics is a discipline which students most often fail in national examinations; mathematics teachers tend to blame failing students for not working enough, rather than ask themselves what they could do better or differently to support their students' learning. The teacher further explains that the mathematics teachers must have been good at mathematics in school, so they cannot understand where the difficulty in grasping mathematics lies. Further, lack of perceptiveness combined with lack of reflection by mathematics teachers leads to the fact that mathematics is perceived as a threatening discipline in school.

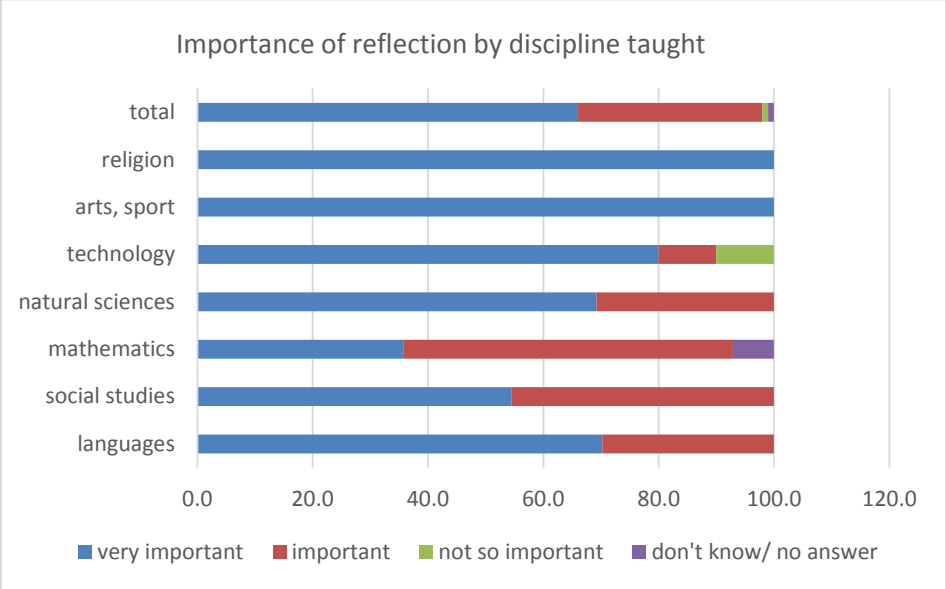

Chart 9. Importance attributed to reflection by disciplines taught (in relative percentages).

If we look at the subgroups of different lengths of teaching experience, in each subgroup we find that more respondents find reflection very important than important (Chart 10).

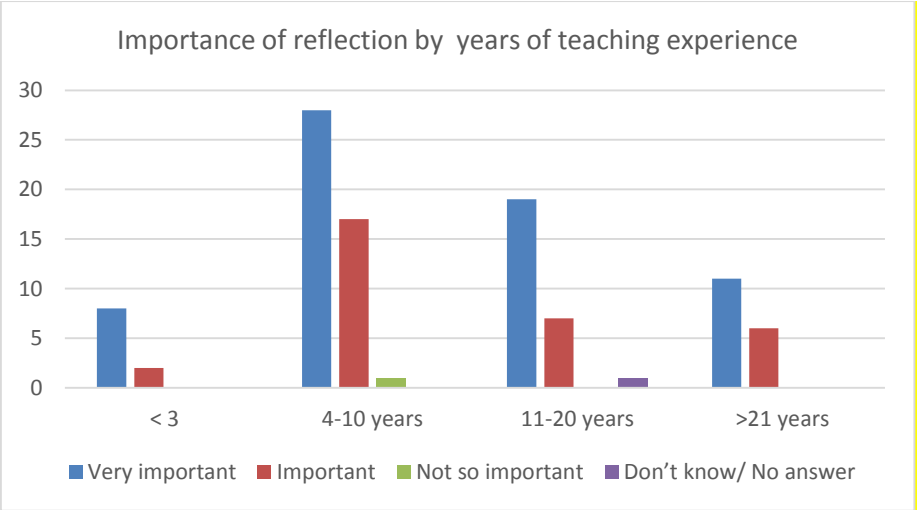

Chart 10. Importance attributed to reflection on one's teaching practices, by years of teaching experience at enrolment in CTAL (percentages).

Those teachers who were in the early years of their career at the time they enrolled in the CTAL course (and who at the time of this study have an additional 6-7 years of teaching experience) seem to find reflection very important to a larger extent. This may be due to the fact that in the last decade or so, pre-service teacher training has also been paying increasing attention to reflection – at least at the level of pedagogical discourse.

Why is reflection important?

The respondents were asked in an open question to explain their choice of answer for the importance of reflection. We grouped the respondents' explanations into the following major categories:

a. reference to their students' results;
b. reference to progress in the teaching career and improvement of teaching practices;
c. reference to professional fulfilment and learning for the sake of personal growth;
d. irrelevant answer.

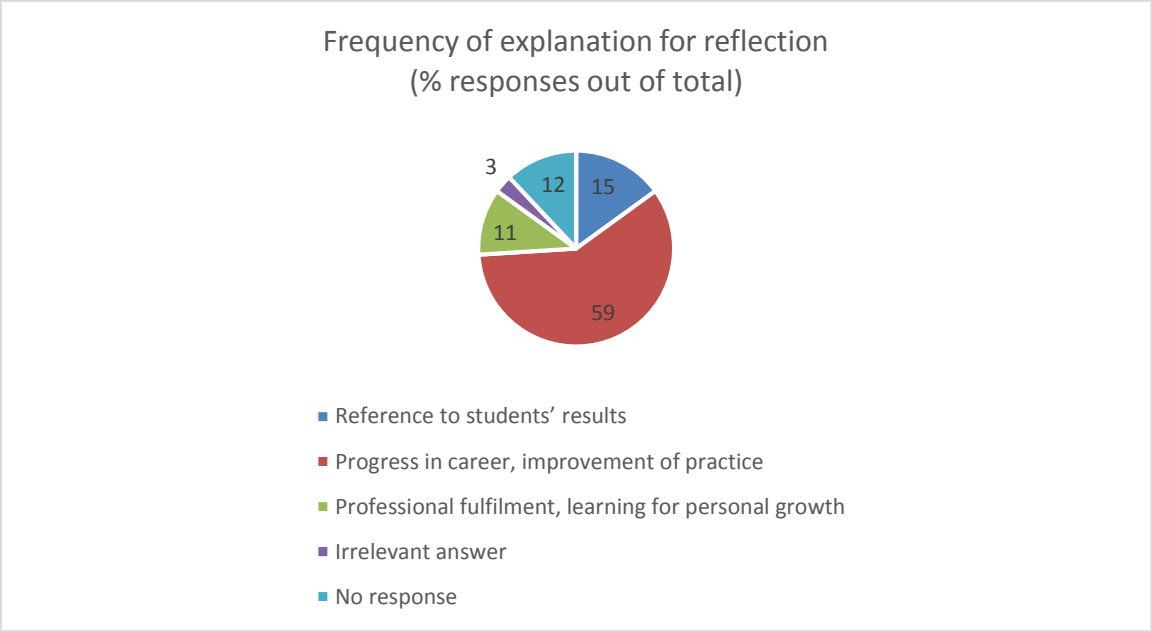

Chart 11. Distribution of categories of explanation for the importance attributed to reflection

The first finding from the distribution of explanations is that **most teachers (59%) refer to their progress in the career or the improvement of their teaching practice** in the explanation they provide for the importance of reflection, while **only 15% make the direct connection between their reflection and the students' improved results**. A minority (11%) state that reflection helps them personally ("It helps me know myself" - female language teacher; "it helps me develop my critical thinking and decision-making skills" - female technology teacher; "One may amass a lot of information, but unless one stops for a while to look back and reflect, deep meanings are missed out on. I think that without reflection one

cannot connect and anchor oneself into what one knows and also in the absence of reflection, one cannot build the bridge to what is to be learned in the future." - female technology teacher). The percentage of those who do not provide any answer is quite significant (12%).

If we analyze the frequency of the categories of explanations within the two major categories of importance attributed to reflection (very important vs important) (see Chart 12), we find that **both categories are dominated by those who explain the importance of reflection by referring to their career progress and the improvement of their teaching practices.**

The fact that only a minority of the respondents establishes a direct link between their professional reflection and their students' results may indicate that in the CTAL training not enough time is spent connecting these two, pointing out that the variety of teaching strategies serves the ultimate purpose of addressing more (diverse) students' learning needs. It also may reflect the fact that relatively little time is spent on assessment of student learning using the promoted reading and writing strategies. Additionally, in Romania, teachers are rarely held accountable for their students' results, and their students' modest or poor results in e.g. national examinations does not normally have any impact on the teachers' employment or pay, or progress in their teaching career.

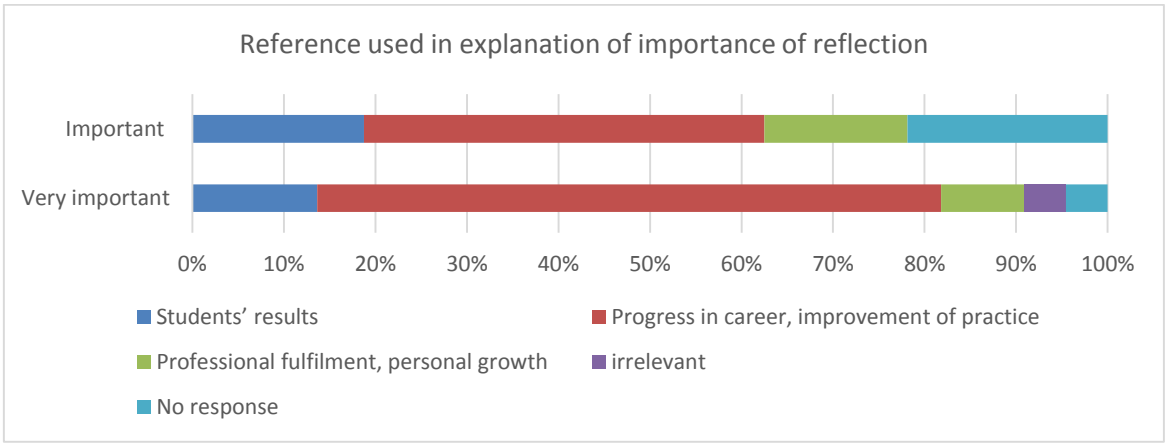

Chart 12. Distribution of categories of explanation for the importance attributed to reflection for respondents who stated reflection was important or very important (percentages out of total by categories of 'very important (66)' and 'important (32)').

There is some discrepancy between the number of respondents that state they find reflection important or very important (98% in all) and the number of those who (relevantly) answer the question as to why they think reflection is that important: as shown in Chart 12, 9% of those who find reflection very important either do not explain their choice (4.5%) or they provide an irrelevant answer (4.5%), while among those who find it important, 21.9% do not explain their choice. This raises some questions about the genuine importance these respondents actually attribute to reflection.

How frequently do teachers engage in different forms of reflection?

As stated above, the RWCT program aimed to promote open, collegial, collaborative relations between educators in order to facilitate sharing ideas and to prepare participants to disseminate their learning. Having found out the teachers' opinion about the importance of reflection, next we looked at the forms of reflection they engage in and how frequently they do that (see Chart 13 below). We listed six forms of reflection in the teacher questionnaire (and allowed for space for the respondents to mention other forms than those listed, and we defined the frequency from 1 (every day) to 7(never), with 'once a semester' as the middle (4). The forms of reflection listed were inspired by RWCT practice and keeping in mind the goals of the program, which encourage teachers to engage in collegial professional discussion, and to share their learning. As expected, we have found a relationship between the complexity of the forms of reflection listed and the frequency with which teachers engage in those forms of reflection (see blue decreasing area in Chart 13 from the simplest form of reflection to the most complex ones): **the simpler forms of reflection are used more frequently than the more sophisticated forms such as written reflections and structured reflections shared with wider audiences.**

Most teachers (79%) think about how their lessons went on a daily basis. About a quarter (24%) analyze their students' written feedback daily, while 50% analyze it more often than once a semester, but less than daily. It is common practice within the RWCT program – as part of the on-going, formative assessment, which at the same time is a form of trainer reflection as well – to ask for the participants' feedback at the end of each training day; the trainers then read the anonymous so-called 'exit cards' that the participating teachers write, and reflect on what went well, what needs improvement, what adjustments should be planned for the following sessions. At the same time, the exit cards are an opportunity for the shier participants to express their thoughts and questions connected to the day's learning. For this reason, we wanted to see to what extent the teachers have copied this model of group assessment and teacher reflection. The finding that **a total of 74% of the respondents have this practice of asking for and analyzing their students' written feedback more often than once a semester** is positive.

As regards thinking about the lesson and discussing it with someone, 45% of the respondents do it daily or somewhat less often, and 78% do this more often than once a semester, a percentage which is very similar to those who ask for and analyze their students' written feedback more often than once a semester (74%).

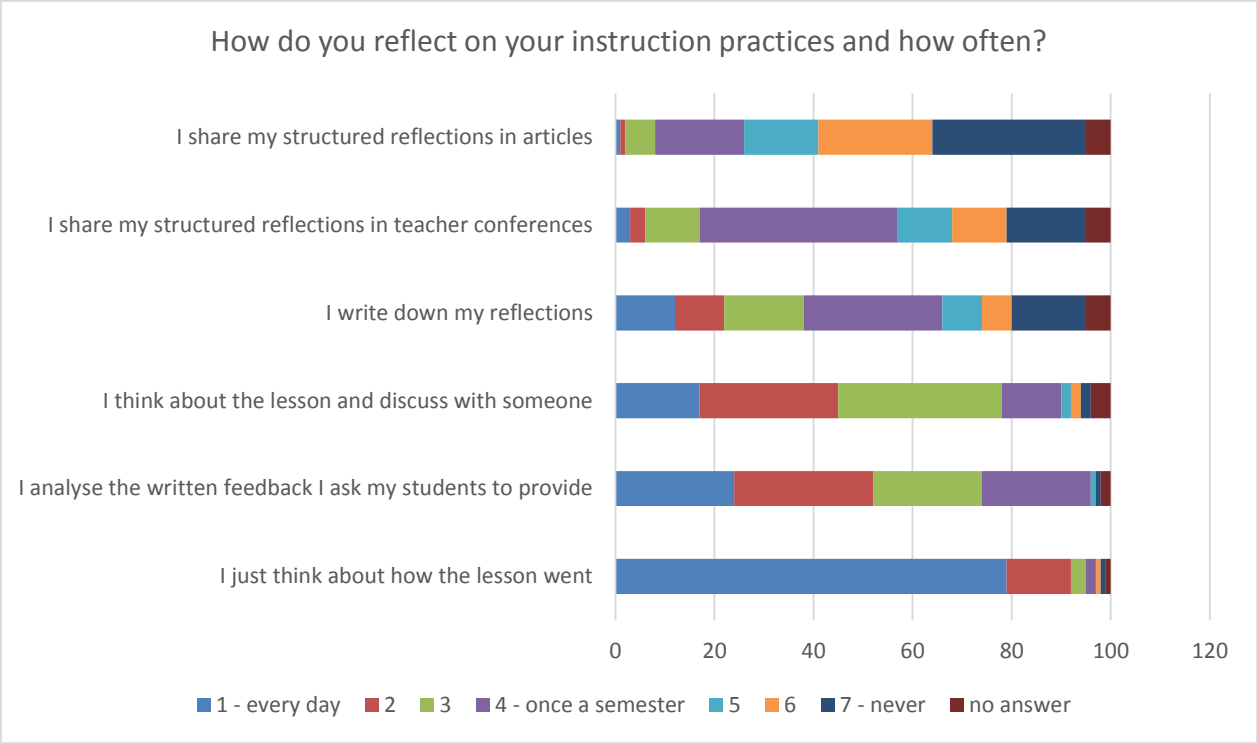

Chart 13. Frequency of different forms of reflection (% out of total)

As expected, **the more complex forms of reflection (such as writing down reflections, sharing them in teacher conferences, and sharing them in articles) are a less common practice than the simpler forms of reflection**. Teachers' written reflection is a practice that is promoted in the RWCT/CTAL program in the form of the teacher's individual portfolio, which has to include at least a couple of lesson plans and the teacher's reflections on how the lesson went, how the students responded, what could be learnt from these observations, what can be improved in the future, etc. The RWCT/CTAL trainers generally had to model this form of reflection for the teachers, as the teacher would have difficulty deciding what to write. Despite this, we have found that only 12% of the respondents reflect in writing every day, and in all 38% write down their reflections more often than once a semester, 28% do it once a semester, while 15% never write down their reflections. These percentages may also be connected with the above-discussed culture of 'fear' of original writing, as well as with the fact that in the Romanian school system, teachers have to do a lot of administrative paperwork, which they generally resent as they do not see the importance or relevance of it, and which probably takes up time that they may otherwise dedicate to more thoughtful writing.

Structuring reflections and sharing them in teacher conferences or in articles are the most sophisticated forms of reflection listed, which require the most time investment and the deepest thinking, and which reach the widest audiences. **Conference participation to share structured reflections is more common than writing articles**: **over half (57%) of the respondent participate with presentations in teacher conferences at least once a semester**,

and in all 67% practice this form of reflection at least once a year, while 16% never make presentations on their professional reflections in conferences. As for **article writing to share their reflections, 26% of the respondents do it at least once a semester**, and 31% never do it. In all, 64% of the responding teachers write articles even if less often than annually.

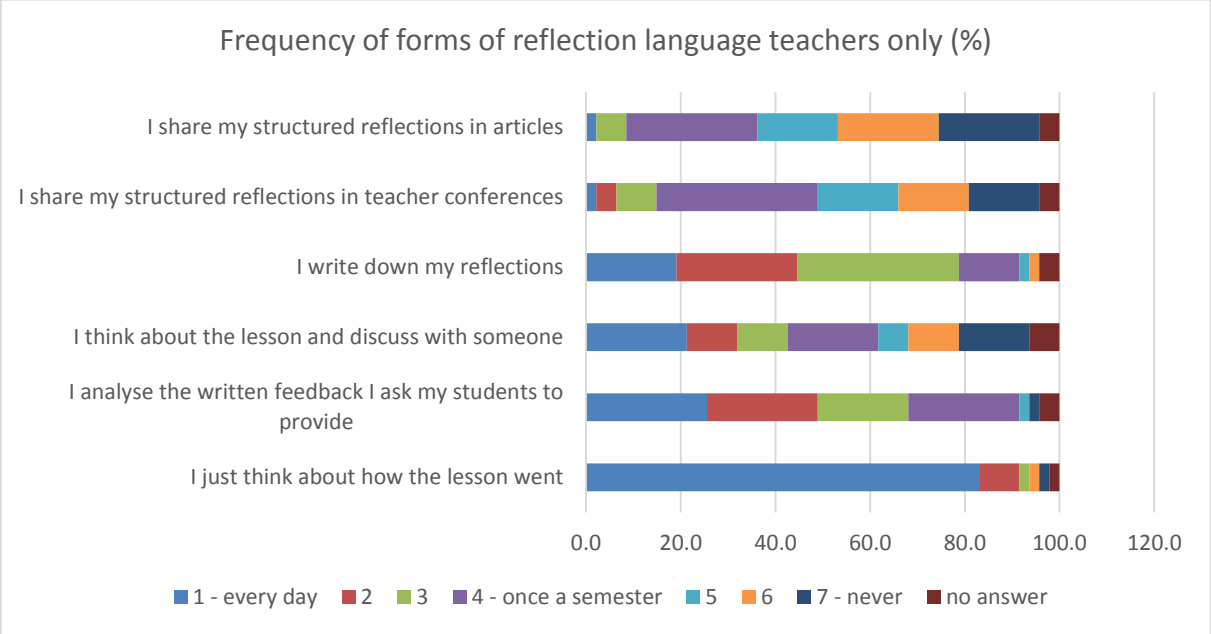

Chart 14. Frequency of different forms of reflection used by the language teachers (% of total language teachers)

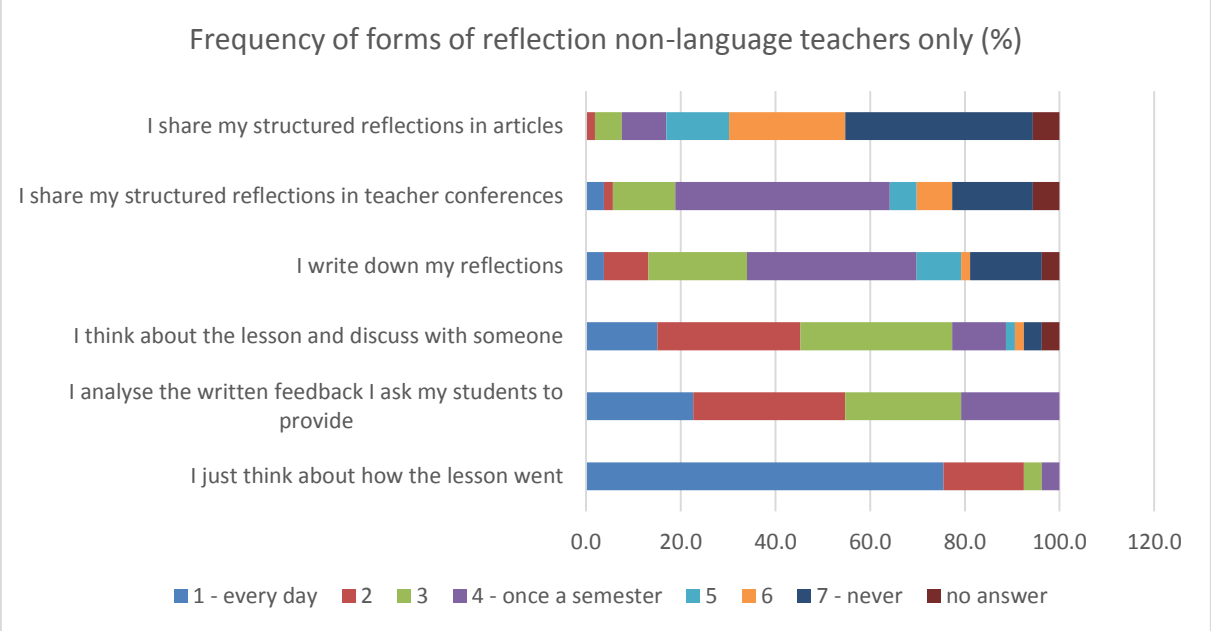

Chart 15. Frequency of different forms of reflection used by the non-language teachers (% of total non-language teachers)

We have identified some **differences between the frequencies of different forms of reflection practiced by teachers of various disciplines**. Given the sizes of the groups of language (47 persons) and non-language teachers (53), which makes them comparable, as well as earlier found differences between these two groups in connection with frequency of reading and writing strategy use, we decided to compare language teachers and non-language teachers (see Charts 14 and 15 above).

We have found that **the language teachers are more likely to reflect in writing than the non-language teachers**. While 19.1% of the language teachers write down their reflections in a daily basis, only 3.8% of the non-language teachers do the same; furthermore, 91.4% of the language teachers write down their reflections at least once a semester, while of the non-language teachers only 69.8% do it the same frequently. Also, language teachers write articles to share their structured reflections more often than non-language teachers: 36.2% write at least one article a semester, while of the non-language teachers only 17.0% write the same frequently. Moreover, only 21.3% of the language teachers never write articles as compared to 39.6% of the non-language teachers who never do it.

In addition to the nature of the linguistic disciplines (mother tongue, foreign languages) - more closely associated with writing –, the fact that the National Romanian Teachers' Association is closely related to RWCT and is headed by an RWCT trainer, who has for over 10 years has been editing a biannual journal focusing on didactics (entitled *Perspective*) and more recently started a journal of the Reading Circles (in Romanian: Cercuri de Lectură) (a national coverage program of teachers of Romanian) may provide an extra explanation for the higher rate of article authors among the language teachers who completed the CTAL course.

Since from mathematics teachers we had such high rates of lack of explanation for their use (or perhaps non-use) of writing strategies in teaching, and since – unlike with the other discipline-based subgroups – more mathematics teachers found reflection important (57.1%) rather than very important (35.7%), we wanted to look more closely at how often this subgroup uses writing for reflection purposes. The first very obvious finding is that there is a high rate of non-responses from mathematics teachers for the frequency of use of the more sophisticated forms of reflection (see Chart 16): 21.4% do not respond to how frequently they share their reflections in articles, and 14.3% do not answer to how frequently they write down their reflections. This further allows the speculation that these teachers may not think much about reflection, especially in writing.

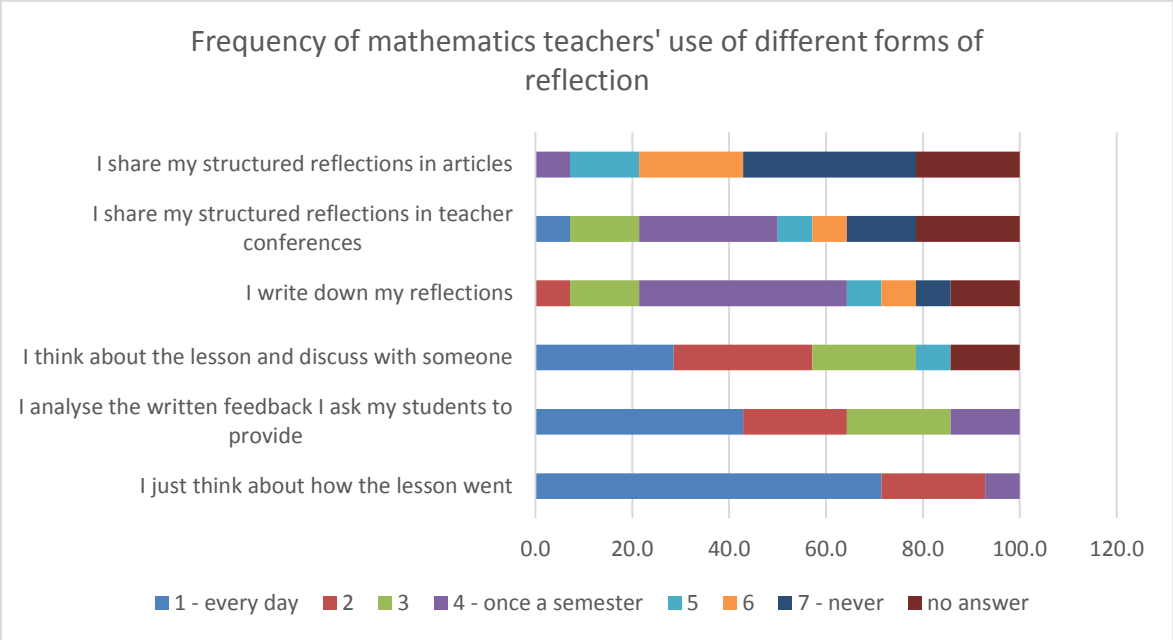

Chart 16. *Frequency of different forms of reflection used by the mathematics teachers*

Only 7.1% of the mathematics teachers write articles about once a semester at most, as compared to 17% of the total non-language teachers, and the 26% of the total respondents. Although none reflect in writing on a daily basis, in all 64.3% do write down their reflections at least once a semester (quite similar to 69.8% of the same type of reflection at the same frequency for the total non-language teachers). Furthermore, 50% share their reflections in conferences at least once a semester (as compared to 64.2% of the total non-language teachers). To attempt to explain the reason for the mathematics teachers' limited willingness to share their answers, their less frequent use of writing articles as a form of sharing their reflections and their less frequent participation in conferences as presenters, we can only reiterate here the speculations voiced by the interviewed mathematics teacher, which we shared in the subchapter How important is reflection? Clearly, in RWCT/ CTAL training, more targeted support should be provided for mathematics teachers to understand how writing helps thinking and how writing strategies can be used in the classroom to support mathematics learning.

Knowing the important role reflection plays in professional growth, the above findings about forms of reflection that teachers engage in are highly relevant as one of the aims of the RWCT/CTAL training program is 'to promote open, collegial, collaborative relations between educators in order to facilitate sharing ideas'. Conferences and teacher journals provide opportunities for the teachers to share their practices and thoughts, and to engage in collegial professional discussions with each other. RWCT Romania and other organizations in which RWCT trainers are active (e.g. the *Ioana Em. Petrescu* Romanian Language and Literature Teachers' National Association) have provided venues for such practices, but **it is likely that in the CTAL course there was not enough encouragement for the participants to take part in these professional development events**. As both conference presentations and

article authoring require structured reflection, once again we conclude that **in CTAL courses depth of approach should be encouraged over breadth – more specifically, fewer teaching and reflection strategies should be included in the course curriculum, more time should be dedicated to allow for deeper understanding – demonstrated also in structured written reflections –, and more targeted support for the teachers to be able to transfer their learning into their instruction and professional reflection practices.**

Case studies – findings from classroom observations and interviews

When on behalf of RWCT Romania we talk to teachers who completed the RWCT course or the CTAL course, or who - as they say - participated in the RWCT program, we often hear things such as "the RWCT program has done the most good in the [education] system" (Teacher Training House director at a conference, May 30, 2014), or "It is *the* course that sticks to my mind; we have done others, too, but their echo has not been the same" (natural sciences teacher, small rural school, former school director in an interview, March 18, 2014), etc. What exactly these educators mean and how exactly their very good impressions of the course are reflected in their classroom practice or other teachers' practices has however not been adequately documented in Romania.

The purpose of the case studies described below is to share cases of exemplary practice regarding the use of reading and writing strategies, and reflection practices among secondary school teachers who completed the RWCT/ CTAL course. The cases were identified in the course of classroom observations (March 2014) and interviews with teachers (March-June 2014). We will present and analyze three cases, of which two of excellent teaching: one of a Romanian language and literature teacher and one of a mathematics teachers. Both cases illustrate what it takes to become an excellent RWCT teacher, as defined in the RWCT Project Certification Standards and Procedures (see Annex 4). The third study is about an accomplished history teacher, who, after successfully completing the CTAL course, did not engage in any educational project or in-service training course that would enhance the effect of the CTAL course. As such, we are attempting to illustrate what it is reasonable to expect of an experienced teacher who – in terms of instruction for literacy and critical thinking skills - only relies on her learning during the 89-hour course, and what support would be recommended to provide for such teachers so that they progress further as genuine RWCT teachers.

RWCT-informed reading and writing strategies and teacher reflection practices in Romanian language and literature lessons

"If the teachers don't manage to grow professionally, and progress in their own learning and teaching practices, their students also have fewer chances of progressing in their authentic learning." (Marianne, RWCT teacher)

Marianne[9] enrolled in the CTAL course in January 2008 and completed it in May 2008. At the time, she had been teaching Romanian language and literature for 10 years. Prior to CTAL, she had completed training in Inclusive education, which had a module on Active Learning strategies. This module had been developed based on resources and training of trainers provided by RWCT trainers consulting for the Ministry of Education in Romania.

The school where Marianne teaches is ranked as average in terms of the students' performance in national examinations. There are about 800 students who study in one of the following strands: sports, technology, vocational (sports instructors, extra-school educators - persons who organize and supervise students in after-school activities, in student camps etc.). Most of her students have modest literacy skills: in terms of performance, 70% do not read or write at grade level, and they barely progress from one grade to the next, obtaining grades of 5 out of 10 (5 being the lowest grade which allows students to progress to the next grade level). Normally, many of Marianne's students would have been in apprenticeship programs or vocational training had it not been for the reorganization of the Romanian upper secondary education system a few years ago. The school's overall average pass rate in the national examination at the end of upper secondary school is around 30%, and not all students actually get to enroll for the national examination ('bacalaureat' in Romanian), as some of them do not perform well enough to complete the final year (which is a prerequisite for enrolling in the 'bacalaureat'). Marianne's students have serious learning difficulties on account of both their limited literacy skills, and their fluctuating attendance (high rate of absenteeism) including in primary and lower secondary school. However, in the discipline Romanian language and literature, the school's average pass rate is currently around 80%, according to Marianne also thanks to the extracurricular activities, cultural projects, drama clubs etc. that her students are engaged in.

When she completed the course, Marianne was not ready to use her learning, as she was quite skeptical about using the 'critical thinking strategies'[10] successfully with her students. However, she did try out several things in the classroom, wishing that her students would respond better. In 2010, Marianne - who at the time was head of the Department of Romanian language and literature in her school - responded to RWCT Romania's call for

[9] This is the pseudonym for a female Romanian language and literature teacher in a technical school in a big urban settlement - a county capital city - in Northwestern Romania. She was interviewed face-to-face on 18.03.2014 and by Skype on 04.04.2014.

[10] This is how most teachers refer to the reading, writing and discussion strategies promoted in the RWCT/ CTAL course.

teachers interested in participating in an action research project[11]. The teachers RWCT Romania was seeking had to have completed the RWCT or CTAL course, and identify themselves as a person who mastered a broad variety of active learning strategies which helped them engage students actively in learning, and knew how to conduct cooperative learning, but who did not manage to reflect (profoundly) enough on the changes that the new strategies were bringing into their classrooms. To the program promoters, it was not obvious what efforts these teachers were making to interpret, analyze and in general process their own classroom experiences and their students', nor whether they were able to establish valid connections between their new approach to teaching and the impact on the students' learning. For this reason, the teachers were provided with training in how to conduct action research and supported in carrying out their classroom research.

Within this action research project, it was the first time Marianne had received extensive individualized support as a teacher that truly helped her engage in reflection. In her classroom research, she investigated her 10th-grade students' reading habits: she was interested in making her students more engaged readers, more active constructors of their own interpretation of what they were reading. Her engagement in the action research project made her become more reflective, and more appreciative of her students' efforts to read with comprehension. The RWCT strategies also started making more sense to her, and – in this supportive context – she was now readier to experiment. In addition, given her positive experience with the above mentioned project, Marianne starting seeking new opportunities to engage in shared learning facilitated by RWCT Romania.

In 2011, Marianne was on the project team of "Mentoring for the empowerment of disenfranchised youth".[12] She was trained to provide mentoring support for small groups of students and individual students in secondary school who came from a disadvantaged, low social status background and were facing difficulty completing upper secondary school. Her work targeted strengthening the students' learning skills and critical thinking skills. The learning strategies she was to use were mainly RWCT reading, writing and reflection strategies.

Before the mentoring project, Marianne did not think of clustering - and for that matter, of graphic organizers in general - as a useful tool. However, after her experience with the students she mentored, she realized that, as a teachers, rarely had she got to know how much her students *actually* knew about a topic. To learn about the students' prior knowledge, Marianne needed to wait patiently for them to share what they knew, and had to provide them with simple tools to do so. Clustering came in very handy. Her low expectations about what her students could contribute to a clustering activity were also

[11] *Promoting authentic assessment in the Romanian in-service teacher training system.* For more about the project, see http://www.alsdgc.ro/proiecte/view/id/29/lang/en (accessed on 15.06.2014). For accessing the publication which described the action research process the teachers engaged in, see http://www.alsdgc.ro/userfiles/GUIDEBOOK%20FOR%20AUTHENTIC%20ASSESSMENT%20THROUGH%20ACTION%20RESEARCH%281%29.pdf (accessed on 15.06.2014)

[12] http://www.alsdgc.ro/proiecte/view/id/32/lang/en (accessed on 15.06.2014)

dispelled. She realized she had not been using the strategy well enough, often enough. She now uses clustering in introductory lessons to the chapter, to see what her students already know; the students generally know a few things about the authors whose work they study by the time they get to grade 9. To find out what they know, she has them spend about 5-7 minutes and up to 20 minutes on building the cluster. She generally does it on the blackboard, working with the entire class. The themes in the Romanian literature curriculum that she has introduced using clustering were: love, adolescence, games, journeys, etc. Her students contribute examples of literature they have read: authors, titles, characters. Sometimes she herself structures the cluster for her students to save time. Nonetheless, she does not do this often, as she finds it important that her students (especially 12th graders) become autonomous learners. She had noticed with the two students she mentored that they were gaining more autonomy as learners as she repeatedly used the same graphic organizers with them. To exemplify, as Mihai[13] thought that he did not know how to learn to be able to do better in school though he really wanted to improve, Marianne taught him a few graphic organizers (clustering, the T-chart, etc.); INSERT, the learning log, reading with predictions, and exemplified them all on Romanian literature. Then she encouraged Mihai to transfer the same strategies to other disciplines. According to Marianne, this learning experience saved Mihai from failing in mathematics and physics, where he had been doing especially poorly.

One strategy which helps organize information that Marianne actually developed herself inspired by other graphic organizers is the "flipped T-chart", which she uses quite often in the classroom. Marianne exemplifies it with a lesson she taught her 12th graders. They were learning a poem by Lucian Blaga, a Romanian 20th-century poet, and were looking at metaphors as used in the poem. She had her students fill in a flipped T-chart (see below). What Marianne noticed was that after repeated use of the same graphic organizer, her students managed to transfer the approach to other disciplines as well. This she appreciates is a sign of their becoming autonomous learners.

Marianne used to have difficulty teaching complex concepts especially in the 10th grade (e.g. lyrical genre, marks of the lyrical ego, types of poetry, literary genre, species, etc.). With a group of students, she had started using interactive strategies, and especially graphic organizers, in the 9th grade, and managed to develop their skills of structuring information to make it easier to understand and recall. She used the Quadrant with students in the 10th grade to help them learn about poetry, and noticed that the students found it much easier to understand the concepts and remember them.

[13] Pseudonym for a male 11th grade student.

Key concepts	Key ideas from the text (list sentences that include the key concepts)
a. _____ b. _____ c. _____ d. _____ e. _____	a. _____ b. _____ c. _____ d. _____ e. _____
Summary - a structured essay, analysis of the text	

Flipped T-chart

Lines I like (3 to 7 lines)	Why I like / chose these lines
Literary analysis: theme, genre, species, motifs, prosody	Starting from the theme or a motif in the poem, create a personal response (compose a poem/ song, draw an illustration, etc.)

Sample Quadrant

When she first used the quadrant with a group of 9th graders, the students had some difficulty figuring out what to write in each box, so she had to model how to do that. In the first lesson, they sang a lot, which took a lot of time, but Marianne let them do it as that was the students' favorite form of response to Romantic poetry.[14] The students prefer the quadrant because it helps them collect their ideas. The class Marianne was working with was performing quite poorly, on average. Her assessment of their learning of the Romantic poem was that with the quadrant, the students could share their understanding of the poem better and their responses were more profound and more diverse. When the students were using the quadrants for the fourth time, Marianne noticed that they managed on their own. Afterwards, they asked her to use this approach with other poetry they were going to study. Marianne likes using the quadrant with her students because it has proved a useful tool to help the students understand poetry and engage in discussing its meanings.

As time is often mentioned as a major concern teachers have in connection with using the RWCT strategies (and in consequence they often invoke this as a barrier to using the strategies in the classroom), Marianne was asked to share how she manages time. With the flipped T-chart, she spends an hour having the students extract the key concepts and identify the key ideas. In the second 50-minute block, she has them write up the summary or a response essay analyzing the text. It should be noted that she uses this approach with literary criticism, literary history and other similar non-fiction texts in the 12th grade curriculum (and textbooks), which her students find highly challenging. Marianne's students don't have time to do homework so they are left with what they get to learn in class. Most of them are commuters and spend a lot of time traveling to school and back home every day. They leave home at 5 in the morning and get back home at 6.30-7.00 pm. Also, we recall that Marianne aims for her students to become autonomous learners. She thinks there is no shortcut to autonomy - she must give them ample time to process what they read or hear if she wants them to learn how to think for themselves.

After Marianne completed CTAL, and she started using active learning methods with her students, she found that the activities took a lot of time, plus the other teachers and the principal resented the apparent chaos in the classroom, and got the overall impression that the students were "at play" for instance while they were doing debates using "Corners"[15]. In connection with this, Marianne now thinks that a teachers needs to take the risk of giving the impression of a 'non-learning' atmosphere if she wants to have the students get motivated for learning; unless they are interested and motivated, there cannot be progress in their learning. To get them interested, Marianne found she had to give up lecturing. With time, the school management and the other teachers noticed the progress Marianne's students had made. They remarked that the students were doing better in other classes as

[14] This particular lesson that Marianne recalls was about Mihai Eminescu's "Sara pe deal".

[15] A strategy promoted in CTAL / RWCT, by which students need to take a stand in an issue (one of four options) and discuss with like-minded people as they prepare together to argue for their position and try to convince other students that theirs is the more justified position.

well. This - according to Marianne - was on account of their improved literacy and learning skills.

Marianne's reflections are generally triggered by her students' feedback. She makes notes on her lesson plan to remind herself of her experience teaching the lesson so she can adjust her lesson plan the following year when teaching the same lesson. She would know what changes to make to her plan so that the students would manage to learn more successfully. She generally makes notes on what went well in the lesson, what did not go so well and why she thinks that, how the students responded and what explanation she can find for their response. She makes these notes in pencil, and always dates them so she can refer back to them easily when she teaches the same grade level again.

With the teaching-learning strategies Marianne learnt in the CTAL course, she managed to make her students express their opinions more easily and more articulately, to motivate them to be more engaged in learning, to be more inquisitive and autonomous learners. In her opinion, many teachers who feel they are unable to use interactive strategies that are likely to help students develop their thinking skills are scared by the level of noise that the use of interactive strategies results in and of losing control of the group of learners. "**If the teachers don't manage to grow professionally, and progress in their own learning and teaching practices, their students also have fewer chances of progressing in their authentic learning**", Marianne believes.

This case demonstrates that **a synergy of courses and professional development programs** - in this case, CTAL training in combination with the action research project and the mentoring program which Marianne could access thanks to her membership in the Romanian RWCT Association - **increases the chances of teachers becoming more observant** (in this case, observing details of student response to certain reading & writing strategies used in learning) **and more reflective, and therefore more effective in the classroom**. Also, when a teacher works in smaller groups or even individually with especially slower students, she can notice to what extent the expectations she has of students as they engage in reading and writing are realistic, and the tasks assigned doable with(out) support. The level of scaffolding some students need becomes more obvious when the teacher works with smaller groups or with individuals. Provision of adequate levels of scaffolding is only possible if teachers are well aware of their individual students' actual level of performance and their instructional level. To become aware of these levels calls for a **caring, reflective teacher** as Marianne is.

Marianne's case was selected because it illustrates **the connection between her reflection practices on the impact of reading and writing strategies and her professional growth**. Since she completed the CTAL course, Marianne also did a Master's degree program in Romanian literature and European modernism, and is currently completing her PhD studies in Romanian literature. In addition, her case illustrates **the role that active membership in a professional association can play as a catalyst of professional growth**.

RWCT-informed reading and writing strategies in the teaching of mathematics

"What could I do better? What prevents me from getting better results? What should I change? Unless a teacher asks herself such questions about her work, she should not be attending training - she would not know what to do with what she learns." (Danielle, RWCT teacher)

Danielle[16] currently teaches mathematics in a highly selective school in a large Romanian city. At secondary school level, this one gets the best performing students in the city, and it prides itself in getting the best results in national examinations in disciplines such as mathematics and natural sciences. The students of this school are regular competitors and winners of national contests in disciplines such as mathematics. The school facilitates its students' and teachers' engagement in national and European level projects, many of which Danielle herself has initiated.

Prior to teaching in this school, Danielle taught in smaller cities and in different types of schools (middle school, technical college). She confessed that she had wanted to become a teacher of English because as a student she enjoyed learning languages and thought that language lessons were enjoyable, but ended up studying mathematics and becoming a math teacher, so she was determined to make teaching and learning of math enjoyable.

Open-mindedness, thoroughness and the urge for self-actualization are her defining characteristics. She always questions herself: what is it I could do better? What is it that prevents me from getting better results? What should I change? Danielle believes that unless a teacher asks herself these questions about her work, she should not be attending an in-service training course because she would not know what to do with what she learns. Her message should be interpreted, as she herself points out, in the context of training fatigue among teachers in nowadays' Romania due to the fact that teachers are more often than not *made* to attend courses they do not really *choose* to attend.

Danielle enrolled in the RWCT course in 2000 and - having gone through the teacher and trainer accreditation procedure - she obtained her certificate as an RWCT trainer in 2001. At that time, she was the director of a technical college and she had been teaching mathematics for over 15 years. In parallel with the RWCT training provided within the Megaproject Education 2000+ (an initiative of Center Education 2000+, a Soros Foundation spin-off in Romania), Danielle was also being trained within the World Bank-funded

[16] This is the pseudonym for a female mathematics teacher who currently teaches in a highly prestigious school in the downtown area of a big urban settlement - a county capital city - in Northwestern Romania. The students who attend this public school are top performers and come out first in numerous national contests and national examinations. She was interviewed face-to-face on 12.03.2014 after a lesson observation and on 14.06.2014, after a recording of another lesson was viewed.

Education Reform project of the Romanian Ministry of Education, the Teacher Training component, in which she also became a national trainer.

What Danielle recalls from the time of the training was that she was impressed with the highly practical nature of RWCT. She thought this was something new and useful. The demonstration lessons built into the course, followed by the debriefing sessions, were a highly effective way of learning for teachers. She also knew there was not enough emphasis on meaningful reading and writing in Romanian schools. She was trying to think of what exactly from the RWCT program she (and other mathematics teachers) would be able to use in the classroom. She understood the Evocation-Realization of Meaning-Reflection framework, the logic of the constructivist approach to teaching and its role in fostering critical thinking. However, it was not obvious to her how the reading and writing strategies could be applied in the given context of mathematical instruction - overloaded curriculum, very unfriendly textbooks, the widespread fear among students and parents of failing the difficult national examinations. For this reason, her first choice of what to try out was cooperative learning strategies, namely the simple Think-Pair-Share.

At the time Danielle decided to start experimenting with the RWCT strategies, Romanian translations of "popular" mathematics were beginning to be published, such as Ian Stewart's *Nature's Numbers*, Mario Livio's *The Golden Ratio*, etc., which Danielle thought could be used as mathematical text for her students to read under her guidance. These books did not contain the highly specialized mathematics that the curriculum asked for, however they were interesting to read and made the readers think about mathematics. She wanted to have her students read and think like mathematicians do. This shows that Danielle's goals are different from most mathematics teachers': she is not focused on teaching her students algorithms, but rather wants them to think about mathematics like mathematicians, and to be able to find mathematical solutions to real-life problems. However, at the time, the mathematics textbooks were (and still are) rather unfriendly. The texts in such trade books as named above were appropriate for her upper secondary students to read and discuss. She could now start experimenting with reading strategies such as INSERT and KWL. In parallel, she started experimenting with writing strategies as well: she asked her students to write down explanations of their mathematical solutions to problems in non-mathematical (plain Romanian) language, and using learning logs / three-minute essays to have her students reflect on their learning.

The challenge for Danielle to take a step forward came when she had to teach lower secondary students (aged 11-15). Excerpts from the "popular" mathematics books were no longer appropriate. Besides, she noticed that problems in the textbooks worded like "Find p% of n" sounded very abstract and highly inappropriate for her young students if she wanted them to take to mathematics, and if she was going to use reading and writing strategies to help her students develop their mathematical thinking. She also noticed that some of the students found it challenging to understand the text of mathematics problems,

even if only a few lines long. Danielle decided to produce her own texts and help her students improve their mathematical literacy. She used newspaper articles to make sure she would construct problems starting from real-life issues. She knew that lower secondary mathematics (as opposed to upper secondary math) is still about concrete things around us, so newspapers articles proved to be a good inspiration for her originally constructed mathematics texts.

When she began producing texts for her students, she had a teacher friend who did not teach mathematics, but who was also an RWCT trainer, and she often discussed her texts and how she was going to use them in class with her friend. She would prepare longer texts for her students, arguing that real-life problems are rarely as "clean" of redundant information or, on the contrary, as well supplied with the necessary information to solve as in mathematics textbooks, and that students also had to learn how to identify what data or information is relevant for the problem to be solved, or what data/ information was missing though needed for a certain proposed solution. These texts would engage her students in deep mathematical discussions about alternative solutions to real-life issues. It was motivating for her to share these texts with her RWCT friend and get her feedback.

As she was very much interested in keeping her students engaged, she started looking for other sources of good, well-worded real-life mathematics problems, and she found inspiration in the journal published by the USA-based National Council of Teachers of Mathematics (NCTM), an organization whose member she meanwhile became. Her mastery of English helped her in this respect. She is aware that not all mathematics teachers in Romania have enough language skills to be able to learn from sources in foreign languages. By accessing such sources, she had collected many good ideas to act upon in constructing texts and learning tasks for her students. What she needed to dedicate to this project was a huge amount of time that was spent on "mathematical" text writing, and, as her students were submitting their writing, time to read what the students had written, and time to provide them feedback on their writing.

Danielle was never too intent on using the 'critical thinking strategies' strictly step by step as if they were recipes for success. She had to discover their use and be convinced that she could better support her students' learning if she used them. This is why she refuses to name specific strategies she uses. However, she does use plenty of writing activities as she is interested in finding out how precisely her students think, and what makes them reason as they do in solving a problem. Most often she needs to understand where they get their misconceptions or inconsistencies from so she can help them with their mathematical reasoning. Her students got used to writing thanks to her insistence. In the beginning, however, they found it very unusual to have to write in mathematics lessons. 9th graders who were new in the school (joining other students whom she had taught in the lower grades as well) would take a while to get used to her style, but they got plenty of help from students whom she had been teaching longer. What all her students get from Danielle is the

opportunity to learn how to think, how to engage in exciting mathematical thinking, and how to share their thinking in clear terms.

Danielle started using learning platforms with her students a few years ago. She had been interested in e-learning, and decided to attend a course to learn how to use Moodle (Modular Object-Oriented Dynamic Learning Environment, a free software e-learning platform). Like in the case of Marianne above, this shows that she wanted to further develop as a teacher. After the course, she started using Moodle platforms as an extension of class work for her students and for herself. She has provided short video recordings for her students to watch. She finds that in class there is never enough time for everything, but it would be a shame not to use technology that helps students better understand the often complex and sophisticated mathematical ideas.

As a consequence of using the learning platform, Danielle's students now have electronic portfolios. They do project work which takes them about a month, and which involves searching, reasoning, discussing and writing. She launches the topic on the platform and provides instructions and clarifications if needed. Often the tasks she assigns take the students into the community to identify real-life information, interview professional about their use of mathematics, etc. The students have to upload their work on the platform, where they also get feedback from the teacher. They sometimes make presentations in the classroom, and are expected to provide feedback on each other's work (if individual) or on other teams' work (if group assignment).

End-of-year written reflection is also handled on the platform. Danielle has her students do the following:

- provide a graphic organizer to structure their major learning throughout the academic year (the *what* of learning)
- provide a description of *how* they have learned mathematics;
- state what they have liked learning and what they have found challenging throughout the academic year, and explain their choices;
- do self-assessment of their competences using a rubric; in addition to identifying what level of performance they think they have reached, they have to explain why they think they are where they say they are. (She does not analyze all their answers, but only the answers of those students she thinks underrate or overrate their competences; she provides feedback to her students and sometimes engages in individual discussions on the platform with the students who disagree with her assessment.)

Danielle believes that the reason why some teachers of mathematics hesitate to apply reading and writing strategies is because of the inappropriate texts in the available mathematics textbooks. In order to apply especially the various reading strategies, one has to find (or write) good text. The strategies she has used (Jigsaw and other cooperative

learning reading strategies, INSERT, etc.) require well written text. On the on-line learning platform she finds it very useful to have strategies like INSERT; she has her students not only monitor their understanding of what they read, but also write down the information they mark with the different codes in a table format (see INSERT Table below).

√ (I knew this)	**+** (new information)	**-** (information that contradicts what I knew)	**?** (unclear information, needs clarifying)

INSERT table

As for her own carefully structured and shared reflections, Danielle admits that she first wrote an article about her RWCT experiences in the classroom when in 2004 she was invited to do so by the editor of the *Thinking Classroom*.[17] Since then, capitalizing on her 'critical thinking' experience, she has published several articles about the teaching of mathematics and the development of critical thinking through it, she authored a guidebook for math teachers and numerous guidebooks for teachers in general, as well as co-authored the Second Chance mathematics curriculum, textbooks and teachers' guide for secondary education in Romania. All of these reflect her RWCT learning. She has become a regular conference presenter and section chair in *Math for the 21st Century*, and in the International Reading Association's conferences. Her expertise has been used by the Romanian Ministry of Education and other educational agencies in various projects including training for teachers to understand TIMMS[18] testing and be able to help develop their students' mathematical literacy. She has initiated dozens of education projects both in her school and in the Romanian RWCT Association. She values lifelong learning and is an authentic lifelong learner herself.

All the effort Danielle put into writing those mathematical texts for her students over 10 years ago has truly paid off: she now finds it child's play to prepare them. In fact, building on her RWCT experience, she has become one of the most dedicated supporters of content area literacy in Romania. Her RWCT experience transferred into the classroom was merely the starting point, the way opener in an exciting journey of mathematics education of students and herself using reading and writing for enhancing critical thought.

Danielle's case was selected because **it illustrates the learning curve of a teacher who participated in the RWCT program, and gained from it in terms of professional growth: as a teacher, as an author, as an education consultant, as a conference presenter.** What enabled her to profit from the RWCT program to such extent was that she is a **self-reflective**

[17] A publication initially by the International Reading Association; taken over by the RWCT International Consortium in 2006, it was discontinued in 2008. See also http://www.rwctic.org/home/pub1 (accessed on 15.06.2014)
[18] Trends in International Mathematics and Science Study, one of the studies established by the International Association for the Evaluation of Educational Achievement Romania has participated in.

person who constantly wants to improve her work and her learning in the course helped her answer questions that she had about how to improve her work. In addition, her case shows that - contrary to widespread belief among mathematics teachers - **mathematics learning can and should make use of reading and writing if teachers want their students to develop their mathematical and critical thinking.**

What one can learn from Danielle's case is that for teacher training programs such as RWCT/CTAL to have the expected impact, **teacher reflection must be not only encouraged, but built into the course as an essential element**. In addition, the teachers who are less determined that Danielle to succeed are likely to need **more support beyond the training to be able to apply new ideas in their teaching practice**: whether with finding or writing appropriate texts for students, or with discussing what they have found or written with a critical colleague.

Active reading in a history lesson

Monica[19] is a teacher of history in a rural school. She comes across as a highly energetic and self-confident person, who is highly respected and valued by her colleagues and her principal. Unlike Marianne and Danielle, who are active members of the Romanian RWCT Association, Monica has had nothing to do with the organization since she completed the CTAL course. Nonetheless, in the teacher questionnaire she completed, she graciously offered to provide more information about her classroom practices and agreed to be observed teaching.

At the time she enrolled in the CTAL course, i.e. 6 years ago, Monica had been teaching history for close to 10 years. She has complied with the requirements of teacher development in Romania attending teacher conferences (pedagogical circles) and has by the age of 39 got very close to earning her first degree.[20] When we observed her lesson, she had just had another classroom visit paid by an inspector from the County School Inspectorate as part of her application for first degree teacher. According to the school principal, Monica was much praised by the inspector.

In her questionnaire, Monica had shared that she uses graphic organizers and DRTA about once a week, Jigsaw, Paired reading - Paired summarizing, Freewrite, Learning logs, RAFT and KWL about once a month, and Reciprocal teaching, (Literature) circle with roles, Cinquain, argumentative essay writing, Quadrants and Rotating review a few times a year. She never uses INSERT, double entry journals or Predicting from terms (see Glossary).

The reading strategies she most frequently uses in the classroom are what she terms as "Learning through discovery"[21] (it aims to help the students discover historic information in a text and thus better understand the lesson; the students analyze the text and retain the information adding them to existing information they have) and Jigsaw. According to Monica's explanation, she uses Jigsaw to make her students learn information from handouts they are given, and thus consolidate their understanding of the content of the lesson. It should be noted that it is unclear from her explanation whether she uses Jigsaw as a cooperative learning strategy (whether she has the students teach each other what they learn from the handouts, whether they read the same text or different texts).

[19] This is the pseudonym for a female history teacher who currently teaches in a Northern Romanian rural school with about 550 students ranging from preprimary school to lower secondary. The students attend this public school up to the 8th grade (around age 15), when they move on to an upper secondary school in town. She was observed teaching and interviewed face-to-face on 18.03.2014 prior to and after a lesson observation.
[20] Highest degree in the teacher career.
[21] This is a strategy recommended in the history curriculum for 5th-8th grades, see (in Romanian) http://programe.ise.ro/Portals/1/Curriculum/progr_gim/OS/Istorie_clasele%20a%20V-a%20-%20a%20VIII-a.pdf p. 21 (accessed 15.06.2014).

As for the writing strategies she favors, Monica lists clustering and brainstorming. She uses the former to have her students recall information and make rapid connections among key terms of the lesson. The primary key terms is written in the middle of the cluster (on the blackboard/ in the students' notebooks), the students are asked to write terms they connect with the primary key term around it and draw arrows to show connections. She uses brainstorming at the beginning of a new lesson to introduce the topic. The students are asked a question, and they offer answers which are written down and then grouped and discussed whether they are correct or not. From the description, it appears that the students first write on their own, and later they revise the list they come up with altogether. It should be noted that brainstorming as interpreted by Monica seems to be different from the classical creativity technique by which participants contribute all kinds of (including "wild") ideas spontaneously, which are later processed for feasibility or relevance for solving the problem at hand.

Monica thinks reflection is important, and explains that she finds it so because if her lesson fails to come out as planned, she needs to make improvements, which requires reflection. She thinks of how the lesson went on a weekly basis, and discusses the lesson with someone about once a month. Also, about the same frequently, she asks her students for written feedback at the end of the lesson and analyzes it. Monica never writes down her reflections, and she does not make presentations in teacher conferences or author articles. Since she completed the CTAL course, she attended an 89-hour course on environmental education, and a 160-hour course on using ICT in education. It is not clear whether she chose to attend these courses, or they were mandated.

In the lesson we observed, Monica taught 6th graders (12-13-year olds) about the beginnings of the French absolute monarchy in the 16th century. She is aware that this is a very difficult lesson, full of terms and expressions such as "socio-economic and political situation", "functionaries", "expansionist policy to the detriment of Italy", "royal manufactories", "protectionist measures", "nobility", "nobles of the robe", "nobles of the sword", "Huguenots", "judiciary", "ordinary/ permanent / extraordinary taxation", "vassal", "mercenary", "local and central bodies", "royal council", etc. However, she needs to teach this lesson as it is part of the curriculum.[22]

She started by telling the students the title of the lesson, and that she wanted them to recall a few names of kings and queens, and events related to internal and external politics in Absolutist France. She framed the lesson using the KWL approach and drew the KWL chart on the board. She cautioned her students to turn their notepads so that they would use the

[22] For the 6th grade history curriculum in Romanian, see http://programe.ise.ro/Portals/1/Curriculum/progr_gim/OS/Istorie_clasele%20a%20V-a%20-%20a%20VIII-a.pdf (accessed on 15.06.2014). The introduction to the curriculum points out that the teaching-learning of history promotes, among others, critical thinking.

landscape layout. This somehow suggested to the observer that she may not have used KWL recently or else this word of caution may have been unnecessary.

To find out what students already knew about the topic, Monica had them write for two minutes, in pairs, all that they could remember about absolute monarchy (this was the previous lesson). During the two minutes, she kept encouraging the students to write as time was short, and repeating/ rewording the question as if fearing that the students might have forgotten it or not understood it. When time was up, she called on students to say what they remembered, and drew a cluster on the board in the first column, where she collected her students' contributions. Then she had the students say what they would like to know about the French absolute monarchy. She handled the incoming questions differently: some she accepted and wrote down on the board in the second column of the KWL chart as dictated by the students, some she rejected as inappropriate, and some she reworded and made a note of. Then she had the students open their books, and they started reading the lesson together to find answers to the questions they had collected. The strategy she used was directed reading. She had individual students read aloud a paragraph, after which they stopped and tried to make sense of what was read and make notes in the "L (Learned)" column. The text was full of difficult terms such as those listed above, as well as French, Italian and English names, which the students had difficulty pronouncing. Monica had to step in and help them pronounce some words. The sentences were also quite long and intricate, so Monica had to explain much of what was read by repeating the text (fluently) and returning to parts of it which she decided needed explanation. From what the students sounded like, they managed to master most of the words, but it was unlikely that they understood all the concepts. At the stops, Monica wrote short sentences on the board, and the students wrote in their notebooks.

Once the lesson was read and notes made, Monica had the students repeat what was noted on the board, and assigned homework. The students were asked to build a 'spider web' (she actually called it Spiderman, which seemed to be a term the students understood) around the term "Setting-up of the Absolute Monarchy". She instructed the students to include features that they learnt from the lesson, as well as from an assigned reading "Religious wars". As there were a few minutes until the break, the class started reading the text about "The war of St Bartholomew's Night" aloud. Again, the students had difficulty reading/ pronouncing words such as Huguenots, quarter, massacre, carnage, halberdier, etc.

In the interview following the lesson, Monica reiterated that it is difficult for the students to learn all the terms, but that they work hard and most of them manage to learn them. It was doubtful to what extent the students actually understood all the concepts, but Monica did not show concern. Nor did she seem to think that adjusting the text in the textbook to the students' actual level of comprehension may help them understand more.

While the lesson engaged the students in active learning, and it included active reading strategies that were demonstrated (not necessarily as used by Monica) in the CTAL course, it did not seem to facilitate critical reflection on new understanding, and it was not clear what the new understandings actually were. The students were not encouraged to make connections between the history lesson and real-life contemporary issues (although the significance of the Edict of Nantes was mentioned in connection with the massacre of Vassy), nor were they invited to reflect on their thinking and learning processes. Questioning was encouraged only superficially (see the "W (Want to Know)" column of the KWL strategy). The teacher did not really invite feedback on the lesson: her question was simply "Did everyone understand today's lesson?", and indeed the students responded affirmatively quite unanimously.

In conclusion, the lesson Monica taught was found to be marked by her learning in CTAL, though not as profoundly as hoped. She was focusing on 'covering the curriculum' or rather the textbook, and less student-centered: she did not seek evidence of the extent to which her individual students were managing to make sense of the new lesson or what relevance they found in the lesson for their everyday life.

Monica's case shows **how teachers may be able to make use of their CTAL learning in the absence of individualized support to transfer the learning from a generalized, non-subject specific approach to the specific teaching of history.** Her case was selected because it illustrates what can be expected of a teacher who successfully completed the CTAL course, but has not had subsequent contact with the RWCT Association or other professional associations that would facilitate further development of the competences developed in the CTAL course. However, **she does use the strategies she learned 6 years ago, although it is not clear what motivates her to do so, and she seems to apply the strategies somewhat mechanically, without much thought given to their purpose and potential effect on student learning.** It is recommended that teachers like Monica be further supported to reflect on their own practice and learn how to actually translate their learning in the CTAL course into their classroom instruction practice.

Conclusions

We have grouped our conclusions – reached on the basis of our findings above about the use of reading and writing strategies and reflection practices - so as to provide short answers to our research three research questions.

What RWCT program-specific reading and writing strategies do the teachers use?

The 20 reading and writing strategies listed in the teacher questionnaire are used by the respondents to different extents: the most frequently used strategies are graphic organizers, DRTA and KWL, while the least frequently used are RAFT, Rotating review, Cinquain and Literature Circle with Roles, as confirmed by both the close question and the open questions. There are strategies among those listed that some respondents never use, but each of the 20 strategies are used by at least one respondent with a high frequency - once a week or so-, and each respondent uses at least one strategy at least a few times a year. Based on the above, we can conclude that ***CTAL participants use the variety of reading and writing strategies that were part of the CTAL course curriculum,*** and further infer that ***the course has impacted the CTAL participants' literacy instruction practices,*** considering that 5-7 years after completing the CTAL course, the group of respondents still uses them.

There are significant differences between the strategies that language teachers (mother tongue and foreign languages) and non-language teachers (social studies, mathematics, natural sciences, technology, arts, sport and religion) use. However, even if the group of respondents is divided into these two subgroups, both use each strategy at least on a monthly basis. This further reinforces the conclusion that ***CTAL participants use the variety of reading and writing strategies that were part of the CTAL course curriculum, regardless of the discipline they teach.***

More language teachers use the listed strategies on a weekly basis than non-language teachers, which may indicate that they either find them more useful or that they have had more support in identifying how they could use them in teaching their discipline. This allows us to conclude that *language teachers may have benefited from the CTAL course more than non-language teachers, and further that* ***CTAL participants use the variety of reading and writing strategies that were part of the CTAL course curriculum, regardless of the discipline they teach, although not to the same extent.***

Argumentative essays and learning logs are much more rarely used by non-language teachers than by language teachers. This raises questions about whether the ***non-language***

teachers who completed the CTAL course are prepared well enough to use writing strategies that are clearly connected to the development of critical thinking in teaching their respective disciplines, and whether enough time and support for the non-language teachers especially was allocated in the CTAL course to discussing the purpose and application of writing strategies.

When asked to state which reading and writing strategies they use most frequently in their classrooms, 71% of the teachers named strategies from among the 20 listed, which further supports the conclusion that they ***frequently use the strategies learnt in the CTAL course***. However, the teachers often explain superficially why and how they use the reading and writing strategies they state they use most frequently. We also found that the teachers describe more often and more relevantly for what purpose they use the strategies as compared to how they use them, which may be related to the fact that in CTAL, there was more focus on critical thinking and the use of the ERR framework rather than on specific strategies. However, some teachers' failure to explain the use of the reading and writing strategies raises questions about ***the quality of their instruction when using the reading and writing strategies learnt in the CTAL course***. The explanations for the non-use of reading and writing strategies that the respondents provide are also rather superficial, which again suggests that ***it is uncertain whether enough time was allocated in the CTAL course on supporting the participants to understand for what purpose and how to use the promoted reading and writing strategies***.

We have found differences between the subgroups of teachers of various disciplines in how they explain the use – or non-use – of the most frequently used (especially) writing strategies. Notably, significant shares of the mathematics (57.1%) and of the natural sciences (23.1%) teachers fail to respond to the open-ended question about the most frequently used writing strategies, and some of those who do state that they teach mathematics/ physics, as if it was self-explanatory. However, we find in the second case study that mathematics learning can and should make use of reading and writing strategies. These findings suggests that ***significant shares of the teachers of mathematics and natural sciences may not know how to use the strategies in teaching their respective disciplines***, and indicates that ***more support should be provided in the CTAL training especially to mathematics and natural sciences teachers to be prepared to use the reading and writing strategies in their instruction***.

From the cases of the Romanian language and literature teacher and of the mathematics teacher, we find that when the teachers have thorough understanding of the reading and writing strategies presented in CTAL, they can easily adapt them, refine them and combine them to meet the students' precise learning needs and to achieve the objectives of their lessons.

What types of professional reflection practices do the teachers engage in?

In the preamble to answering this question, it is important to point out that ***the responding teachers are aware of the importance of reflection***: almost all find reflection important (32%) or very important (66%). However, there are ***differences between teachers of different disciplines as concerns the importance they attribute to reflection:*** overall, mathematics teachers find reflection less important than other teachers. Moreover, there is some discrepancy between the number of respondents that state they find reflection important or very important and the number of those who (relevantly) answer the question as to why they think reflection is that important, which raises ***questions about the genuine importance these respondents actually attribute to reflection***. Notwithstanding, the respondents establish a relationship between the importance they attribute to reflection, on the one hand, and their students' learning outcomes, their own progress in career and improved instruction practices, and their personal growth. Most teachers (59%) refer to progress in their career or the improvement of their teaching practice in the explanation they provide for the importance of reflection, while only a minority (15%) make the direct connection between their reflection practices and the students' improved results.

Overall, we can conclude that the teachers engage in a variety of reflection activities with different frequencies: ***the simpler forms of reflection (simply thinking about how the lesson went, analyzing the students' written feedback or discussing the lesson with someone) are used more frequently than the more sophisticated forms (teachers' written reflections), especially the ones shared with wider audiences (reflections structured in conference presentations, and reflections structured in articles)***. Still, a total of 74% of the respondents ask for and analyze their students' written feedback more often than once a semester. Conference participation to share structured reflections is more common than writing articles: 57% of the respondent participate with presentations in teacher conferences at least once a semester, while only 26% of the respondents write articles to share their reflections the same often.

There is a relationship between the discipline the respondent teachers teach and the frequency with which they engage in different forms of reflection. ***The language teachers are more likely to reflect in writing than the non-language teachers.*** Only 7.1% of the mathematics teachers write articles about once a semester at most, as compared to 17% of the total non-language teachers, and the 26% of the total respondents.

On the whole, the above suggest that ***the CTAL course should have provided more (targeted) encouragement for the participants to take part in teacher conferences and to author articles in professional journals as forms of sharing their reflections.*** Also, considering especially the mathematics teachers' limited engagement in written reflection, we conclude that ***more written reflection activities should have been built into the CTAL course to support the development of all teachers' written reflection habits and to***

encourage teachers' sharing of their more profound reflections, with a clearer link established between their reflection habits and their students' results.

As shown in the case studies of the literature teacher and of the mathematics teacher, reflection is much needed if teachers want to change, to improve their practice. Willingness to experiment, perseverance and perceptiveness are needed for teachers to realize and get confirmation of what strategies work for them and their students in the classroom. With time, positive experiences of their trials with various strategies and reflection thereupon turn those strategies into their daily consolidated practice.

What cases of exemplary practice regarding the use of reading-writing strategies and reflection are there among secondary school teachers?

The different conditions in which the teachers were when they completed the CTAL course influenced their application or non-application of the reading and writing strategies and reflection upon them. Those who had the opportunity to receive further support – either through other projects or courses, or from critical friends – or to search for further information and work independently are more likely to have benefited fully from the CTAL course.

The literature teacher's case shows that she needed additional stimulus to start experimenting, but she looked for it actively; her voluntary engagement in two other projects that built on her learning in CTAL helped her transfer and consolidate her CTAL learning into her daily instruction practice. On the other hand, ***the mathematics teacher's case*** shows that if she was determined to experiment with the strategies in the classroom, the absence of ready-made teaching materials did not stop her. On the contrary, she turned her learning into a personal project, in which she sometimes benefited from the support of RWCT colleagues, and the results of which she could share with global audiences through an international teacher journal. Both case studies describe a learning curve of the teachers: their learning did not stop with the end of the CTAL/RWCT course, but rather it was the beginning of much ampler and deeper learning which they themselves connected with RWCT/ CTAL whether directly (like in the case of the literature teacher's action research project) or less directly (like in the case of the mathematics teacher, who started using e-learning platforms to extend classroom time that can be dedicated to reading and writing activities).

Unlike the above cases, ***the history teacher's case*** illustrates what - at best - can be expected of a teacher who successfully completed the 89-hour CTAL course, but has not had relevant subsequent stimuli that would facilitate further development of her competences gained in the CTAL course: although she does use the reading and writing strategies learnt in the

course quite often, she seems to do it rather mechanically, in the absence of deep reflection on her students' meaning making and learning process.

Overall, ***the case studies seem to suggest that if the teachers who completed CTAL subsequently engaged in other projects related to active learning and/or critical thinking or reflected individually on their teaching practices and were determined to improve their instruction, the impact of RWCT/CTAL program on their instruction and reflection practices is much amplified***: they are more likely to have received extended support to reflect on the reading and writing strategies and their relevance for their students' improved learning, and consequently they are also more likely to use reading and writing strategies more purposefully and reflect on their teaching in a more sophisticated manner. ***Conversely, if a teacher who completed the CTAL course did not receive support to transfer her learning from a generalized, non-subject specific approach to the specific context of her teaching/ discipline, or did not engage on her own in persistent experimentation and deep reflection on her students' learning in the context of various reading and writing strategy use, then she is likely to be using the strategies in a superficial way, with limited attention paid to how her students learn and how she could help them to improve their learning***.

Recommendations

For RWCT Romania

- In the CTAL / RWCT training:
    - introduce fewer reading and writing strategies, and allocate more time to demonstrating and discussing them with the learners, as well as to discussing in depth the learners' classroom experiences while trying the strategies in the classroom; if possible, have teachers come together in discipline-specific groups after an introductory session and discuss how they can apply various reading and writing strategies in the classroom within their discipline;
    - allocate more time to teachers' written reflection; model, if necessary, and analyze sample written reflection to help the teachers develop the habit of reflection;
    - provide more time for writing in the CTAL workshops and facilitate peer feedback provision on such writing;
    - allocate more time for non-language teachers to identify strategies that can be useful for their discipline specifically and in the final evaluation, insist on the reason(s) and manner(s) of using the various reading and writing strategies;
- Prepare a publication of selected pieces of the CTAL participants' portfolios (lesson plans, reflective essays) as an incentive for good, thoughtful writing;
- Invite CTAL course participants to join the RWCT Association as a means of providing them with extended support for their further professional development, including transfer of their CTAL learning into their everyday teaching practice;
- Provide opportunities for article writing and conference participation to CTAL course participants;
- Organize writing workshops for teachers independent of the CTAL course; they must develop the habit and confidence of writing themselves before they can support their students to be able to use writing as a thinking and learning aid;
- Collaborate more closely with stakeholders such as school inspectors (to increase understanding of the purpose of various literacy activities for improved learning across disciplines) and textbook writers and editors (to share understanding of what good textbooks are like; to help develop a "readability" formula for textbook writers to calibrate their texts to the reading levels of different age groups/ grade levels).

For in-service teacher training providers in Romania

- Impact evaluation of the in-service teacher training courses exceeding 50 hours is absolutely necessary. It should be done not immediately upon completion of the course as the information it yields cannot be considered relevant for the longer term

use of the learning in the course; rather, wait for at least one year after the completion of the course, and then look at impact;

- Pay proper attention to the authenticity of the assessment of teachers' competences developed during or as a result of the training course: describe in detail the specific competences that the training program aims to develop and assign authentic assessment tasks;
- Share longer term expectations (beyond the course) with the participants in the in-service training course. Articulate the challenges they will face in attempting to transfer their learning to their daily teaching practice;
- Encourage the use of action-research with the aim of developing reflective teachers who take responsibility for their continuous professional development;
- Include carefully designed reflection activities (including written reflection) throughout the training programs, regardless of the specific competences the program aims to develop.

For RWCT International Consortium

- Organize workshops for RWCT trainers who are teachers of natural sciences and mathematics, and also identify alternative ways to facilitate sharing of discipline-specific teaching experiences among RWCT teachers and trainers.
- Provide an advanced RWCT course for natural sciences, mathematics, etc. teachers.
- Revise the RWCT course to focus more on cross-curriculum literacy instruction (see also ELINET's message borrowed from the High Level Group on Literacy: "Make all teachers literacy teachers."), as well as on assessment of learning when using literacy activities.

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Annexes

Annex 1. Teacher questionnaire

This questionnaire has been developed with the purpose of collecting information about the use of specific reading-writing strategies and reflection strategies used by teachers in Romania who completed the *Critical Thinking. Active Learning* in-service teacher training programme. The estimated time for completing the questionnaire is 30 minutes. The information provided will be treated as confidential. For any questions, please contact office@alsdgc.ro.

1. How frequently do you use the following reading and writing activities? Please, check the boxes which best reflect your case.

#	**Reading/ writing activities / strategies**	**Frequency** *(only check one per line)*			
		Once a week or so	Once a month or so	A few times a year	Never
1	Graphic organizers (Clustering, Venn diagram, T-chart/ M-chart, flowcharts, Semantic feature analysis table)				
2	INSERT, reading with coding				
3	Reciprocal teaching				
4	Anticipation guide				
5	Questioning the author				
6	Think aloud				
7	Jigsaw				
8	DRTA				
9	Paired reading - Paired summarizing				
10	(Literature) Circle with roles				
11	Double-entry journal				
12	Quick write /Free writing				
13	Learning logs, 3-minute essay				
14	RAFT				
15	KWL				
16	Key terms/Predicting from terms				
17	Cinquain				
18	Argumentative essay writing				
19	Quadrants				
20	Rotating review				

2. Which **two reading** activities / strategies do you use most often (not necessarily from the table above) for what **purposes** and **how**? Briefly explain. If you do not use any reading activities / strategies, why not? Please, use the column marked *Explanation* to respond.

	Strategy name	Purpose / Explanation
a		
b		

3. Which **two writing** strategies / activities do you use most often (not necessarily from the table above), for what **purposes** and **how**? Briefly explain. If you do not use any writing activities/ strategies, why not? Please, use the column marked *Explanation* to respond.

	Strategy name	Purpose / Explanation
a		
b		

4. How important do you consider reflection on your teaching practice is for your professional development? Please, circle the relevant answer.

a Very important
b Important
c Not so important
d Not important at all
e I don't know

4.1. Please, briefly explain your choice of answer to question 4.

_____
_____
_____

5. How do you reflect on your instruction practices and how often? Please, rate how frequently you use the following forms of reflection on a scale from 1 (1=every day) through 4 (4=once a semester) to 7 (7=never) by checking the appropriate box.

#	Form of reflection	Frequency						
		1 - every day	2	3	4 - once a semester	5	6	7 - never
a	I just think about how the lesson went							
b	I analyze the written feedback I ask my students to provide							
c	I think about the lesson and discuss with someone							
d	I write down my reflections							
e	I share my structured reflections in teacher conferences							
f	I share my structured reflections in articles							
g	Other form of reflection. Please, name/describe:							

6. Respondent data

6.1. Gender:
- a Male
- b Female

6.2. I teach … *Please, circle the letter of the relevant answer.*
- a Languages (mother tongue, foreign languages)
- b Social studies (history, civic education, philosophy, economy, psychology etc.)
- c Mathematics
- d Natural science (biology, chemistry, physics, geography)
- e Technology
- f Arts (music, drawing, painting, dance, drama)
- g Other disciplines. Please, name them:

6.3. When I enrolled for the *Critical Thinking. Active Learning* course, I had been a teacher for … *Please, circle the relevant answer.*
- a 0-3 years
- b 4-10 years
- c 11-20 years
- d > 21 years

6.4. Since I completed the RWCT training course, I have also completed the following teacher training programs … *Please, name the program and specify the number of hours attended.*

	Name of program	No. hours attended
a		
b		
c		
d		
e		

If you would agree to be contacted for further discussion of your literacy instruction and/ or reflection practices, please write your name, email address and/ or telephone number below:

Thank you for your cooperation!

Annex 2: Classroom observation form

This observation form has been designed to guide observation of teacher behavior as concerns use and guidance of reading and writing activities and teacher reflectiveness. The observer should record as much as possible of what s/he observes, and after the lesson enter evidence of such teacher behavior under the following headings.

Teacher's name: _____
Class (grade level / age group): _____
Lesson title: _____
Observer's name: _____
Place, date, time: _____

RWCT Domain/ (Standard)		**Evidence observed (if not evident, address in interview)**
Domain: Planning and Instruction		
Standard C: RWCT teachers design and provide instruction to promote active learning and critical thinking.		
1	The lesson includes reading and writing assignments that help learners explore their understanding of concepts and ideas;	
2	The lesson includes reading and writing assignments that encourage on-going inquiry;	
3	Teacher facilitates the learners' critical reflection on new understandings (lesson includes activities for the learners to formulate their own conclusions on critical questions);	
4	Teacher facilitates the learners' connection of new understandings to real-life issues;	
5	Teacher facilitates the learners' reflection on their own thinking and learning process;	
6	Teacher provides wait time before inviting learner response;	
7	Teacher provides adequate and flexible time for learners to complete their task;	

8	Teacher provides a variety of learning activities to accommodate diverse learners' needs.	

RWCT Domain/ (Standard)		**Evidence observed (if not evident, address in interview)**
Standard D: RWCT teachers use thoughtful questions to promote higher-order thinking and to elicit learners' opinions.		
1	Teacher frames the lesson so that the learning process is driven by higher order questions (visible in rationale/ motivation for lesson, as shared with learners);	
2	Teacher facilitates the learners' critical questioning of new concepts and ideas /lesson includes activities for the learners to share their critical questioning of new concepts and ideas;	

RWCT Domain/ (Standard)		**Evidence observed (if not evident, address in interview)**
Domain: Personal and Professional Qualities		
Standard F: RWCT teachers are reflective and self-renewing professionals		
1	Teacher invites learner feedback on the lesson/ learning process/ experience;	
2	Teacher adjusts the lesson to best meet individual learners' perceived learning needs.	

Annex 3: Pre-observation and post-observation interview questions

Before the lesson

1. What is the purpose or aim of your lesson?
2. What related lesson or lessons preceded this one?
3. If Evocation, Realization of Meaning or Reflection are not present in this lesson, please explain how they were incorporated into the previous lesson or will be in the one to follow.
4. Other questions as needed focusing on reading and writing activities.

After the Lesson

1. What were the strengths of your lesson?
2. What changes did you make from your original lesson plan during the lesson, if any? How did the changes make your lesson better? What would have been the effect on your lesson if you had not made the changes?
3. How did you decide what texts and sources to use in the lesson? How did you decide on the reading / writing activities incorporated in the lesson?
4. How would you now change the lesson to make it better?
5. Other questions as needed, esp. focusing on reflection practices.

Annex 4. RWCT Teacher Standards

Excerpt from RWCT Project Certification Standards and Procedures, 2000

Climate for Learning

A. *RWCT teachers provide a student-centered classroom in which they value students as individuals.*

RWCT teachers

1. encourage students to express and support their ideas and opinions;
2. create opportunities for students to try out new ideas and skills;
3. promote interaction among students and teachers in a climate of trust, tolerance, and mutual respect;
4. exchange opinions with students and model ways to support ideas;
5. encourage divergent interpretations of oral discourse and text; and
6. create an inclusive learning environment in which all students participate.

B. *The classroom learning environment prepared by the RWCT teacher reflects principles, learning activities, and the grouping strategy appropriate for the lesson.*

RWCT teachers

1. adapt the physical arrangement of the classroom to reflect lesson needs and to facilitate the grouping of students for effective interaction;
2. ensure that the learning environment and wall displays reflect student work; and
3. share control of the learning environment and classroom resources with students.

Planning and Instruction

C. *RWCT teachers design instruction to promote active learning and critical thinking.*

RWCT teachers

1. design lessons based on the ERR framework (Evocation, Realization of Meaning, and Reflection);
2. teach the required curriculum using active learning strategies that encourage participation and critical thinking;
3. incorporate cooperative learning strategies into lessons;
4. monitor and adjust instruction in response to student reactions;
5. use a variety of RWCT teaching strategies to maintain interest, encourage alternative perspectives, and achieve instructional goals;
6. use student reading and writing as means for exploring and clarifying ideas;
7. supplement textbooks with additional instructional materials that enrich the curriculum, make it accessible to students, and encourage interpretation; and
8. use a variety of sources to design learning activities that extend beyond the classroom and inspire ongoing inquiry.

D. *RWCT teachers use thoughtful questions to promote higher-order thinking and to elicit students' opinions.*

RWCT teachers

1. ask open-ended and higher-order questions to encourage expression of diverse student ideas, opinions, and responses;
2. provide adequate wait time and opportunities to complete responses without teacher
3. interruption;
4. create classroom climates in which students are encouraged to formulate and ask higher-order questions; and
5. engage in active listening with students.

Assessment and Evaluation

E. RWCT teachers design assessment and evaluation procedures that inform their teaching and enhance student learning.

RWCT teachers

1. use strategies that are authentic, constructive, fair, and clear;
2. assess the processes of learning, as well as the outcomes;
3. use multiple approaches to assess understanding, attitudes, skills, and knowledge;
4. encourage students to engage in self-assessment and peer-assessment;
5. adjust their instruction as a result of ongoing monitoring and assessment; and
6. ensure that students are aware of evaluation criteria in advance and that students participate in the development of those criteria.

Personal and Professional Qualities

F. RWCT teachers are reflective and self-renewing professionals.

RWCT teachers

1. are critical thinkers who model inquiry for students and peers;
2. use student feedback to inform teaching practices and improve classroom climate;
3. monitor their own teaching effectiveness by engaging in self-assessment through written reflections on practices, knowledge, and attitudes;
4. engage in peer-assessment, periodically inviting colleagues to observe and confer about teaching;
5. have a personal plan for fulfilling professional potential and improving instructional practices;
6. serve as mentors for their peers, sharing insights and instructional resources with them.