MAKING LEARNING AND THINKING VISIBLE. AN ANALYSIS ON THE USE OF THINKING ROUTINES

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Abstract[1]

This paper describes the first phase of the research project titled MLTV - Making Learning and Thinking Visible in Italian Secondary Schools, stemmed from a collaboration between INDIRE, the National Institute for Documentation, Innovation and Educational Research and Project Zero (PZ), a research group of the Harvard Graduate School of Education. The project started in 2017 and it is still ongoing. Phase I covers the school year 2017-18, when three upper secondary schools (in the Northern, Central and Southern Italy) experimented in their classrooms the MLV (Making Learning Visible) and the VT (Visible Thinking) frameworks of PZ. The core themes of the MLTV project are the following ones: 1. group learning - defined as a collection of persons who are emotionally, intellectually, and aesthetically engaged in solving problems, creating products, and making meaning in which each person learns autonomously and through the ways of learning of others; 2. documentation - defined as "the practice of observing, recording, interpreting, and sharing through different media the processes and products of learning in order to deepen learning" [1, p.74]; 3. and Thinking Routines (TRs) - defined as structured tools used over and over again in the classroom, that support specific thinking moves (i.e. making connections, describing what's there, building explanations, considering different viewpoints and perspectives etc.). The project draws on previous research on thinking and learning skills, and, in particular, is based on the following conceptual basis: thinking is not only a matter of skill; it is dispositional, distributed, and can be made visible through particular routines and practices. Learning does not happen in loneliness but it is distributed, hence it is socially constructed among individuals, groups, and cultural tools and artifacts [1]. Learning is seen as a consequence of thinking [2]: it is purposeful, emotional, social, and representational [1]. It takes place throughout all our lives. Understanding is performative, or it is real when applicable in new situations [3]. This contribution, focusing on Phase I, tries to represent and analyse the employment of Thinking Routines in all the classes that were included in the experimentation, in order to look at what types of thinking and thinking skills teachers were more interested in and therefore tried to develop in their students. Each school participated with a different number of classes of different age levels, with a total number of 15 classes and about 300 students, which is the outreach of the first year. The project is still in place, at present facing Phase 2, whose main purpose is disseminating its promising initial results to other upper secondary schools in Italy (25 schools). In Phase 3, Indire plans to scale-up, through a cascade model, to other schools, potentially all interested ones, of lower levels too.

Keywords: learning, thinking skills, group learning, collaborative research, documentation, thinking routines.

1 INTRODUCTION

This section offers a general overview of the MLTV project, of TRs and of the Teaching for Understanding Framework (TfU).

1.1 The Making Learning and Thinking Visible Project: rationale, actors and phases

The "Making Learning and Thinking Visible Project" (MLTV) stems from the collaboration between the National Institute for Documentation, Innovation and Educational Research (Indire - www.indire.it), namely the oldest research institute of the Italian Ministry of Education, and a research group from

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[1] This paper stems from the collaborative work of the authors. In particular Silvia Panzavolta is the author ofi paragraphs 1.3; 2.2; 3.2. Elena Mosa is the author ofi paragraphs 1.1; 2.3; 3.1. Chiara Laici is the author ofi paragraphs 1.2; 2.1; 3.3. Conclusions and references have been written collaboratively.

"Project Zero", (http://www.pz.harvard.edu/) a 50 year-old initiative born within the Harvard Graduate School of Education.

Three schools also played an active role in the project as their school heads and a group of 15 teachers (covering both STEM subjects and Humanities) were part of the MLTV project as co-researchers.

The schools were chosen according to a geographical criterion (covering the North, Center and South of Italy), school level (all upper-secondary institutions) and type (lyceum, technical and VET schools). Moreover, the schools were chosen because they are main players in the "Avanguardie educative" (AE) Movement, a network empowered by Indire and made up of schools from all over Italy (at present there are about 900 schools). These institutions share a common vision described in the Avanguardie educative Manifesto[2] and have a strong commitment to innovation.

The project started in 2017 and it is still ongoing. The main objective is to implement the proposal and tools coming from the combination of two Project Zero Frameworks: "Making Learning Visible" [1] and "Visible Thinking" [4]. Both Frameworks share the same overarching objective to "change the classroom culture", but differ for their tools. The first is more focussed on the use of documentation as a mean to display learning for different purposes and to several stakeholders (teachers, students, parents, community), the latter provides structures and protocols in order to support different thinking dispositions (the "Thinking Routines", as discussed in par.1.2).

At the moment, the project is in its second phase, whose aim is to spread and scale up the results and tools of MLTV into a wider community composed by 15 new schools (again selected within the AE Movement). In Phase II, the first 15 teachers trained are the coaches of a group of 75 teachers, according to a "cascade" training model.

In this paper the discussion focuses on the results coming from the use of Thinking Routines that have proven to be more popular among the first 15 teachers involved in the first phase of the research.

1.2   Building a culture of thinking: the "Thinking Routines"

The Visible Thinking framework uses specific cognitive routines, the Thinking Routines, a sort of organizational structures to guide students' mental processes and encourage active content processing. The aim is to make cognitive processes visible and to support a culture of exploration and the construction of critical thinking in school. Rather than simply listing facts, Thinking Routines encourage students to actively engage on a topic, to think with and beyond the facts they know, to connect new knowledge to previous one[3]. According to this approach, going beyond the lecture-based model of schooling, with students simply memorizing contents and facts, learning occurs as a result of our thinking and active sense making. Creating opportunities to think deeply and make thinking visible turns out to be crucial. When we make thinking visible through the TRs, we get not only a window into what students understand, but also how they are understanding it. "Uncovering students' thinking give us evidence of students' insights as well as their misconceptions" [4, p. 27]. TRs are structures, protocols and patterns of action which are used recursively to manage and facilitate the acquisition of skills and the mastery of specific tasks. In particular, to better understand how TRs are used in teaching, it is worth considering them with a threefold perspective: as Tools, as Structures, and as Patterns of behavior. TRs are Tools used over and over again in the classroom, that support specific thinking moves (see Fig. 1). In this sense teachers should identify the type of Thinking they would like to promote in their students and only after that select the corresponding TRs. They can be considered as Structures, through which students collectively as well as individually initiate, explore, discuss, document, and manage their thinking. As Ritchhart and colleagues highlight [4], these structures are explicit (they have names to identify them); instrumental (they are goal-directed and purposeful); they consist of a few steps (easy to learn, and easy to remember); individual as well as group practices; useful across a variety of contexts; help to reveal students' thinking and make more visible. They are also "Patterns of behavior adopted to help one use the mind to form thoughts, reason, or reflect. We see these patterns emerging as the routines: are used over and over, become engrained in us both teachers and students, flexibility emerges" [5][4].TRs can be presented and clustered in several ways, one of whom is the Matrix used by Ritchhart and collaborators [4] who classify them into three main categories (see Fig. 1) reflecting the way that

[2] The complete Manifesto and its pillars: http://pheegaro.indire.it/uploads/attachments/1946.pdf

[3] Taken from the Avanguardie educative leaflet: http://pheegaro.indire.it/uploads/attachments/2385.pdf

[4] Taken from Ron Ritchhart's website http://www.ronritchhart.com/COT_Resources_files/Defining%20Thinking%20Routines.pdf . Further materials can be found at: http://www.ronritchhart.com/ronritchhart.com/COT_Resources.html

teachers often plan for and attend to the different part of a unit of study: Introducing and Exploring (TR used at the beginning of units to develop interest and begin the process of inquiry); Synthesizing and Organizing (TR that take students beyond their initial exploration of a topic or an idea and are useful in making sense of new information that students have read or discussed during a unit of study); and Digging Deeper (TR that go a step further and push students to go below the surface of things and consider complexity of issue and ideas) [4, pp.50-52]. This Matrix should not be taken as a rigid reference pathway to classify and apply TRs since TRs are flexible structures and adjustable to different contexts, subjects and learning activities and can be used in combination among them.

Thinking Routines Matrix from *Making Thinking Visible* by Ritchhart, Morrison & Church

Routine	Key Thinking Moves	Notes
Routines for INTRODUCING & EXPLORING IDEAS		
See-Think-Wonder	Description, Interpretation & Wondering	Good with ambiguous or complex visual stimuli
Zoom In	Description, Inference, & Interpretation	Variation of STW involving using only portions of an image
Think-Puzzle-Explore	Activating prior knowledge, wondering, planning	Good at the beginning of a unit to direct personal or group inquiry and uncover current understandings as well as misconceptions
Chalk Talk	Uncovers prior knowledge and ideas, questioning	Open-ended discussion on paper. Ensures voices are heard, gives thinking time.
321 Bridge	Activates prior knowledge, questioning, distilling, & connection making through metaphors	Works well when students have prior knowledge but instruction will move it in a new direction. Can be done over extended time like the course of a unit.
Compass Points	Decision making and planning, uncovers personal reactions	Solicits the group's ideas and reactions to a proposal, plan or possible decision.
Explanation Game	Observing details and building explanations	Variations of STW that focuses on identifying parts and explaining them in order to build up an understanding of the whole from its parts and their purposes
Routines for SYNTHESIZING & ORGANIZING IDEAS		
Headlines	Summarizing, Capturing the heart	Quick summaries of the big ideas or what stands out
CSI: Color, Symbol, Image	Capturing the heart through metaphors	Non-verbal routine that forces visual connections
Generate-Sort-Connect-Elaborate: Concept Maps	Uncovering and organizing prior knowledge to identify connections	Highlights the thinking steps of making an effective concept map that both organizes and reveals one's thinking
Connect-Extend-Challenge	Connection making, identify new ideas, raising questions	Key synthesis moves for dealing with new information in whatever form it might be presented: books, lecture, movie, etc.
The 4 C's	Connection making, identifying key concept, raising questions, and considering implications	A text-based routine that helps identifies key points of complex text for discussion. Demands a rich text or book.
Micro Lab	A protocol for focused discussion	Can be combined with other routines and used to prompt reflection and discussion
I used to think	Reflection and metacognition	Used to help learners reflect on how their thinking has shifted and changed over time.
Routines for DIGGING DEEPER INTO IDEAS		
What makes you say that?	Reasoning with evidence	A question that teachers can weave into discussion to push students to give evidence for their assertions.
Circle Viewpoints	Perspective taking	Identification of perspectives around an issue or problem.
Step Inside	Perspective taking	Stepping into a position and talking or writing from that perspective to gain a deeper understanding of it.
Red Light, Yellow Light	Monitoring, identification of bias, raising questions	Used to identify possible errors in reasoning, over reaching by authors, or areas that need to be questioned.
Claim Support Question	Identifying generalizations and theories, reasoning with evidence, counter arguments	Can be used with text or as a basic structure for mathematical and scientific thinking.
Tug of War	Perspective taking, reasoning, identifying complexities	Identifying and building both sides of an argument or tension/dilemma
Word-Phrase-Sentence	Summarizing and distilling	Text-based protocol aimed at eliciting what a reader found important or worthwhile. Used with discussion to look at themes and implications.

Figure 1. The Thinking Routines Matrix [4, pp.51-52].

1.3   The Framework "Teaching for Understanding"

The Framework "Teaching for Understanding" (TfU) draws on the assumption that understanding does not mean knowing something but knowing how to do something with what one knows. It is what PZ researchers [3; 6] call "the performative theory of understanding". The definition of understanding, namely "*The ability to think and act flexibly with what you know to solve problems, create products, and interact in the world around us*" [6] entails a series of questions for teachers and educators: What do we most want students to understand? How do students construct their understanding? How do teachers (and students) know if they have understood?

Those questions are crucial: they have to do with curriculum design, the observation of learning processes and assessment practices.

In the TfU Framework [6], three different types of topics are encompassed:

1   Throughlines. These are the core topics of a subject, including specific methods and languages of a disciplinary domani. Throughlines help teachers focus on essential elements of the curriculum because: "The greatest enemy of understanding is coverage. As long as you are determined to cover everything, you actually ensure that most kids are not going to understand. You've got

to take enough time to get kids deeply involved in something so they can think about it in lots of different ways and apply it—not just at school but at home and on the street and so on." [7].

2   Generative topics. These are themes that can be connected to other disciplines and therefore are likely to expand the access to knowledge as a whole and not as separate fragments. In real life, problems, events, etc. are interconnected: students at school should be taught to see links, connections, similarities and recursive schemes.

3   Understanding goals. These are cognitive understanding goals that teachers can take into account when planning activities, tasks and opportunities they design for their students. There are height understanding goals, irregardless of the subject taught, or: 1. reason with evidence; 2. make connections; 3. uncover complexity; 4. capture the heart and make conclusions; 5. build explanations; 6. describe what's there; 7. wondering; 8. consider different viewpoints.

The fourth part of the Framework is ongoing assessment. In order to capture how students are learning it is important to use documentation to observe social, cognitive and metacognitive skills in place. This practice of observing is part of the Making Learning Visible (MLV) Framework, guiding teacher to use documentation to uncover the students' progress.

2   METHODOLOGY

After presenting the overall project methodology, this section provides information on research questions and tools. Finally, the rationale employed for the analysis on the use of TRs is described, which represents the focus of this paper.

2.1   Research project methodology

The MLTV research project draws on participatory research approaches where research activities are carried out by different stakeholders from different perspectives (school, educational research, etc.) and are aimed at enhancing the process of knowledge co-construction, where theory and practice, research and action, research and experience are interviewed. In particular, the methodology is based on a collaborative research model [8; 9] with particular attention to value the "Teachers' Thinking" [10;11] and to enhance the analysis of practices, seen as a tool for professional development [12]. In fact, collaborative research is very much connected to school-driven research as it implies constant interaction and negotiation efforts between researchers and school players (not only teachers but also School leaders, students, families). All are equally involved in research, though with specific roles and tasks. The research model implies an interactive co-construction in all research phases: co-situating the research, co-operating and co-producing the results [9].

In the MLTV project, the first phase was dedicated to defining research objectives and to making reference theoretical frameworks explicit; then, research questions were formulated and their connections with the MLV and VT frameworks established. In the second phase, all participants agreed on the methodology and on data collection protocols. This allowed the teachers to better analyze the aspects under investigation and the researchers to collect relevant information for further developing research tools. Hence the group decided that there would be two main focuses: the localization of the two frameworks - mainly through the analysis of the documentation - and the impact on classroom culture, especially on selected dimensions (i.e. teaching-learning practices, classroom interactions, student-student relations, etc.) through observations, focus groups with the students, interviews with the teachers. The third and ongoing phase is dedicated to the analysis and interpretation of data and to the production of research outputs for school (i.e. guidelines for teachers) and academic communities (i.e. articles and a monograph). It is a very rich, intensive phase where researchers provide feedback and teachers revisit their experiences by "putting their practice into words" [12]. They documented how they used TRs and protocols through video recordings, recordings, and digital texts produced by teachers and students. Documentation, according to the MLV framework [1, pp. 127-128], is shared and analyzed with the colleagues who, with the support of researchers, make sense of processes [12], reflect on what happened and offer feedback on and for the analysis of the practice itself [13].

This methodological approach made it possible to negotiate and co-construct the sense of what has happened. The final product will eventually be the combination of visions from two different cultures so to respond to the criterion of "double verisimilitude", that is the possibility of making research results acceptable by all the players involved [9; 14].

2.2 Research questions and tools

Research questions have been formulated on different levels.

At the project level, research throughlines aimed at investigating how selected PZ frameworks (namely the MLV and the VT Frameworks) could be adapted to culturally fit the needs of middle and secondary public school teachers in Italy; what culturally driven practices emerged as educators in these contexts adapt PZ practices in their classrooms and how Indire could support and create the best conditions to scale PZ frameworks throughout their school network and mainstream at system level.

At school level, context-dependant research questions were identified by each of the three pilot schools, and at teacher level, even more specific questions were expressed.

In order to gather consistent data, research tools were shared with teachers and head teachers (always working as a research team at school) and revised by them.

School and teacher research enquiries mainly used two tools:instances and research grids.

At the project level, the research protocol was mainly based on onsite visits, carried out monthly in each school by Indire researchers. The onsite visit was organized as follows:

1   Protocol-guided discussion [1] on a piece of documentation, presented in turn by the teachers participating in the research. The discussion was moderated by one Indire researcher and PZ researchers took part remotely. This activity mainly focussed on school and teacher research questions.

2   Classroom observation. The teachers participating in the research were observed while conducting a lesson based on the MLTV frameworks. An Observation Grid was created, taking into account specific dimensions linked to classroom culture (classroom climate, students' engagement, emerging teaching and learning practices, etc.). Classroom observation grids were afterwards used to produce the related reports, then shared with the observed teacher, who could modify it. Classroom observations were more focussed on project research questions.

3   Interviews with the main players: teachers, head-teachers and students (the latter were interviewed only once at the end of the pilot school year). As classroom observations, interviews served mainly the macro level research questions.

2.3 Methodology applied for the presented study

For the purpose of this paper, the authors chose to examine three main sources of information: the class observation reports, the protocol-guided discussion (called "Fishbowl") reports and the students' focus groups.

The analysis started from the class observation reports. Each author independently filled in a table containing the following items: name of the Thinking Routine in use, the related Thinking move (ref. Par. 1.2), its total recurrence among the above cited source of information, the class year/s where it was tested and the disciplines involved. In addition, the authors added a set of learning objectives that were consolidated in the observation reports in order to embed the TRs into a wider didactical frame.

As a second step, the authors checked the "Fisbowl" report in order to see if more TR were to be included in the table. However, no TR was added if the "Fishbowl" had been carried out with reference to one or more of the class activity already described in the report, so to avoid a double counting of the same work.

The last step of analysis digged into the students' voices from the report of the 6 focus groups (2 classes from each of the three pilot schools) where the authors derived some of the quotes, as discussed afterwards in this paper.

The resulting consolidated table included 18 TRs or Protocols[5] plus one "hackered" TR, namely a routine that was modified by a teacher from the original "Claim, Support, Question" to the derived "Think-

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[5] The full list included: "Three levels of text", "The ladder of feedback", "Color-Symbol-Image", "Compass point", "Headline", "See-Think-Wonder", "Circle of viewpoints", "Question Starts", "Step inside", "The 4 Cs"; "3-2-1 bridge", "What makes you say that", "Word-Phrase-Sentence", "Generate, sort, connect, elaborate", "Chalk Talk", "Claim Support Question", "Think-Pair-Share", "I used to think…

now I think".

Suppose-Prove". Though remarkable, the authors decided not to include it in the counting for the aim of this paper.

After consolidating the information coming from the individual grids, the authors decided to take into account the 3 most used TRs: "See-Think-Wonder", "Headlines" and "Step Inside" . For brevity's sake, the following table reports only the data set of those (Tab.1).

Table 1: Recurrence and descriptors of the three most popular Thinking Routines.

TR	Thinking Move and Category of TR	Total occurrences	Class year	Disciplines
See-Think-Wonder	Description, interpretation and wondering/ INTRODUCING AND EXPLORING IDEAS	7	I year II year III year III year III year V year V year	Economy & History Mechanical Lab History Informatics (Robotics) Physics Italian English
Headlines	Summarizing, capturing the heart/ SYNTHESIZING AND ORGANIZING IDEA	3	I year I year V year	History Economics and Informatics History
Step inside	Perspective taking/ DIGGING DEEPER INTO IDEAS	3	I year III year V year	History History Italian

3 RESULTS

This analysis shows the most used TRs as for Phase I of the project. The three most used TRs belong respectively to one of the three categories presented in the TR Matrix (see Fig.1). Hereof, after describing each TR in detail, specific uses and their educational contexts are given.

3.1 The "See-Think-Wonder" Routine

The "See-Think-Wonder" (S-T-W) Thinking Routine is designed with the aim of guiding the students into a critical and thoughtful reflection on a piece of information in order to convert it into knowledge (see Figure 1).

It is composed by three steps that gradually lead students to develop their own ideas: the first one is the "See" phase that places the sparkle with the question: "What do you see?". No interpretations are allowed at this stage.

The "Think" step is the right place for interpretation as the guiding question is "What do you think about what you see?", while the "Wonder" step pushes forwards the students' reflection on a creative level encouraging them to figure out "what's next", as the question is: "What do you wonder about?".

The aim is to help students to distinguish between observation and interpretation, allowing the due time for staring purposefully an image or a quotation or a video or any other piece of information.

This TR can be used in a range of activities, for example at the beginning of a unit with the aim of capturing students' attention and arouse their curiosity, or at the end of a lesson to help them to highlight a concept or, more generally, whenever a teacher wants the students to reflect critically.

Within the MLTV project, the See-Think-Wonder routine has been in use 7 times and it has demonstrated to be versatile as it travels well across different subjects (STEM and Humanities, see table 1) and school grade (it has been applied in all years but in the fourth grade).

For example, the S-T-W routine has been used at the beginning of a robotic lesson (3rd grade) starting from a video input in which a dot that moves on a line simulates a robot's route on a surface. This lesson

was conducted by two teachers simultaneously, one of them guiding the students in their reflections while the other was videorecording the activity for documentation purpose.

STEM teachers say that this routine is very useful for their teaching as it is compliant with the inductive approach that is often in use in physics, science as well as in many other scientific disciplines.

However, the S-T-W routine is well adopted also in humanistic disciplines. Infact, among the other lessons observed, we report the use of this routine in History in collaboration with a previous lesson on English literature that was co-designed by two teachers. In particular, students were assigned two articles both dealing with the Indios question from very different perspectives. In this case, the routine was used as a tool for interpreting a text and the complexity of the cultural debate on the given topic.

The routine acted as a kind of substitute of the teacher's lesson, with the students anticipating the interpretation of the debate around the Indios' question.

The teacher, afterwards, would make a debrief in order to clarify and correct possible misunderstandings.

The inductive approach applied to a humanistic discipline, inverted the logic of the "talk and chalk" lesson and empowered the students in their process of understanding.

3.2   The "Headlines" Routine

The Thinking Routing "Headlines" is defined as a Routine for "Synthetizing and organizing ideas" (see TR Matrix, Fig. 1) and mirrors the idea of news headlines as a way of synthesizing and getting to the heart of the message (or idea, topic, etc.). The rationale is the following: the teacher asks the student to imagine being a journalist and write a headline that condenses the main aspects of a studied topic. It should be used at the end of a lesson or a discussion to get to the core elements of a content. Another question that the teacher might ask to help the students reflect on their own thinking is how and why the headline they formulated that day differs from the one they would have written the day before. Two levels are touched at the same time: the content level and the cognitive/metacognitive one.

Since the main purpose is to get to the heart of the topic (see the Throughlines in the TfU Framework), the most powerful use of this TR is at the end of a Unit or a lesson in order to sediment the understanding of that topic and to debrief on the fundamentals of it. Generally each student writes his/her own Headline, then all headlines are put on a poster and read aloud so that each one is confronted with the sum-up efforts of the others. Another way to perform this TR is to have students work individually first, then have them work in pairs for sharing their headlines and finally ask the class to report if someone wants to comment on a mate's Headline which was found particularly fitting. This TR does not take too much time (it might take 15 or 20 minutes to perform).

Sometimes Headlines are put on the classroom walls or on a digital board, so that students can go back to their initial understanding of the content and compare it with the synthesis they might have done later on. This would provide them with evidence on how their understanding has evolved in time.

In our analysis, we observed that the "Headlines" TR was used three times, twice in History and one in Economics and Informatics. In particular, in History it was used once with 18-19 year-old students to review the Great Depression main aspects. Students worked first individually, then were asked to share in small groups - formed by the teacher - for a first round of discussion which might eventually lead to a more convincing Headline. The third round was about the whole class sharing what emerged from the groups and eventually come to a single classroom Headline. Headlines were written on post-its, then put on posters (but sooner removed).

In the second and third cases, this TR was used with students aged 14-15. In one case, "Headlines" was used to sum-up a lesson on Roman commerce, in combination with the "See-Think-Wonder" Routine that has been explained above. Differently from the previous case, in this History class Headlines were produced at group level, written on post-its and then put on the classroom walls (they remained there for a while). However, as in the previous example, a final negotiation phase was foreseen to try to have a classroom Headline. The third use we could observe was again on students aged 14-15; the subject was tourism and social media. As in the previous example, headlines were created in groups and then shared with the whole class. After this step, groups could review their Headlines to improve them; finally, they should use their Headlines to compose a Tweet of max 280 edits to share on a Poster (kept on the classroom walls for some time).

As described above, this TR is very flexible and cross-subject and can be used alone or in combination with other TRs. It also fits very well with the rational of online communication and, in this sense, it can open to discussion on generative topics (see TfU Framework).

3.3 The "Step Inside" Routine

The Thinking Routing "Step Inside" is defined as a Routine for "Digging deeper into ideas" (see TR Matrix, Fig. 1) and focuses on stepping into a position and talking or writing from that perspective to gain a deeper understanding of it. Students are asked to take a character's (or object's) perspective starting from a passage they read, an imagine they observed, a historical event or a social issue that has been in the news. Then they have to imagine being that character/object or living that event and think how she/he/it might observe, feel, speak, wonder, etc. "It takes the learner outside himself or herself to understand that one's perspective often shapes how events are understood" [4, p. 178]. Students are asked to answer, orally or by writing, a series of questions: What can this person (thing) see, observe, or notice? What might this person (thing) know, understand, hold true, or believe? What might this person (thing) care deeply about? What might this person (thing) wonder about or question? [4]. All questions use the conditional form "might" since the use of this conditional language opens the way for thinking broadly, hypothesizing, and also raising possibilities.

In our analysis, we observed that the TR "Step Inside" was used three times, two in History and one in Italian. In particular, in Italian it was used with students aged 18-19 who were studying the novelist Luigi Pirandello. Through this TR students had to identify themselves with the various characters of the novel "La nave ha fischiato" which they had previously read. Following the TR structure, students identified with the novel characters, answered the questions envisaged by the TR, and finally expressed the author's vision of the world emerging from his novel. The 21 students worked in 5 groups using a common Padlet organized in columns (there were as many columns as the number of characters identified). The padlet was projected in the class through a large screen; students used their smartphone to post the group answers and contributions. We could observe that students often would change their answers if too different from the others' ones but could also want to refine them and better express their opinion.

All the contributions posted in the Padlet were then read aloud and kept as piece of documentation as well as discussed in class. The activity ended with the construction of a WordCloud realized by Mentimeter: students individually identified three key words that according to them better expressed Pirandello's vision of the world.

In the two cases in which the TR was used in History, 16-17 year-old students and 14-15 year-old students were involved. In the case of students aged 16-17, the TR was used to identify with as a leading figure in the first industrial revolution (a topic that is generally addressed to older students). As in the previous example, before the use of this TR, students had some readings assigned as homework. In class they worked in 3 groups. The teacher had prepared a worksheet to be filled in by the groups and some other materials that was shared by using the Google Suite. The worksheet was organized so that students could identify with the characters and answer the questions foreseen by this TR. To deepen their knowledge of the characters and to better role playing, students were asked to imagine different solutions, even by inventing an interview that they then would perform during the presentation to the whole class.

In the case of 14-15 year-old students the work was focused on Alexander the Great and on the reasons for his name. At the beginning, students work individually and tried to answer the question "Being Alexander, what do you see, feel and notice?". This question was considered quite simple by the teacher since it could recall more factual elements of the life of Alexander the Great. Then they worked in small groups to answer the more complex questions requiring higher-order cognitive skills such as making assumptions, problematizing and making connections. All contributions were shared on posters arranged on the classroom for further discussions.

It was possible to observe the versatility of the TR "Step Inside" in different disciplines, with students of different ages and with different skills and preparation. They were able to identify themselves and explore the viewpoints of different characters in ever deeper and creative ways. The TR has proved particularly useful in going in depth in subject topics that teachers considered as complex. The students have understood very well how that this TR is demanding in terms of commitment, reflection and problem solving. "*The book is based on notions while here you're asked to reason. The only difficulty I found was when we analyzed a text without receiving feedback from the teacher on what the core points of the text were. We worked in groups but then got no debrief on our interpretations and I do not*

understood if the things we wrote are correct" (Student aged 19). This TR also stimulated them to wonder: "*In my head, I started to have more questions than before*" (Student aged 15). Finally, it's worth mentioning the teachers' ability to use this TR in a rich learning environment, documented in order to deepen thinking and learning.

4   CONCLUSIONS AND FURTHER DEVELOPMENTS

From our analysis we can come to the conclusion that teachers employed TRs and protocols in various and creative ways, also to understand how to introduce them in teaching/learning practices and to observe what was their potential for their students' thinking and learning deepening. In fact, apart from the TR "STW", which occurs 7 times, the other two most used TRs occur only 3 times. A frequency that is not that high but which is to be considered in relation to the overall usage frequency distribution. In fact, 18 other TRs (and protocols) included in VT framework were used only once or twice. This might indicate that teachers first needed to explore these structures and get familiar with their rationale and only afterwards they would select the ones that best suited their students' needs.

Phase II is dedicated to the scaling-up of the MLTV Idea to Avanguardie Educative Pole Schools, whose task will be disseminating to all interested schools in the region. During this process, Indire will co-research together with the school teams in the 3 pilot schools. It is in place a cascade model so that the 3 pilot schools play the role Indire played in Phase 1. Therefore, research tools will be the ones used by Indire researchers. Schools are also planning to focus on specific aspects. One interesting research proposal is about the idea of using TRs as a sort of diagnostic tool to understand which thinking disposition is lacking in a group of students, in order to better design the use of TRs. After a while, through the use of TRs, teachers might observe if some changes have occurred because of the MLTV idea implementation.

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REFERENCES

[1]   M. Krechevsky, B. Mardell, M. Rivard, D. Wilson, *Visible Learners: Promoting Reggio-Inspired Approaches in All Schools*. John Wiley & Sons, San Francisco, 2013.

[2]   R. Ritchhart, D. Perkins,. "Making thinking visible", Educational Leadership vol. 65, pp. 57-61, 2008.

[3]   M. Krechevsky, D. Perkins, T. Blythe, "Putting Understanding Up Front," Educational Leadership, vol. 51, no. 5, pp. 4-7, 1994.

[4]   R. Ritchhart, M. Church, K. Morrison, *Making Thinking Visible.* Jossey Bass, San Francisco, 2011

[5]   R. Ritchhart, P. Palmer, M. Church & S. Tishman, *Thinking Routines: Establishing Patterns of thinking in the Classroom*. Paper presented at the annual meeting of the American Educational Research Association, San Francisco, 2006, Retrieved from URL: http://www.ronritchhart.com/Papers_files/AERA06ThinkingRoutinesV3.pdf

[6]   T. Blythe, *The Teaching for Understanding Guide*. San Francisco (CA): Jossey-Bass, 1998.

[7]   H. Gardner, *Frames of Mind: The Theory of Multiple Intelligences*. New York, NY: Basic Books, 1983.

[8]   S. Desgagné, "Le concept de recherche collaborative: l'idée d'un rapprochement entre chercheurs universitaires et praticiens enseignant"*, Revue des sciences de l'éducation*, 23 (2), pp. 371-393, 1997.

[9]   P. Magnoler, *Ricerca e formazione. La professionalizzazione da professionalizzazione degli insegnanti*, Pensa Multimedia, Lecce-Brescia, 2012.

[10]   F. Tochon, F. "Recherche sur la pensée des enseignants: un paradigme à maturité", *Revue Française de Pédagogie*, n. 133, pp. 129-157, 2000.

[11]   E. Damiano, *La Nuova Alleanza*. La Scuola, Brescia, 2006.

[12]   M. Altet, "Professionnalisation et formation des enseignants par la recherche dans les IUFM: Avancées et questions vives". In Clanet. J. (dir), *Recherche/formation des enseignants: Quelles articulations?* pp. 19–32. Rennes: Presses universitaires de Rennes, 2009

[13]   D. A. Schön, *Educating the reflective practitioner: Toward a new design for teaching and learning in the professions*. Jossey-Bass, San Francisco, 1987.

[14]   F. Dubet, *Sociologie de l'expérience*. Le Seuil, Paris, 1994.