Claudia Sabatano | Monica Melloni

Editors

METACOGNITION IN EUROPEAN TEACHING

Activating Minds Through the Implementation of New Development Strategies

Co-funded by the
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In a world that is rapidly changing, education must transform itself to fit the needs of our society. This research attempts to provide strategies for educators to meet these changing needs and it is dedicated to the learners and teachers who must all face the unclear future of education together. We hope that students and education professionals can continue to fulfil our responsibilities to each other and celebrate the value of education for our society, whatever form it takes.

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Preface

Erasmus+: an Opportunity for Growth for School in Europe

The unification process in Europe involves the structuring of a new cultural, ethical and civic horizon for each of us, but above all for young people, future European and world citizens.
To do this, to develop a real sense of European citizenship it is necessary to start from schools. Opportunities for schools have therefore a fundamental role in Erasmus+, as they aim at improving the quality and efficiency of education, thus allowing all citizens to acquire essential competences (Education and Training 2020 Strategic Framework).

In particular, Erasmus+ helps to:

- Improve the competences of school staff and reinforce the quality of teaching and learning.
- Widen knowledge and understanding of education policies and practices of European countries.
- Trigger change to make schools more modern and international.
- Create connections between formal, non-formal education, professional training and the labour market.
- Promote activities of European short and long-term mobility for pupils and school staff.
- Increase opportunities for professional and career development for school staff.
- Enhance motivation and satisfaction in teachers' daily work.

All that can be achieved through:

- Mobility measures focusing on staff training to foster professional growth and the development of new competences.
- Partnerships, that is, cooperation projects between schools and European institutions to support the improvement of professional competences, the

innovation in education and school management, the exchange of good practices, to promote pupil mobility (exchange of classes).

With Erasmus+, citizenship becomes a concrete experience. The programme opens classrooms to Europe on the common ground of shared values such as freedom, respect and non-discrimination. Erasmus+ offers financial support to mobility and cooperation projects, promoting actions that help build Europe as a more inclusive and cohesive society, where citizens are given the opportunity of playing an active role in democracy. It has reached important results, having already involved 9 million people. But it is especially the quality of the experience that leaves a deep mark in teachers and pupils taking part in the programme, making them more curious and open, increasing their competences and innovating their teaching practice.

The aims of the Erasmus+ programme, and hopefully of the next Erasmus 2020-2027 Programme, whose regulation proposal has been already published by the EU commission, go hand in hand with the Commission's goal to create a European Education Area by 2025, as stated in its communication of November 14th 2018 "**Strengthening European Identity through Education and Culture**". The European Education Area represents a "*Europe in which learning[…] [is] not hampered by borders. A continent, where spending time in another Member State – to study, to learn, or to work – has become the standard and where, in addition to one's mother tongue, speaking two other languages has become the norm. A continent in which people have a strong sense of their identity as Europeans, of Europe's cultural heritage and its diversity*. The new Erasmus programme will be a key element in support of the creation of a European education area.

Happy Europe to everybody!

Sara Pagliai
Coordinator of the Erasmus+ Italian National Agency INDIRE

Introduction

Claudia Sabatano

The **METAMINDS** ***(Metacognition in European Teaching: Activating Minds Through the Implementation of New Development Strategies)*** **Erasmus+ KA2 Strategic Partnership** has involved **7** Primary/ Lower Secondary Schools from 7 different European countries (IT, DK, GR, LT, PT, SP, UK) in a strategic partnership within the framework of the Erasmus+ KA2 action.

The idea of the project focussing on "learning to learn" arose from the realisation that this specific competence had received special consideration both at European and at national level: in 2006 the European Parliament and of the Council configured the Lifelong Learning Key Competences in their Recommendation of December 18th, identifying "learning to learn" as one of the essential competences to be improved and developed in European education. In the following year, with DM (Ministerial Decree) 139 of August 22nd 2007, Italy transposed this recommendation and included it in its Education system. In particular, Annex 2 of that document defines the Key Competences for Citizenship to be acquired by the end of the compulsory cycle of education, which is established for Italy as the end of Upper Secondary School. Overall, the competences in the Italian document differ from the competences in the 2006 Recommendation except for "learning to learn", the only competence which is replicated identically both in the EU document and in the Italian one.

From the analysis of the document produced by the EU and the way it had been transposed in Italy, a prevailing need appeared on top of everything else: in terms of competences, what is absolutely essential is to educate a mind to be able to think about itself. The image of the logotype of the METAMINDS project is the expression of that focus, of the idea that it is necessary to develop a research to support the learning-to-learn competence in education.

This led to the question "How can we meet this European need?" The Partnership agreed that, first of all, the focus of the research should be to find ways of integrating "learning to learn" into everyday didactics and work at school.

A fundamental point we need to make clear is that although METAMINDS adopted the main reference models of pedagogy and didactics as they are defined in European

pedagogy, we intentionally chose to avoid focusing only on the teacher, as happens in traditional teaching-learning models, or only on the students' needs, as happened later with cognitivist models. By contrast, the research model we have chosen is neither based on the teacher, nor on the student "tout court" but, in particular, on their mutual relationship. This research seeks then to support the learning-to-learn competence within the teacher-student relationship. That is why the METAMINDS idea was to develop a training protocol for both teachers and pupils, so as to make these two lines of action run parallel.

Since each study requires the explicit adoption of a research model to which all actions put in place are to be inspired, we chose Participatory Action Research, thus enabling all actors in the process to contribute, take part in and support the research action from the very beginning in a multi-faceted, heterogeneous and complex context. Consequently, even though in the application phase of the project a strong, intentional effort had already been made to clarify the meaning and the action we intended to pursue, only when we started working together, were we able to make out HOW to take action.

In full compliance with the chosen methodology, the METAMINDS project had been born with a full set of basic points to be developed as regards the concept of "learning to learn", of metacognition, of meta-reflection, and of critical activation of the process of knowledge in teachers and pupils, but the specifics of the triennial itinerary to be developed had not yet been identified.

What happened then? After the project had been approved, in the first mobility held in Rome at IC Giorgio Perlasca, the coordinating institution, the partner teams sat face-to-face around a table and began to reflect, and also meta-reflect on the chosen topics and on how we intended to structure the research. As in every Participatory Action Research, the moment when the actors of the process actually started interacting with each other constituted the funding moment. And then and there, in a kind of brainstorming process, ideas were born, which were later developed and became clearer. Those days in Rome were of paramount importance to understanding the truly essential lines of the research within this idea of "learning to learn".

How was that achieved? The idea was to start from reflection on ourselves as teachers. The representatives of the partner institutions worked together asking themselves "What kind of teacher am I?", "What type of work do I do?", "What degree of intentionality, of awareness, do I put into it?". We planned to create an activator which could generate knowledge and ideas for the project. After a good deal of reflection and discussion, the group concluded that "learning to learn" involves a series of not so many, but substantial and absolutely essential steps. What do we mean by that? In order to develop a process about metacognition and meta-knowledge it is necessary

to make reference to areas to work on. These areas have been defined and systematised by the teachers who took part in the first transnational project meeting in Rome. More specifically, four areas were identified: 1) Cognitive Architectures, 2) Self Reporting, 3) Emotions in Knowledge and 4) Meta-Reflexive Strategies. These four large topics kept coming up in the initial discussions about the shared reflection on the meta-processes of knowledge. The intuition we had, was that the development of training in these four areas could lead to a strengthened learning-to-learn competence. In order to put that to the test and understand from a practical point of view the impact these areas of knowledge have, a data-collection tool, a questionnaire asking teachers about these four areas according to their own perceptions and experiences was created.

These 4 areas were the catalyst ingredients of the METAMINDS research, which started to unfold as a complex multi-layered operation, of a participatory kind, and, therefore, without ready-made tracks. A scientific committee, made up of representatives from all the partner schools and directed by Claudia Sabatano, headteacher of the coordinating institution and specialising in Pedagogy, organised and oriented the work. The most interesting point was that the participating teachers developed not just their teaching skills, but also research skills. They were asked to act as researchers, not only as teachers. That proved to be a very strong added value to the project, in line with current studies indicating that teachers must do research every time they step into class.

As it is thoroughly explained in the part of the volume dedicated to the training course for teachers, the results of the questionnaire oriented the organisation of the METAMINDS output for teacher development.

The first period of the research was entirely devoted to the Teachers' Protocol because of our belief that it is not possible to help students in "learning how to learn", if professionals do not strengthen their own competence first.

The second part of the research, which focused on learners, was started by creating an adapted questionnaire for pupils around the same areas included in the teacher questionnaire. Likewise, all the partner schools administered the survey to as many pupils as possible. Again, reflection on the obtained results helped create the Pupils' Module, consisting of two sets of activities for two different age groups: METAKIDS (8-11 years old) and METATEENS (12-14 years old), where, together with entirely new tools, the best practices of the partner institutions on "learning to learn" were collected.

At various stages, both the Teacher Protocol and the Pupils' Module were tested by teachers and students and the necessary adaptations were made before the official presentation during the final Conference "METAMINDS AT WORK - Perspectives and Tools for Teachers and Learners" held in Rome on May 25th 2018.

This volume, in its three parts, presents a detailed overview of the METAMINDS research.

Part 1 illustrates the epistemological presuppositions underlying METAMINDS through specialist contributions and explores the impact the research can have in a particular education context.

Part 2 illustrates the Teachers' Protocol presenting some of the original tools specifically designed by the Partnership for the teacher training course. The complete Teachers' Protocol is available as open resource on the website of the project at www.metamindserasmusplus.eu/elearning.

Part 3 illustrates the Pupils' Module and presents the specific activities devised for the two different age groups. The Pupils' Module is also available on the website of the project at http://www.metamindserasmusplus.eu/pupils-material/introduction-to-the-pupil-s-module

and it is accompanied by tutorial videos illustrating the activities.

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PART ONE

THE THEORETICAL PYRAMID OF METAMINDS: EPISTEMOLOGICAL PRESUPPOSITIONS

THE WISDOM OF EMOTIONS
BETWEEN REFLEXIVITY AND TEACHING PRACTICE

Mariagrazia Contini

Emotional Illiteracy Yesterday and Today

In the late 1980s it was common believe that the "spirit of the time" implied giving value to skills, effectiveness and entrepreneurship both at personal and professional level. Within that cultural framework, the research on emotions I was carrying out[1] was received with suspicion, especially when I made it clear that my studies were not aimed at identifying ways of teaching how to control emotions. In fact, I tried to single out the links between emotions and cognitive processes and to discover the complexity of emotions, even in their dimmer and more twisted components, in the belief that, in order to reach self-awareness, one has to come to terms with the web of emotions of one's life. To know and recognise one's emotions, call them by name – with their names, without trying to tame or disguise them in order to make them more acceptable to oneself or to others; to relate to them, making the most of the potential knowledge they can provide about ourselves and our own history. This is the initial process towards the acquisition of the ability to see-decode-understand others' emotions, and those of learners in particular.

This resulted in a path that was considered "dangerous" for several reasons: wasn't it going to take space from the effort of promoting cognitive competences in youth and children at a time when competitiveness at social and professional levels required investing precisely in knowledge contents? Wasn't it going to take studies and education practices back to the ground of an old-fashioned rhetoric, which promoted the emotional inspiration of generic and somewhat inconclusive togetherness? Finally, weren't the implicit problems of "disturbed" emotions risking encroachment upon the fields of psychological or medical disciplines?

At the root of those objections were various beliefs – more or less stereotyped and biased–linked to the history of education and pedagogic epistemology. Above all, I believe there was a rooted and widespread emotional illiteracy that tended to neglect

those life experiences and relationships which could not be easily organised into thought or expressed through discourse.
Moreover, the "paradigm of disjunction" that since Plato, passing through Cartesius, has ruled the separation-contraposition in our culture between knowing and feeling, has also determined their hierarchical collocation: cognition first; emotion in second place, but well distant and considered as related to socially weak and uninfluential individuals, such as women and children. Why make it a research topic, then?
A challenge to that paradigm has been mainly posed by the results of studies and research in both neuroscience, which have exponentially grown over the last decades, and human sciences, which have been investigating the complexity of individuals and their relations since the most remote times.
Studies in neuroscience have demonstrated that at a bio-chemical level the circuits activated by thought and those activated by emotions are the same, they are intricately and indissolubly linked, and that through nervous impulses and chemical molecules – and thanks to exchange with the world context – the information travelling in our bodies weaves the web of our knowing and feeling in reciprocally interconnected ways; this means that either knowing and feeling grow together, or the development of the individual is compromised at both levels. That is, if we privilege cognitive development in the belief that it is possible to neglect emotional growth without consequences, we will not just promote personalities that, though lacking some emotional intelligence, are cognitively very rich anyway: the cognitive dimension will be also limited, because as Damásio has well argued, contrary to what common sense suggests, you need a "warm", not a "cool" head in order to "reason" effectively.[2]
From their perspective, human sciences have taught us that knowledge is never neutral, but it is influenced by the "lenses" through which we look at ourselves, at others, and at the world: that is, knowledge is influenced by our story, by our subjectivity, by the judgements-prejudices we have acquired from our reference culture and the relational context in which we have developed our communication and affect repertoire, especially when we were very young. Therefore, as there is always an evaluative dimension to knowing – the very moment we get to know something, we evaluate the event, the subject, the situation in terms of "likes or dislikes", "I find it interesting, boring, frightening, etc." –, knowing implies and expresses emotional elements: pleasantness, unpleasantness, joy, fear and so on. Reciprocally, emotions arise and are determined by cognitive processes: because of certain (cognitive) expectations, we feel certain emotions (the expectation-prediction of failure unleashes fear); certain judgements and prejudices inhibit, increase and/or exasperate certain emotions (racial prejudice can hinder love for 'the other', increase aggressive behaviour, extreme fear of danger…)[3].

Thanks to those studies and their diffusion, emotional literacy has been increasing and the awareness of how important the role of emotion is for personality development of human subjects, both in a positive and in a negative sense, has been affirmed. When asked about, no teacher or parent, or even less a pedagogist would show diffidence against or underrate any education projects involving great attention to emotional processes. However, at the same time, something else has happened. In a globalisation context, individuals have progressively raised walls around the perimeter of their subjectivity, creating distances – from others, from the world, from the problems and threats they see there – and have believed they can fill in the desert emptiness deriving from that separation by going after money, success, and power. To own a lot, more and more, and to be able to show it and talk about it has become the goal of "achievement" through which we justify the rush of our daily lives, always in a hurry or standing in queues; our dissatisfaction in jobs with no alternatives, because of the widespread impending precariousness of work and the need for flexibility, has resulted in the loosening of the most important ties with family, friends and fellow-citizens. The reduction of free time might even cease to seem a problem, since what else can one do besides shopping and watch the TV invite us to buy things? Thus, and with the concurrent influence of numerous influences, deep communication with others has become impoverished and less frequent. The relationship with oneself has been mediated by things to do, to buy, to contend with, and emotions have become a show and are advertised as "intimate" in TV programmes followed by millions of people.

Now that the bubble of the economic-financial folly due to limitless greed has burst at global level, bringing about poverty and envisaging serious scenarios of unemployment and crisis, alongside "new" types of poverty, emotional poverty is also emerging: a poverty of relationships and of emotions, with the consequence of creating a relapse into illiteracy of thought, of living, of expression and of understanding one's own and others' emotions.

Indifference, which was seen before as a kind of protection for one's own emotional sphere, a healthy distancing from the too many problems reaching us from a globalised world, shows now it's mainly anaesthetic function; but to learn how to avoid suffering from others' suffering means also to unlearn how to feel one's own suffering as well as one's own joy – it is like inhabiting a hyperbaric space where thoughts and emotions do not find a communication channel, unless in terms of poor, dry illiteracy.

The A, B, C of emotions and the stages to conquering-building it

Attributing great relevance to emotional literacy does not represent a point of arrival, but the starting point of a reflexive route allowing educators or those dealing with

education issues to learn (a little, at least) to be acquainted with their own knowing, with their feelings, their ways of communication.

Let us assume that there is shared awareness of the fact that those who educate should have acquired and should continue to acquire specific and general knowledge, together with a series of methodological and didactic competences, all throughout their lives. We also know that this is not enough, because educators act and influence their interlocutors for bad and for good, even and above all through the-body-they-are; through their thoughts and the emotions they can censure not only with words, but with non-verbal communication. It is precisely the extremely large and articulated gamut of non-verbal communication that channels the intricate web of thoughts and emotions – that is, the expectations, the evaluations, sympathy or antipathy, excitement or boredom and much more – informing and connoting the educational context which children and youths experience and will remember over time.

More than words (except for some that are particularly rich in meaning) they will remember a look in the eyes or a non-look; a smiling or a serious, strict face; a warm, encouraging tone of voice or a cold, monotonous, dejected one; the posture, the softness or stiffness of bodies sharing their spaces or entrenched in the distance of a teacher's desk or of a blackboard… And those experiences and memories will have contributed to building their personalities and their self-representation in more or less acceptant ways, to creating or not the ability to establish authentic and deep relationships, which is no small issue! Luckily I have not heard teachers saying anymore that their task is to teach history and maths and that emotions are a separate chapter belonging to their personal life which should be kept well apart from the school context; however, I often hear teachers repeat that nowadays, because of the poor working conditions and scarce salaries and problematic and heterogeneous classes with lots of foreign pupils in addition, they cannot afford to deal with their own and their pupils' emotions. These are situations where it seems that the pedagogist is presenting "an extra task" to someone who is objectively encumbered by excessive tasks and commitments, without getting adequate recognition and gratification, but I will try to explain how an "extra task" can help carry out "obliged" tasks and improve their results. Let us see how and through which path.

Learning to know our emotions, which I would propose as a first stage, means first of all learning to pay attention to our system of thoughts, convictions, and values; to see the connections among them and what makes them "founding and decisive" for our emotional processes, as I was saying in the light of Nico Frijda's theories. In other words, we need to understand in the first place that the emotions we are "able" or "unable" to feel, the ones we see as "good and appropriate" or "bad and illicit" depend on our cognitive, ethical, cultural benchmarks: it would be useless to work

on them without being aware of the overall *Weltanshauung* orienting, legitimating or forbidding them.
Learning to "call emotions by their names", the second stage of our itinerary towards literacy, requires the ability to distinguish different emotions, even those which are extremely close to one another, and to gain access to the complexity of our feelings, without trying to simplify or purify them, accepting contradictions, grey areas and negative aspects. Without their names, our emotions would represent something opaque and confusing, inhabiting us like an unknown and mysterious guest living in our house and keeping us in a state of alert because of our inability to understand and predict his behaviour: the temptation to keep him under control, even locked up in a separate room, is perfectly understandable.
Learning to relate to one's emotions, at this point (third stage), requires practising reflexivity and self-reflexivity, that is, making an analysis and a reflection through which we ask questions about and weave back the web of our history[4], identifying the chain of emotions we feel, imagining experimental routes towards change: the change of one's emotions in some cases or of interpersonal relationships, of role plays and reciprocal representations we share with others, even stepping – when necessary – on the grounds of conflict.
If rulers really, and not just rhetorically, cared for education institutions and adult, youth and child development, a commitment would be made in this direction with regular in-service training interventions; those who decide to devote themselves to education in various ways need to recognise the need, for those roles and functions to have not just the technical competence of knowledge and methodology, but also competency based on maturity and human richness. Only such commitment will generate a "wisdom" of emotions, in the double sense we are now going to see, which is precious, to carry out more effectively not "extra tasks", but "obliged tasks".

The Wisdom of Emotions: "to know" emotions; what emotions "know"

To know emotions, then, is to avoid deceiving oneself, to avoid shutting out one's existing spaces of opportunity, to receive the wealth of information they give us about our biography, our projects, our dreams but, also, to avoid forcing others inside the repertoires of our cognitive-emotional fixedness. To avoid projecting on them the "ghosts" of our interior monologue, to approach their threshold through empathy exercises[5], with "lenses" allowing us to understand the meaning of others' emotions, not some emotions of ours we would risk superimposing or substituting for theirs, with the intention of putting ourselves in the others' shoes.
I am thinking about teachers and parents in trouble with their "difficult" pupils and children: how much less effort in their day-to-day, if the problems due to one's

experience of inadequacy, of feared and self-censured aggressiveness, of accumulation of negative ill-processed life experiences did not add up to the problems of their educational interlocutors! To know emotions means, besides what has been already mentioned, to accept having "bad" emotions too, thus allowing them in children and pupils without demonizing them, without feeling or making others feel guilty about them. It means also that, having acquired emotional literacy, one is able to teach it: through the eyes, by listening and saying words that "open" meeting spaces, and through ways of communicating and operational practices that allow pupils to learn to grow up and know. But, in what ways, how to do that "concretely"? At this point teachers-educators ask with their eyes before voicing it, with a lot of curiosity and, sometimes, as kind of a challenge to the scholar-researcher.

Simplifying a bit and synthesising a lot, and referring to other research and studies, I give the outline of three possible routes, which adults, after learning and experimenting with them (within the desired lifelong training I was mentioning), could implement at school, in education centres, in the family:

- foster and encourage an "emotional apprenticeship" through reading stories and watching films: in both cases, emotions are narrated so that they create identification and empathy; children, teenagers, young people learn to know and practise emotions "as if" they were their own, while "as if" reassures and protects them from excessively challenging impacts and gets them ready to live emotions personally, when they appear and enables them to learn to involve their own experiences;
- create, alternating the previous activity, group activities where children, teenagers and young people tell about things and about themselves (orally and in writing); they can learn to call their emotions by their names, to listen to and accept others' emotions, to find out how much their own and others' emotions can be similar or different and how all emotions have the right to be expressed and heard;
- educate to conflict, that is, to accept that in a communication that is rich of thoughts and emotions it is possible that conflicts may arise (that people think, feel, desire, plan in different and divergent ways), without necessarily having violence, oppression, hostility. Educating emotions means, then, educating to put them into words, make them a discourse to be shared with others even when there is strongly disagreement, accepting that emotions – even the most negative ones – are there and have the right to be there if they are not acted out in destructive or self destructive terms, but are translated into always peaceful and loyal forms of communication.

At this point, when we begin to "know" emotions, emotions can start expressing, in turn, what they "know", enriching our existence with a wisdom that we will be able to discover and decipher.

As studies in neuroscience report, the activation of emotional processes occurs both within neuronal circuitry of the "classic" brain (that is, the one contained in the braincase) and through the so-called chemical "mobile brain", which travels all over the body with its peptides, gathering in particular in the spots that filter bodily information coming from the five senses: sight, hearing, touch, taste and smell. All this confirms what everybody has experimented about so many times, when retrieving for instance Proust-like memories of past and lost times by following a scent or a taste, which, instead of being just pleasant or unpleasant, aroused a sudden, mysterious – joyful or painful – past experience. How many times has it happened to us that we have felt nostalgic "in our stomach" about an ended and (supposedly) forgotten season or love, just because some music we were not even listening to reached us while we were busy doing something else and brought back to us faces and words that had been dear to us, bringing back the "I" we were at the time?
Neuroscience, then, does not announce something new or unknown to our experience, but it can contribute – curiously joining our poets and writers – to make us aware of how much we can learn about ourselves and our history in relation to the world by listening to the emotions our bodies tell us, by agreeing to get back to the "emotional" places of our souls which memory has in store for us, so that one's identity can recognise itself as both one and plural and relate to differences, one's own and those of others, with interest and acceptance. Perhaps, if we recognise emotions as wise, we will stop undervaluing them, even those belonging to childhood. We will then break the chain which traditionally sees us as victims when we are children and oppressors towards children when we are adults, thus condemning us and them to remove and anesthetise the emotional world as much as possible, in order to suffer a little bit less. Perhaps, we will even manage to take care of emotions in educational terms: allowing them to express themselves, to grow up and change, to become words that create bonds.

SELF-REGULATED LEARNING AND TALENTED STUDENTS

Anastasia Efklides

Introduction

The identification of gifted or talented[6] students goes back to the beginnings of the measurement of human abilities. These are children or students with exceptional or superior intellectual or academic ability, or ability in a specific domain such as arts, sports, or creativity. Their ability promises high achievement, that is, provides the potential for unique and valuable contributions in the domain in which they excel (Martinson, 1973). However, this potential may not flourish unless it is nurtured. Specifically, talented students may have difficulties in school, even in college (Conejeros-Solar & Gómez-Arizage, 2015; Salmela & Määtta, 2015) and may face socioemotional problems (Preckel, Baudson, Krolak-Schwerdt, & Glock, 2015). For this reason, they are considered as a "population with special needs" that the educational system needs to address. Thus, many different types of educational programs have been developed all over the world ranging from gifted schools that provide a full-time curriculum adjusted to the needs of the talented to one-day off the regular school, special classes within a regular school, enrichment in classroom, acceleration, etc. (Gubbels, Segers, & Verhoeven, 2014). In recent years, besides research on educational reforms that foster giftedness, there is growing interest in motivational and affective characteristics of talented students that have implications for their learning and well-being (e.g., Al-Dhamit & Kreishan, 2016; Hong & Aqui, 2004; Obergriesser & Stoeger, 2015). One topic gaining prominence is Self-Regulated Learning (SRL) (e.g., Sontag & Stoeger, 2015). SRL means that the students have the motivation and will to pursue valuable personal learning goals.

SRL is important because excellence in a domain of expertise requires extensive deliberate practice. As Ericksson, Krampe, and Tesch-Römer (1993) showed, talent by itself does not guarantee excellence. It is deliberate practice that breeds talent and excellence as the rule of 10,000 hours suggests. When Erickson et al. measured the hours spent on deliberate practice for achieving high level performance the best performers in their domain spent over the years about 10,000 hours more practicing than their less successful peers. Deliberate practice is goal-directed, that is, it aims

at the optimization of performance, extends over many years, and is not inherently pleasant (Ericksson et al., 1993). This kind of practice requires commitment to one's goal, planning, effort and persistence over time, monitoring of cognition and performance during learning, use of control processes (e.g., strategies), and evaluation of the progress achieved. Progress is judged vis-à-vis standards of excellence that may exceed the available knowledge in one's field (see Ericksson et al., 1993). Stated in another way, deliberate practice for excellence makes it imperative that the student self-regulate their own learning. SRL entails that practice originates from one's self, is in harmony with one's talents and priorities, and is effectively monitored and controlled to achieve one's goals.

The question is whether gifted students self-regulate their learning spontaneously and if interventions to support SRL strategies improve performance and student well-being. There is no doubt that high achieving talented students with the support of teachers, parents and peers learn how to self-regulate their behaviour, and their progress is associated with positive affect, enjoyment of their work, and psychological well-being. However, there is also a percentage of gifted underachieving students that ranges from 15-50% who perform significantly below their potential (Morisano & Shore, 2010). Underachievement can be the outcome of low self-concept, low motivation or negative emotions such as high anxiety or boredom. However, it may also be associated with low use of self-regulation strategies (Obergriesser & Stoeger, 2015). For example, gifted students often complain that they have difficulty in time management and study habits (Conejeros-Solar & Gómez-Arizaga, 2015). Therefore, SRL needs to be cultivated in both gifted achievers and underachievers.

In what follows I shall, firstly, present characteristics of talented students and problems they may face. I shall also give examples of situations that are indicative of SRL, or lack of it, to make clear the actual conditions and behaviours talented students may manifest in the classroom. Then I shall present the conceptual framework of SRL and an example of SRL intervention implemented for gifted students. Thirdly, I shall point out challenges for SRL interventions in gifted students. Specifically, my claim is that SRL can be improved not only through (meta)cognitive strategy use but also through changes in motivational and affective components of SRL as well.

Characteristics of talented students

Gifted or talented students represent the top 1% to 3% of ability distribution in intellectual performance or academic achievement (Martinson, 1973). Compared to their peers they learn new material more easily, and in less time, think at a more abstract level, become passionately involved in a topic they like until they have mastered it, and can direct their attention to various activities simultaneously (Winebrenner, 2000).

They also outperform grade-level students in cognitive strategy use (Greene, Moos, Azevedo, & Winters, 2008; Muis-Broaddus, 1995), although not in SRL strategies (Ablard & Lipschwultz, 1998).

However, talented students may face difficulties in learning. The difficulties may originate from themselves – for example, when they have multiple interests and need to manage the time to be afforded to each of them (Conejeros-Solar & Gómez-Arizaga, 2015; Salmela & Määtta, 2015). A personality characteristic they also develop and which may have negative repercussions for performance is perfectionism. Perfectionism is related to awareness of discrepancy between one's current performance and the desired one. It motivates effort to achieve high standards. Perfectionism can be adaptive when it is self-oriented and propels effort that facilitates quality performance. However, it can be maladaptive when it is socially or externally prescribed. In such a case awareness of discrepancy from the standards imposed by others leads to negative emotions and ultimately to performance avoidance (see Margot & Rinn, 2016; Nguygen & Deci, 2016). Passion with the object of their talent is another characteristic of talented students. Passion is a strong and enduring emotional response that keeps the student engaged with the object of passion as much as possible at a cost of other activities. Harmonious passion develops autonomously, as the student participates in the activities related to their talent. The activity gets integrated into the student's identity and participation in it gives joy and emotional release. Obsessive passion, on the other hand, although it pushes the person to be involved with the valued activity as much as possible, is externally controlled (i.e., one feels "obliged" to do it) and associated with maladaptive outcomes and less well-being (Fredricks, Alfeld, & Eccles, 2010; Schellenberg & Bailis, 2015). Finally, boredom is often reported by gifted students when there is not sufficient challenge in the classroom (Kitsantas, Bland, & Chirinos, 2017).

Talented students may also face problems caused by their parents' or teachers' expectations and pressure for high performance. Pressure to study, practice and continuously compete with others promotes external regulation that undermines student autonomy and enjoyment of what they do (Deci & Ryan, 1985). It also changes the nature of their motivation from mastery goals that aim at learning and self-improvement to performance ones, particularly performance-avoidance goals. The latter aim at social comparison and demonstration of competence or avoiding demonstration of incompetence. Unlike mastery goals that are associated with positive affect, performance goals (mainly the avoidance type) are associated with anxiety (Elliot, 1999). Moreover, pressure for long practice leaves talented students with little free time to spend with their peers or pursue other interests they may have. For example, intellectually talented students often do not know from the beginning which domain they would like to specialize in because they are good in all school subjects. It takes

time and opportunities for experimenting with different activities until they find the field they would like to focus on. Finally, they may face socioemotional problems due to bullying by peers (e.g., they call them "herbs") or lack of appreciation by teachers (e.g., Kitsantas et al., 2017).

These problems are remedied to a certain extent by educational interventions such as gifted classes or other programs that serve their needs. As Kitsantas et al. (2017) showed, based on student interviews, programs for gifted pupils have many advantages for both elementary and high school students. Specifically, elementary school students emphasize the benefits in peer relations, feelings of belonging and safety as well as experiences of positive emotions. However, they also complain about high amounts of homework and school work, and high teacher expectations. In high school gifted students appreciate the fact that they have good curricula and teachers as well as opportunities for advancing their interests, knowledge, understanding, and performance. They also feel that their motivation is increasing because they can follow their interests. Furthermore, they can self-regulate their learning. From a socioemotional point of view, the benefits include opportunities for personal growth and increased self-confidence. However, ranking among high ability students and increased competition may be detrimental to their self-concept of ability and undermine their self-confidence.

Summing up, talented students have potential for high achievement, but this potential may not always be realised. There are various sorts of problems that they face which may obstruct their course to successful learning and adaptive socioemotional behaviour. Self-regulation of learning but also of their emotions and social behaviour is highly important so that they can maintain psychological well-being and become integrated members of the broader social environment.

Examples of behaviors of talented students in the classroom

The above description of advantages or disadvantages of gifted classes represent students' perceptions rather than actual behaviours one could observe in the classroom. In the following I shall give examples of situations that talented students encounter in the classroom (gifted or regular school) and ways in which they respond to them. Teachers are familiar with such situations. I use the examples, however, to make evident the role of affect in learning and various forms of self-regulation talented students use in the classroom. Particularly important is the interaction of affect with metacognition, which is a critical characteristic of the self-regulation process (Efklides, 2011, 2016; Efklides, Schwartz, & Brown, 2018).

The term "affect" is used to denote emotions, mood, passions, attitudes, etc. The term "metacognition" denotes the monitoring and control of cognition (Flavell, 1979;

Efklides, 2008). However, metacognition takes various forms, such as metacognitive knowledge and metacognitive experiences that represent the monitoring function of metacognition, and metacognitive skills, that represent the control function. Metacognitive knowledge is declarative knowledge. It comprises beliefs or theories one has about (a) the mind and cognitive functions such as memory, learning, etc.; (b) people – including one's self – (e.g., I am good in mathematics not in language), (c) strategies used in various occasions (e.g., how to write a summary), and (d) tasks (e.g., which math tasks are easy or difficult; Efklides & Vlachopoulos, 2012). Metacognitive experiences constitute what the person is aware of about cognitive processing as it takes place. For example, that processing runs fluently or has interruptions that require attention to be allocated to them to restore processing. Metacognitive experiences comprise feelings such as feeling of familiarity, feeling of difficulty, feeling of confidence, etc., and judgments such as judgment of learning (JOL), that is, what is the probability to learn or remember something. Metacognitive skills are procedural knowledge, namely strategies that direct cognition (e.g., orientation, planning) and check the execution (e.g., if the plan was carried out correctly or needs revision) and the outcome of processing (e.g., if it is correct or according to the standards posed). The interactions between affect and metacognition are evident in metacognitive experiences and their role is to facilitate allocation of attention, effort expenditure and control decisions. The control decisions may regard the application of metacognitive skills to regulate cognition or regulation of emotions and effort (Efklides, 2016; Efklides et al., 2018). The following examples show how this is done.

1. Philip is a talented student. He is in good mood (affect) because he likes the course he is attending. He judges the lesson taught as easy to learn (metacognitive judgment) compared to one he does not like and gets engaged in classroom activities. In this case positive affect impacts the judgment of learning, and based on it, the student decides to invest effort in the task.
2. Emma is very proficient in mathematics. She does the classroom exercises quickly and feels confident (metacognitive experience) her response is correct. The teacher advises her to check the response and evaluate its correctness, because in this way she will exercise SRL skills. Emma refuses. In this case confidence (i.e., metacognitive feeling) along with positive affect because Emma fluently carried out the task, inform her that her response is correct. Therefore, she does not need to exercise control processes and apply metacognitive skills such as checking and evaluation.
3. A gifted student, Cindy, is in a regular class and finds the classroom lesson too easy, simplistic (metacognitive judgment) and boring (emotion). However, she likes the teacher (affect) and decides to collaborate with her in carrying out the lesson so that the teacher and the other students can benefit the most from it. Obviously, the

goal set by Cindy in the regulation of her behaviour is not cognitive but social, and this helps her maintain positive affect and a positive attitude towards school and its activities.

4. On the contrary, Nick is gifted in mathematics and more advanced in the concepts of a course than his fellow-students and even the teacher. He judges the teacher's ideas as incorrect (metacognitive judgment) and tries to intervene to show the correct response. This causes frustration (negative affect) to both the teacher and Nick, who decides that school is not worth attending or investing in and adopts a critical stance. The teacher complains that Nick is cynical and creating problems in the classroom all the time.

5. An exceptionally able student, Tony, keeps asking the teacher questions in private and discusses ideas about the content of the lesson because he wants to know more about it (metacognitive judgment of not knowing something important). This is often the case with talented students who develop personal interests, are curious (emotion) about new ideas and phenomena and want to talk about their activities. They also "use" the teacher as a guide to the exploration of new concepts. However, Tony also realises that his interests do not necessarily coincide with those of his classmates, and therefore seeks the information he needs in private. He self-regulates his learning and seeks help to develop his talent. The teacher assumes the role of a mentor who shares with the student the enthusiasm for his field of expertise, his knowledge as well as his metacognitive knowledge in order to master the challenges encountered.

The above examples represent only few of the behaviours talented students may exhibit in the classroom. They show that talented students are aware of their ability but the direction in which they will self-regulate their behaviour or learning varies depending on the environment and the situation in which they find themselves in. Their metacognitive experiences and affect form the basis for control decisions and the self-regulation processes they will use. Self-regulated learning makes use of metacognitive skills for the regulation of cognition but SRL also involves motivation and affect that provide the energy for and direction of SRL.

Conceptualization of SRL

SRL is a process that characterises successful and autonomous learning (Deci & Ryan, 1985). According to Zimmerman, the pioneer in SRL Theory (1998; see also Zimmerman, 2008), there are three phases in an SRL cycle. The Forethought phase, in which students set their learning goals and plan their action according to their motivational orientations. In the Performance/Volitional control phase students apply their plans and carry out the decisions already made at the Forethought phase. They use cognitive strategies as well as metacognitive skills such as monitoring their

progress and checking the execution of their plans. In this phase, students also make control decisions about the effort to be invested and the strategies to be applied when processing fails. When processing is concluded, the next phase of SRL starts. It is the Self-Reflection phase in which students evaluate their learning outcomes vis-à-vis the goal set, reflect on the process and make judgements about the reasons that led to success or failure. These reflections pave the way for the next SRL cycle.

Zimmerman's cyclic model stresses the role of motivation in goal setting (e.g., achievement goals). The cyclic model also admits the presence of emotions mainly in the Self-Reflection phase. However, it does not elaborate on the effects of motivation and affect in the three SRL phases. Other models of SRL (e.g., Pintrich, 2000) discuss the importance of motivation for effort and persistence in learning. For example, students with mastery goals want to increase their competence. They are willing to exert effort because they want to master the task and feel confident that they can manage it. On the contrary, performance-oriented students are interested in the outcome of learning (e.g., grade received) and social comparison. They do not wish to invest much effort on learning tasks because this would be indicative of lack of ability (Elliot, 1999). Furthermore, Pintrich (2000) stresses not only metacognitive regulation but also behaviour regulation such as organisational strategies that help manage one's work environment to foster learning (e.g., create an environment that facilitates concentration on the work done).

Besides motivation, there are many different emotions felt before, during, or after task processing (Pekrun, 2006) that impact on SRL. These are emotions that increase involvement with the task (e.g., when one is interested or enjoys the task) or lead to abandoning it (e.g., boredom, hopelessness). Positive affect provides the resources for effort exertion, in the face of metacognitive difficulty, and facilitates wholistic thinking and risk taking that favours creativity (Fredrickson, 1998). Negative affect, on the other hand, when it is not too strong (e.g., anxiety, confusion) facilitates analytical thinking to deal with metacognitive difficulty and task demands. Too strong negative affect, however, leads to withdrawal of effort and abandoning of task processing (see Efklides et al., 2018).

A final point that should be stressed in relation to the cyclic model is that it is a top down model, in the sense that the goal is rationally determined at the Forethought phase, and then it is this goal that controls the ensued task processing. However, being able to analytically evaluate task demands ahead of task processing is a difficult undertaking, particularly for younger students or novices in a domain, who do not have the knowledge and skills to fully analyse task requirements. This endangers the SRL process. Even for experts, metacognitive experiences during task processing such as unexpected feeling of difficulty or observing the time spent on the task –

the more time spent the more difficult the task is deemed – become a cue for the change of cognitive processing. This is a bottom up self-regulation process (Efklides, 2011, 2016) that has implications not only for metacognitive regulation but also for motivation and affect. For example, increased feeling of difficulty may undermine student willingness to work on a task in the future (Efklides et al., 2018; Finn, 2010).
To sum up, SRL is a more complex process than originally perceived. As Efklides (2011, 2016; Efklides et al., 2018) posited SRL is a dynamic process that involves the learning task and situational factors as well as cognitive and metacognitive skills, motivation and affect. These components interact with each other. For example, one may start working on a task because it looks interesting (emotion), but soon afterwards decide that it is not worth pursuing it further, because it is very easy (metacognitive judgment). Also, regulation of behaviour can be top down or bottom up. For example, when writing an essay, one may proceed by formulating the goal and planning the presentation of the arguments that support it. However, often there is no clearly conceived goal at the beginning; the student may write down in a random order the arguments that are relevant and then decide on the goal and the structuring of the text. This is a bottom up process of self-regulation of writing.
To conclude, SRL is a demanding process because it presupposes the coordination and orchestration of diverse components of the cognitive and affective domain. To engage in such a demanding endeavour the student needs to have knowledge and cognitive/metacognitive skills but also motivation (e.g., reasons for getting involved and exerting effort) and emotions that support engagement with learning tasks (e.g., enjoyment, hope, curiosity). To become involved in classroom activities students also need challenge as denoted by metacognitive experiences such as feeling of difficulty, or emotions such as anxiety, confusion, etc. One also needs to be able to regulate emotions to remain focused on task processing, particularly when it is boring or very difficult. Regulation of negative affect is critical for freeing resources to be invested on deliberate practice or pursuit of high performance standards. Finally, students need to manage the environment so that it prevents distraction from one's main goal.

SRL interventions

To prevent underachievement and increase performance level in all gifted students Stoeger, Fleischman, and Obergriesser (2015) successfully applied interventions aiming to cultivate SRL in young gifted students. The intervention was organized in seven steps. The intervention focused on cognitive and metacognitive strategy use along with strategies focusing on environment organisation that prevents distraction and supports time management. Following Zimmerman's cyclic model (Zimmerman & Martinez-Pons, 1990), the strategies were organized in terms of the three basic phases

of SRL, namely Forethought, Performance/Volitional Control, and Self-Reflection. Specifically, for the Forethought phase students were instructed to use self-assessment, goal setting, and strategic planning. For the Performance phase students learnt how to implement cognitive and metacognitive strategies, monitor if the execution of the strategies was correct, and adjust their application when needed. For the Self-Reflection phase students learnt to evaluate the outcome of the regulation of their learning. To ensure that students would make best use of self-regulation they were firstly taught ecological learning strategies such as avoiding of distraction, organization of their desk and time management. To generalize the SRL strategy use in different courses, students had training in math and reading comprehension, had many opportunities to practice both in school and at home with tasks of increasing demands, and made explicit connections between learning behaviours and performance. Furthermore, teachers were specifically trained on the principles and application of the program to support students in the transfer of the trained strategies.

The intervention had beneficial effects for both gifted achievers and underachievers, although the latter needed more time to generalize the strategies and show the beneficial effects for their performance. This suggests that underachievers might have other deficits, for example, in motivation or affect, that prevented them from benefitting from the SRL intervention. Van der Muelen et al. (2014), who studied gifted children at risk for underachievement and socioemotional problems, found small but positive effects in scholastic competence, affect and behavioural conduct when they attended a pullout program for a day a week. This is a promising finding but interventions to modify gifted students' motivation or affective/socioemotional problems are sparse and have not associated the strategies trained with SRL and its demands (see also Peters, Grager-Loidl, & Supples, 2000, for a review of interventions aiming at various factors that may be associated with underachievement).

However, because metacognition interacts with affect, a challenge for SRL interventions is how to capitalize on these interactions. Two interventions on young students, who were not gifted, trained them to monitor and control their emotions during math problem solving (Tzohar-Rozen & Kramarski, 2013) and their self-related metacognitive experiences (Gidalevich & Kramarski, 2017). The interventions had positive effects on math performance. This implies that there is need for a more integrated theoretical framework of SRL that would inform interventions that would address both affect and metacognition along with situational factors. What is important to note is that teachers need to encourage SRL to increase the accuracy of metacognitive monitoring and control as well as motivation and affect.

To sum up, teaching talented students is a challenge for teachers in regular classrooms but also for teachers in specialised gifted programs. SRL can be beneficial for all

students but even more so for talented students already in elementary school to prevent underachievement.

Conclusions

This article aimed at showing that SRL is valuable for learning, particularly for talented students who have the potential to achieve high levels of skill in their domain of giftedness. SRL acquisition is a long process and may be discovered by students themselves as they come across the demands of intensive training. However, not all talented students can achieve such a level of control over their learning because often they rely on impulsive strategies that lead to the solution of problems without the need for analytical thinking and conscious control over the course of their thinking or behaviour. Thus, they rely on bottom up rather than on the demanding in resources top-down regulation. Moreover, they face socioemotional problems whenever teachers, parents or peers do not realize their needs. To balance between conflicting demands, talented students need to self-regulate not only their learning but also their emotions and their behaviour in a broader social context. In this effort, gifted students can benefit from interventions that aim at raising the students' level of self-efficacy, self-esteem, motivation, and setting of own goals. Also needed is the elevating of general psychological well-being along with the exercise of metacognitive and study skills as well as environmental/organisational strategies that improve work efficiency.

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THE REFLECTIVE COMPETENCE AS A FORMATIVE GAIN

Jane Valletta

The profound changes in our new contemporary society, mainly due to the acceleration of acquisition systems of knowledge, have determined a great need to revise traditional educational models that respond to a concept of static knowledge[7].
An urgent need is arising to build models of "effective" training actions, in the perspective of a knowledge society in which "knowledge workers" effectively perform roles that can ensure economic growth, development, employment and quality of life.
Dealing with teacher training provides the opportunity to benefit twice over the asset which "human capital" represents, aimed at achieving both social progress and global development through that investment[8].
The category of reflection is fundamental in both initial and in-service teacher training and it is extremely relevant in the perspective of a competent and reflexive teaching practice, which aims at improving quality and fostering innovation in the didactic activity[9].
Thus, reflection can be an important, if not *the most* important pedagogical goal. This can happen insofar as it is assumed that thought and critical reflection are:

- intrinsic aims;
- means aimed at reaching high-value formative goals, by helping people both at individual and social level;
- fundamental cognitive competences enabling the development of high–level thought processes;
- essential features of an education project rejecting *a priori* any indoctinating, ideological mass approach.

In short, "critical reflection" fosters the teacher's development and the strengthening of:
– readiness to listen;
– inclination to debate;
– creation-construction of alternative visions of the world;
– suspension of judgement with insufficiency of elements;
– ability to doubt even one's personal beliefs.

To work on critical thinking constitutes an essential formative challenge which is capable of fostering important opportunities of development and growth. This allows teachers to become more and more aware of themselves, of the fact that they are immersed in a specific socio-cultural "humus" and, if necessary, it helps them reconsider their rigid, stereotyped, uncritical ways of action and thought. Our "previous" knowledge – beliefs, attitudes, ideologies, expectations – which is able to orient our actions, can work at the same time "like a real trap for the mind, as it makes it used to habitual and impersonal operations"[10].
On the basis of these assumptions, it becomes possible to formulate research hypotheses and operating models funded on critical-reflective rationality, which opposes a consolidated technological-instrumental tradition[11].
Reflective practice also enables education systems to implement self-revision procedures, as guarantee of their strength and validity.
Finally, it is possible to reshape teacher training policies in a "reflective" way, along both a cognitive and a dialogical direction. On the one hand, it is necessary to try and retrieve the teachers' cognitive, heuristic, dialogical-argumentative potential, recognising them as significant interlocutors for pedagogical research and the political debate, on the basis of the inextricable interrelation between knowledge and action, theory and practice. On the other hand, suitable methodologies should be adopted to promote a reflective dialogue between teachers and students in order to identify ideological assumptions and implications underlying orientations, curricula and programmes, and to enable teachers to analyse, revisit and negotiate those issues. The reflective teacher, who is led to embody the critical type of formative model, does not just give names to real data, but is constantly in search of the reasons behind the facts and gets used as a *forma mentis* to exploring alternative ways of explaining observed phenomena.

It is possible then to identify the "reflective teacher's" profile indicating:
1. the competences that such type of professional must show;
2. some methodological suggestions.

As regards the first point, the competences can be summed up as follows:
- be able to dismantle dominant ideas, to get under the surface of things in order to unveil the ideologies and the power relationships underlying the present moment;
- apply Michel Foucault's principle of analysing the *"visible"*, rather than expect to discover hidden truths;
- escape dominant ideologies;
- recognise myths, usually defined as progressive, lurking inside formative processes;

- dare start new pathways opening up to different visions of the world and diverse educational projects;
- take on responsibility for inducing change in the existing order, so as to contribute to quality life improvement.

(Adapted, reduced and translated from Mortari, L. (2003). *Apprendere dall'esperienza. Il pensare riflessivo nella formazione*, Carocci, Roma p. 67)

As regards the second point, it is possible to hypothesise that in a formative context a dedicated space should be reserved for reflective practice, a kind of lab in *reflective epistemology*, where *reflective teachers* can learn how to apply critical reflection to experience and to the context where this happens.
The aim of a reflective epistemology lab is, basically, to try and bring adult subjects to practise "mindful inquiry", that is, the ability of controlling one's cognitive processes[12], uncovering all the "assumptions" that shape our thought. These assumptions are embedded, part of the cultural context we are in so that they become "invisible like the air we breathe: stock opinions, conventional wisdoms, or common-sense ways of seeing and ordering the world that people take for granted"[13].
This habit of simplifying thoughts also leads us to think that teachers or trainers in general are sort of "neutral experts", without considering that each educating action, when critically analysed, reveals strong political implications. It is necessary to be aware that no educating action is free from the influence of the quality of the present moment, in one way or another. A reflection training inspired by critical pedagogy aspires then to build a reflection laboratory strongly oriented towards the present. To question the present implies asking oneself questions such as: what is happening now? Here? What acts on the present? What processes govern it?
"It would be decisive to be able to think one's own experiential present, that is, contemporaneity, without, for that, being contemporary of one's time, without being confined to currently dominant investigation tools. Instead, it would be important to draw from other cultural spaces and times instruments of analysis enabling us to see the things that remain obscure to those whose hermeneutic process only equipped with tools provided by the current power dynamics"[14].
In order to be "non-contemporary" we do not need to think that we are not under the influence of the present time, since that is our ineludible cultural context; we had rather move our point of view towards different perspectives in order to be able to apply to the present different and diverse interpretations, even if "out of date". Only the rejection of current thinking can ignite a spark of transformation in the present.
A critical reflection on the present is keen to clash with the regulatory model of

contemporary thinking and acting represented by political power.
While criticising the subject, it asks ceaseless questions, aimed at discussing all that is taken for granted. Criticism is less interested in granting knowledge the status of truth, than in practising radical problematisation, where the subject establishes itself as one who reasons through problems.
Radical criticism implies courage, since it is necessary to make an act of "voluntary disobedience" against the existing order and the crystallised forms of culture.
The creation of a reflection laboratory is a highly sensitive and complex operation, which requires the contribution of the *reflective teacher*, as "facilitator of radically critical reflection". Their role consists, in short, in helping students to correctly formulate problems and facilitate a rigorous analysis of experience, avoiding pointing out specific paths and influencing them.
In other words, their task is to try and soften "symbolic crystallisations" wherever they appear, by undermining convictions, beliefs, assumptions and problematising whatever is commonly known and shared.
To sum up, the reflective teacher is characterised by an inclination towards "reflective activity, paired with the ability to listen to the others and be ready to follow unknown paths"[15]. He or she is able to constantly maintain the right level of problematisation, bringing students to engage in the radical questioning of disciplinary and personal reference paradigms.

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METACOGNITION AND INCLUSION: ADVOCATING FOR TARGETED RESEARCH WITH DISADVANTAGED STUDENTS

Rachel Blackmore

In our roles as metacognitive educators, it is necessary to reflect upon the strengths and weaknesses of our teaching, in particular in its efficacy for all of our students. Educational research has consistently found that some groups of students are, for a variety of reasons, less able to achieve educational success. This essay will focus on students who are considered to come from a low socioeconomic (SES) stratum. My aim is to provide an overview of some research and perspectives currently existing within the UK education industry, where metacognition is seen to have some clear benefits for students, but where a specific targeting of these strategies for disadvantaged students still requires further investigation.

The attainment gap

In the UK, the term 'disadvantaged' is used slightly differently depending on the local authority area from which data has been collected and might include measures of socioeconomic status such as looked-after status or recent eligibility for Pupil Premium funding (which is allocated to the school). Disadvantage is also generally identified by eligibility for free school meals (FSM), which is assessed on the parent or carers' eligibility for benefits such as Income Support, income-based Jobseeker's Allowance, support under Part VI of the Immigration and Asylum Act 1999 or Universal Credit (Department for Education 2018).

When publishing statistics on attainment (the Attainment 8 performance measure), the Department for Education compares the grade values attained across an individual student's best eight subjects, five of which must count within the English Baccalaureate (EBacc), including double weighting for English and Maths. For students completing their GCSEs in 2016, those considered to be 'disadvantaged' achieved an average score of 41.2, compared to 50.1 nationally, while FSM students achieved 39.1 (*Table SA1: Average Attainment 8 scores of pupils at the end of key stage 4*, Department for Education 2017).

By measuring progress rather than achievement, a second performance measure (Progress 8) is used to attempt to ameliorate the disparities in achievement that may already exist, for a variety of reasons, at the end of primary school. Even by this measure, however, the average student falling into the disadvantaged category made a third of a grade (-0.38) less progress in five years of secondary school than the national average, while those students eligible for FSM made almost half a grade (-0.46) less progress (*Table SA3: Average Progress 8 scores of pupils at the end of key stage 4*, Department of Education 2017).

These figures show that students who are considered to be disadvantaged not only achieve worse grades on average than those who are not, but also make less progress during their time at secondary school. Even though overall performance of disadvantaged students is improving, the performance of non-disadvantaged students is also improving, resulting in only a slight decrease in the attainment gap. With annual statistics such as these forming a concerning pattern, the UK education system is constantly seeking ways to close these gaps in attainment and progress. Schools are given Pupil Premium funding for each disadvantaged student, but schools make different decisions about how this can best be allocated. In a 2014 report, OFSTED identifies the most common use of the Pupil Premium funding to be paying for 'additional staff, including teachers and teaching assistants' which are then used to provide 'booster classes, reading support or 'raising aspiration' programmes, and to reduce the size of classes' (OFSTED 2014:10). According to this report, the schools which make best use of the funding are those which are flexible and reactive in terms of providing these additional strategies, as well as employing 'learning mentors' and supporting extracurricular activities, to meet the specific needs of students in each yearly cohort.

Research in metacognition and inclusion

What the metacognitive approach allows us – and our students – to do is to recognise that work done in the classroom is not just a moment of structured learning isolated from experience, but a labyrinth to be negotiated towards a broader understanding. Sometimes the understanding is about the subject you are teaching, sometimes it goes well beyond that, but it is crucial to remember that everything within that student's experience is in the classroom with you. In homes where basic needs are the preoccupation, strategies for dealing with the challenges of learning may not often be discussed or developed. For students who have had an upbringing by parents or carers who have had to work long hours, or whose access to cultural capital has been restricted by their socioeconomic status, the opportunity to discuss their own thoughts or feelings, or to evaluate the failure or success of each game or effort, may

not have taken quite the same shape as for a student with more frequently present parents, whose efforts in new enterprises are encouraged because there is an optimism and a wealth of possibility not afforded those who, literally, cannot afford it.

The Education Endowment Foundation (EEF), an independent charity which aims to reduce the attainment gap for disadvantaged students, regularly publishes and funds research which examines the ways in which Pupil Premium funding is spent by schools and evaluates the efficacy and value of the strategies employed. The EEF's most recent *Teaching and Learning Toolkit* (2018a) rates different strategies by their impact, cost and the reliability of research forms the basis for these strategies. Teaching assistants who provide support within a classroom, for example, are identified as 'low impact for high cost, based on limited evidence', while 'aspiration interventions' are gauged to be 'very low or no impact for moderate cost, based on very limited evidence'. In both of these cases, evidence is limited, but where evidence is substantial, schools should take note (one-to-one tuition, such as using teaching assistants for targeted intervention, is judged to be 'moderate impact for high cost, based on extensive evidence'). Using the guidance from the summaries of research provided by the EEF, schools and teachers can decide how best to spend their funding, how to get the best value for money and how to have the greatest impact for the students in question.

Returning to the subject of metacognition as a means to reduce the attainment gap for disadvantaged students, the EEF states that 'metacognition and self-regulation', when effectively employed, can have 'high impact for very low cost, based on extensive research'. If the research does indeed indicate a correlation between the use of metacognitive strategies and the reduction of the attainment gap, metacognition as a teaching and learning strategy should become part of the everyday curriculum within schools.

Within the EEF web page on *Metacognition and Self-Regulation* (2018b), it is claimed that 'teaching [metacognitive and self-regulation] strategies can be particularly effective for low achieving and older pupils', with students making an 'average of seven months' additional progress when compared against national progress figures. It goes on to state that subject specific uses of self-regulatory strategies were found to have large positive impacts, while programmes seeking to improve 'learning-to-learn' skills found progress was increased by two months on average and, most importantly, 'for three of these programmes there were indications that they were particularly beneficial for pupils from low income families'.

While metacognition can be shown to have positive effects for students, further research is necessary to target these areas in which disadvantaged students may derive additional benefits. One study specifically mentioned by the EEF for accelerating writing development by nine months on average, states in its own report that,

when comparing the seemingly disproportional positive acceleration of writing development in FSM students, that there is a 'high likelihood that the difference is simply due to chance' (Torgerson et al 2014). There is, however, also evidence to support the idea that socioeconomic status has a significant impact on the student's ability to use metacognitive strategies and self-regulation. Callan et al (2017), found that 'family SES had a statistically significantly positive association with all of the learning strategies' showing that 'individuals from wealthier families were more likely to use each of the strategies compared with those from less economically advantaged backgrounds'. As an example, Torgerson et al. were able to show gains for students using self-regulation (which is a very positive result!), but it is still necessary to employ specific intervention to target the attainment gap and to allow disadvantaged students to "catch up" in their self-regulatory or metacognitive systems.

David Didau, author of the influential teaching blog *The Learning Spy*, uses the analogy of a wood, as a problem being negotiated by 'novices and experts' (2013), to elucidate what metacognition can bring to all students. A novice 'immediately plunges into the wood and begins looking carefully and intently at the trees', meaning that they focus on detail without thinking about the structure, or analysing which is the best approach to solve the problem. Novices 'become frustrated and even perhaps actually averse' as they are unable to solve the problem through trial and error. This is more likely to be an issue for students who have been socialised to seek out immediate gratification because, in their lives outside school, their needs are less consistently met and their desires often unfulfilled.

By contrast, 'experts' in Didau's wood analogy, try to view the problem from the outside, comparing it to the 'general and specific structures' of other woods in their experience, considering the purpose of the work and the particularly meaningful features of this specific wood; experts 'deliberately employ meta-cognition'. Again, this further disadvantages those students who have less cultural capital, those who have been exposed to a less diverse range of challenges and situations. Didau emphasises that metacognition 'must be taught'; strategies which are not innate must be scaffolded and practised, becoming part of the students' processes in each new learning situation so that they may, when confronted with an unfamiliar wood, apply transferable knowledge and skills. Crucial to this, and to the learning experience of disadvantaged students, is the awareness that 'failure ought to be precious to us as a result'; summoning resilience in the face of a seemingly insurmountable task is a conscious metacognitive choice. In a system where a student's success is measured by high-stakes testing, teachers must seek opportunities to provide safe places for failure so that a student may develop their learning strategies by taking risks and taking pride in improvement, rather than in immediate success.

The future of metacognition for disadvantaged students

Further research that attempts to specifically target disadvantaged students is necessary in order to make full use of the strategies which have, so far, been found to be have a positive impact for the whole student population. In the first instance, the nature of learning within the home and within social situations with peers might be compared across socioeconomic strata. If, as Callan et al. seem to suggest, students from wealthier homes are more frequently using metacognitive and self-regulatory strategy, it might be interesting to examine at what point or through what activity the skills are acquired to see if this can be reinforced at school to support students who are less frequently able to acquire or practise these strategies at home. Obviously, it would make sense to try to establish these practices during early years education in a way that can be recognised, scaled and adapted so that it might be utilised in different situations throughout the school life of a student.

Additionally, in the UK setting, the spending of Pupil Premium funding on selective, targeted interventions that incorporate metacognitive strategies may be beneficial. Although one of the benefits cited by the EEF is the relative low cost of metacognitive and self-regulatory strategies to improve achievement compared to greater costs for one-to-one intervention, the long-term gains might be significant if disengaged students are encouraged to take greater responsibility for their own development through reflexive learning systems.

Finally, the relationship between SES and motivation is one which might be further examined and challenged by using metacognition to encourage students to reflect upon their emotive and cognitive responses to challenges they experience within the educational framework and beyond.

In the UK, the rising popularity of metacognitive and self-regulatory strategies within teaching and learning seems to be driven by individual teachers' personal experiences of its efficacy as well as academic findings. Bodies such as the EEF present positive feedback from schools and researchers about how metacognition can positively impact upon achievement, but we should aim higher. Metacognition can influence the individual's approach to many aspects of their lives, increasing critical faculties and encouraging a reflexive approach that maximises the opportunity to learn something from every experience. This is something that every child, every person, should be taught, not only to reduce the attainment gap in education, but to reduce social inequality on a wider scale – and it is our responsibility to pursue this as much as the limited reach of a teacher can allow.

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PART TWO

THE TEACHERS' PROTOCOL

METAMINDS FOR TEACHERS

Claudia Sabatano

The **METAMINDS Teachers' Protocol**, which can be fully accessed on the learning platform contained in the METAMINDS website, consists of five parts: an introduction and four parts according to the four different areas which have been identified by the scientific committee of the partnership at the beginning of the project as relevant aspects for the development of a metacognitive attitude.
In order to fully illustrate the research work that brought to the creation of the training proposal, it is useful to define the four areas in details and present the results of the survey on the areas administered at the beginning of the project to the teachers of the partner institutions.
A brief outline of the Teachers' Protocol will follow, with sample tools from it that can be found in Appendix A.

Area one, **Cognitive Architecture** deals with the fact that each subject involved in a formative itinerary, either teacher or pupil, approaches learning with a series of personal characteristics such as cognitive style, thinking style, type of intelligence, organisation of memory processes, structuring of learning process and ensuing strategies etc. Each of us, then, has got their architecture of the self, of their minds, of their own emotional states and their ways of relating to others. Being aware of that architecture is an essential element for the structuring of future knowledge meta-processes. It is impossible to reach a meta-level awareness of one's knowledge without making this type of analysis on oneself and one's pupils (in the case of teachers). Therefore, using specific tools, this area asks questions such as: "What type of intelligence have I got?" "Which is my thinking style?" "Which memory processes do I activate?" "To what extent do they work?"
The second area is **Self-Reporting**. After considering that everyone is more or less clearly aware of their cognitive architecture, we can add that each one has a personal narration about oneself and one's professional experience. With teachers, for instance, the habit of telling about one's school life and about one's difficulties with pupils is a commonly shared and widespread practice. But pupils too, in their relationship with their friends and their families, usually tell what happens in their own learning environment. In other words, telling about one's learning or teaching story constitutes

a first step, a prerequisite to help reflection produce effective behaviours. In this seminal phase, it is simply a restitution, a narration. That is an important element, though, as according to pedagogical literature self-narrating in an explicit, although informal way is a tool which directs towards a meta-level process of knowledge.

Area three is **Emotions in Knowledge**. Why emotions in knowledge? With that label we do not want to reason on the undeniable fact that every relation process, and especially the teacher-pupil relationship implies a really strong emotional involvement, calling in at once a multi-fold, complex and ever-evolving range of emotional states. We want to point out to something more here: the fact that emotions can build knowledge. Emotions are tools for knowledge and they are, above all, meta-knowledge tools. You cannot think of starting actions leading to learning-to-learn or self-awareness, unless you keep in close contact with and can fully master the emotions to serve knowledge processes. Emotions not as obstacles to learning, which is very often what happens, but emotions as a spring board, to lead the way towards learning.

The fourth area concerns **Meta-reflexive Strategies**. Strategies are an essential element as European documents have repeatedly underlined. Learning-to-learn, as defined both the 2006 EU document, and in the 2007 following Italian ministerial decree becomes essential in our complex society, which Bauman calls liquid society, and Aldo Masullo calls "grainy" society, that is, problematic, made of knots. In our type of society, we cannot build learning devoid of strategies to support learning itself. So, any type of teaching practice, even the most effective one, should be guided by the idea that it is necessary to transmit not just disciplinary and transdisciplinary contents, but also, and most of all, their inherent strategies. Strategies that teachers must know and master. It is necessarily in the form of know-how, of an effective competence that teachers need to fully possess learning-to learn and transmit it to pupils.

A questionnaire built around the 4 areas was created and distributed to teachers in all the partner schools. The collected results were extremely interesting and quite unexpected. Notwithstanding the country and the education system the teachers belonged to, the questionnaire outputs showed great similarities.

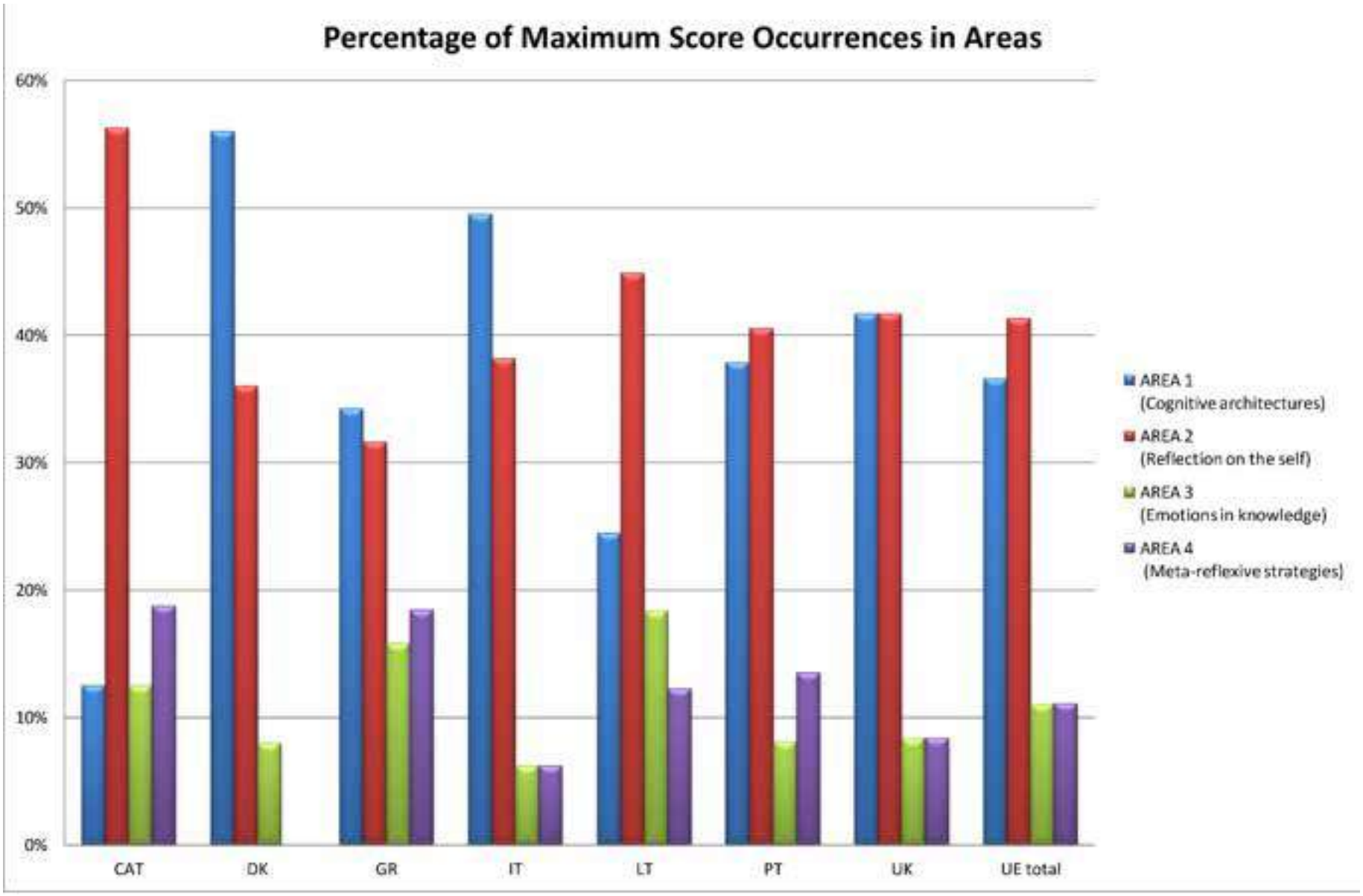


Fig.1 - Areas that showed the highest score in the teachers' questionnaire

In all the partner schools, the results showed that the four areas appeared as if hierarchically ordered in the same way, the same one preceding the following and necessary to the construction of the following. In particular, the first two areas, Cognitive Architectures and Self Reporting were tendentially the best structured for all teachers and in all countries, meaning that all over Europe teachers manage to define and describe somehow their cognitive architecture and possibly those of their pupils and tell about it. The Self Reporting area is therefore very well developed and present. A very interesting fact is that these first two areas presented high score levels, while there was a big drop in the scores of the other two areas, Emotions in Knowledge and Meta-reflexive Strategies. The results indicated a very strong need for training on those areas, as even in countries like Denmark, where the education system has made more progress in promoting learning-to learn didactics, the statistical data showed a decrease in these areas, when compared with the first two areas. To sum up, the first two areas, Cognitive Architectures and Self-Reporting appeared well developed in all the countries, while the next two areas, Emotions in Knowledge and Meta-reflexive Strategies, seemed less present in the teachers' professional itinerary and experience.

The significant fact was that this happened in all the countries, irrespective of local contexts.
Fully responding to the action research requirements, the data obtained through the questionnaire showed which specific training needs the METAMINDS partnership should try to address. It was then decided that the protocol for teachers should be made up of organised materials and tools to be spread, and to be used for assessment and self-assessment to support training in the first two areas, Architectures and Self Reporting, but especially to train teachers in the Emotions in Knowledge and Meta-reflexive Strategies areas.
The following phase of the protocol setting consisted in the identification of contents and activating materials to direct the training process. The Teachers' Protocol was shaped into 5 parts, a general introduction helping to connect one's teaching experience with the main didactic theories that have been developed in the last centuries influencing the way educators approach their profession, and 4 sections corresponding to the 4 above-mentioned areas. It was conceived as a pathway that teachers can follow according to their training needs, starting from the 4 Areas questionnaire[16]. After a detailed explanation of the 4 areas, the introduction presents a general review of the main methodological theories from the 20th and 21st century. A simple test at the end of the introductory section enables teachers to see what theoretical models are behind their teaching.
The training course continues proposing in each of the 4 parts scientific articles, interactive questionnaires, case studies, slides and video presentations developing topics linked to each area.
Each section is introduced by a short video in which representatives from the partner schools present the content of that part.

In part 1 (Cognitive Architectures) teachers can find some of the most useful theories and tools that can help better understand what are the characteristics of teachers and learners' intelligence.
They can take the Multiple intelligence test (Gardner), check the results with the help of the How-to-read-the-test document and do the case-study exercise. They can go through material based on Sternberg studies on Thinking Styles and finish with an interactive web page about memory.

Part 2 (Self-Reporting) deals with self-reflection: a widespread and recurring element in a learning context, and a shared practice within the teaching community. The questionnaires of this area help teachers reflect about the relationship between their personal and professional life, and the factors that can help develop the teacher as "reflective practitioner".

Part 3 (Emotion in Knowledge) explores emotional competence, defined by pedagogical studies as an essential prerequisite for the activation of meta-level processes. In this area, a slide presentation illustrates how emotional factors can influence learning. In addition, a great variety of material is provided to explore how emotion expressed through conflict can affect knowledge acquisition, and more in general, life within a learning community. A video lecture by Mariagrazia Contini, Professor of Pedagogy at Bologna University, illustrates the role of conflict in education.

In Part 4 (Meta-reflexive Strategies) the metacognitive perspective and the meta-reflexive approach are presented as a recurring trait of the enquiry on the learning process. The video presentation by Claudia Sabatano, director of the METAMINDS scientific committee and the video lecture and slide presentations by Anastsia Efklides, Professor Emeritus of Thessaloniki "Aristotle" University illustrate how the educational debate is not interested only in researching best practices to secure knowledge acquisition and consolidation, but also in creating metacognitive attitude and knowledge in the learning subject. The teacher's problem is not just how much, what and when to teach, but also how to help students to build a frame intervening to monitor, assess, organise and control what has been learned.

The course material is not meant to be exhaustive; it is in fact a starting point that will hopefully help teacher pose questions and trigger further investigation, as well as help education professionals gain greater awareness about relevant issues about teaching and learning.

Some of the original tools designed for the Teachers' Protocol are presented in the next pages.

THE TEACHERS' PROTOCOL MATERIALS

A) The 4 areas teacher questionnaire

Considering your experience, indicate to what extent the following statements are true. Use scores 1 to 5 (1 = Very untrue, 2 = Somewhat untrue, 3 = Slightly true 4 = Somewhat true, 5 = True).
Please use the whole range of scores. Note that the questionnaire is anonymous and it is not an assessment tool.

	Statement	Score
1	I reflect on my way of teaching	
2	I know the characteristics of my intelligence	
3	I think it is important for my pupils to be aware of their own ways of learning	
4	I think emotions influence learning	
5	I am aware of the scientific theories on which my way of teaching is based	
6	I adapt my way of teaching to my pupils' emotions	
7	I look back to what happens during my classes	
8	I am aware that pupils can have different types of intelligences	
9	I adapt my way of teaching to my emotions	
10	After reflecting on what happens in the classroom, I alter my behaviour accordingly	
11	I manage to make the best of my pupils' different ways of learning.	
12	During my classes I can always anticipate the exact amount of time I need	
13	I know how to teach my pupils how to manage their emotions.	
14	When I reflect upon my teaching choices, my didactic action becomes more effective	
15	I manage to adapt my way of teaching to my pupils' ways of learning	
16	I always manage to carry out all the activities I have included in my annual working plan	
17	I wonder if there is a "technique" to teach	
18	I believe memory is a fundamental resource for learning	
19	I feel frustrated when confronted with my pupils' learning failures	
20	I ask my students to make predictions about the results of their learning activities, about how long it will take them to complete a task and how much they will have learnt	

How to read the questionnaire

In the grids below each number corresponds to a statement in the questionnaire.
Each grid groups together the questions belonging to the same area.
Add up the scores you have given to the statements belonging to each area and write the sum in the total cell.

Reflection on the self

1	7	10	14	17	**Total**

Cognitive architectures

2	8	11	15	18	**Total**

Emotions in knowledge

4	6	9	13	19	**Total**

Teaching/Learning strategies

3	5	12	16	20	**Total**

How to read the questionnaire results

The 4 areas of the meta-cognitive professional expertise are all part of the configuration of the mind, when considered from a "meta-level" perspective. The 4 areas seem to be organised in a progressive sequence, that is, the first area is a kind of platform on which the following one is based, and so on. In this Russian-doll-like configuration, the last area stems from and feeds upon the other three and, somehow, represents the most accomplished level.

Area 1 is about "Cognitive Architectures". This area includes all the mental processes managing the development of knowledge: perception, learning, memory, intelligence, etc. Those processes, which are connected to and dependent on one another, shape the individual's mind and define it in diverse ways, according to the specific architecture they create. This first level can be considered a basic area for the structuring of meta-reflexive processes. No "meta"-level of knowledge can be built without activating the fundamental cognitive processes that become organised in diversified architectures and different configuration of intelligence. teachers and pupils, the subjects of the learning relationship, interact within the relationship with the specific cognitive characteristics they have from the beginning.

Area 2 of the METAMINDS research is "Reflection on the Self". Each individual can make their cognitive architecture recognisable to themselves and to others and use it as a basis for a reflection on their own cognitive processes. In informal and, even more often, in formal learning contexts, each person has a tendency to reason about their ways of learning, how much time has been necessary for it, what pathways they have taken in order to teach and/or to learn. Everybody shares many considerations: remembering is important, you learn better what you understand well, intelligence is not enough to ensure learning. Sooner or later, everybody will ask themselves questions about the personal and social nature of knowledge. "How is it that there are things I can learn at once, while there are others that I find extremely difficult to learn?" "Why does my classmate study less than me and yet she gets higher marks?" Whoever is involved in a teaching/learning process tries to reason on what happens in the classroom. Teachers, who have to face diverse and very often problematic situations every day, certainly reflect a lot: they go back to what has happened, to the critical moments of the school day; they analyse their own and their pupils' reactions when faced with some kind of misunderstanding or failure, lack of participation or attention. Surely pupils too, especially when they start to grow up, begin to develop reflexive skills that help them critically assess the learning situations they are involved in and their ability to act and react to the requests coming from their learning context. However, because of their age and their role, teachers reflect more than their pupils

and to say it with Donald Schon they are among the most reflective practitioners. They are capable of questioning themselves and they constantly problematise the relationships within the classroom. They also ask themselves questions and exchange opinions with their colleagues and with their pupils too, in order to understand, for instance, the reason of a scholastic failure, the more or less overt lack of interest from one class, or the oppositional attitude of one or more student all reflective, even excessively reflective or, in other words, we are stranded in a way of reasoning that does not always generate effective strategies.

Area 3 is devoted to "Emotions in Knowledge". Pedagogical studies almost unanimously agree that emotional competence is an essential prerequisite for the activation of meta-level processes. António Damásio writes that you need emotions to acquire knowledge, they are fundamental for knowledge because they orient and favour it. Emotions make us understand what we like and what we do not like, what we want and what we do not want to do, which interests are greater and which are marginal. You need to act with a "warm" rather than with a "cool head": if you do not have emotions you do not have any assessment parameters. The interconnection between thought and emotions, as Magda B. Arnold says, means that knowledge does not occur in a neutral way, but it is a process which always implies some kind of evaluation deriving from the emotional sphere. When we see a person, we can say at once if we like them or not; we read a book and we can say at once if it is interesting or not. Knowledge is never disembodied, but always maintains an emotional hue; otherwise, it would not be knowledge. This interweaving has been widely demonstrated by neuroscientists, like Le Deux: according to him neural circuits involving knowledge processes and those involving emotions overlap and even coincide. Recent research and experimental evidence demonstrate not just that emotions have an influence on knowledge, but that it is possible to find a cognitive dimension in the emotional sphere. The acknowledgement of the interweaving relation between emotions and cognitive processes has been developing more and more along with the idea that emotions can have a role of regulation and control over cognitive activity. For example, it has been demonstrated that unforeseen distressing events provoke an emotional state of agitation which can cause an interruption in the cognitive activity: the cognitive schemes adopted in the situation appear as "violated" and the unforeseen elements cannot be assimilated into them [George Mandler]. Moreover, the trigger of the emotional sphere on the cognitive dimension, would largely appear in the meta-control function that emotions exercise on cognitive processes, redistributing cognitive resources and establishing priorities in task execution [Johnson-Laird, Oatley]. Cognitive processes would be regulated by a principle of emotional significance [Channouf, Rouan] according to which highly

emotional stimuli would be capable of modifying the level of perception, by widening the receptivity threshold. Proceeding from the acknowledgement of the emotional sphere as a formative core independent from the cognitive one, it is possible to think about "training for emotions", by creating a form of education intended to invite individuals to know through their feelings [Paolo Orefice], that is, "introducing knowledge through emotions" [Paolo Mottana]. This means that not only should the teacher build knowledge through the usual routes of rationality, but also through approaches that make use of the affective-emotional sphere as an alternative, interactive and co-existing learning channel. Education has in itself a relational-emotional space where intervening subjects bring in different worlds of affect which intermingle among themselves and produce a complex mechanism revolving and combining with the cognitive sphere [Anolli, Ciceri]. However, as the relationship is between those who know more and those who have to learn, those who are more emotionally and culturally mature and those who are growing, trainers and trainees, it expresses the situation of two opposite poles in an unbalanced, uneven position. Therefore, the educator's ability consists in getting in tune with the learner without ever falling in with the learner's cognitive and emotional level. Within this "unbalanced" relationship, through active listening, dialogue and constant comparison the educator should try to channel, manage and direct the emotional drive within this dynamic relationship towards the performance of more and more complex and sophisticated cognitive tasks, thus trying to introduce knowledge through emotions. Thus, the emotional function integrated with rational acting and legitimised as probable origin of mental processes and as meta-level perspective presiding the organisation of the subject's regulatory system is to be recognised as an essential dimension to the cognitive sphere for the development of the individual in a formative context.

Area 4 is related to "Meta reflexive and meta cognitive processes" The different teaching-learning models born from the main psycho-pedagogical paradigms from the 20th century onwards (behaviourism, cognitivism and post-cognitivism) have focused on different aspects of the learning process. From behaviourism comes the attention to the teacher who transmits knowledge; cognitivism, instead, focuses on the learner's mental processes, while the various post-cognitive models (from piagetian constructivism to Bruner's culturalism) have unanimously underlined the relationships between subject-context, subject-cultural frame of reference, learner-trainer. Each approach has concentrated on one of the various aspects of the teaching-learning process that are all fundamental and co-essential to education. There is, however, a common recurring trait in the different above-mentioned models: the meta-level perspective in the analysis of the process of knowledge. There is no knowledge without reflection on knowledge itself, there is no mind that does not think about

itself, as it is illustrated by the METAMINDS logotype. Even if so differently oriented by diverse reference systems, the pedagogical models that have followed and blended into one another have univocally narrated the mind learning as a mind which looks at and asks itself: how to act, what to choose, why it wants to learn that thing and not the other thing, why it thought it had understood and it was not true, how it is that a task which had been imagined as difficult is, in fact, easy.... The metacognitive perspective and the meta-reflexive approach are a recurring trait of the enquiry on the learning process. The educational debate is not interested only in researching best practices to secure knowledge acquisition and consolidation, but also in creating metacognitive attitude and knowledge in the learning subject [Cornoldi]. The teacher's problem is not just how much, what and when to teach, but also how to help students to build a frame intervening to monitor, assess, organise and control what has been learned. Pupils who know a lot of things, but do not know that they know them, are not able to evaluate themselves or cannot organise their work, will not be able to transform their knowledge in competences. A well shaped and not a very full head, as Morin would say, is what the METAMINDS research is trying to foster: a mind which looks at itself and knows its own characteristics (area1), which talks and reflects about itself (area 2), which exploits emotions as springboard to knowledge (area 3), which is able to assess and strategically organise its learning (area 4).

B) What type of teacher am i?

Metacognitive exercise on the implicit models of the teaching/learning process

Express your personal idea of what teaching is (without reference to the specific teaching models you may have studied or experienced) by ticking the boxes near the statements you most agree with in the list below.

In my opinion teaching is:

- Learning habits
- Sequences of instructions allowing to organise strategies
- Organisation of metacognitive strategies
- Conditioning and practice
- Explaining and understanding
- Cooperative learning and socialising
- Preparation aimed at reinforcement
- Finely-tuned and task-oriented preparation
- Distributed, mediated, shared knowledge
- Monitoring and assessing learning
- In-progress revision of teaching
- Preparation aimed at reflection
- Class control through signals
- Linguistic organisation
- Linguistic mediation and discursive practice
- Didactic planning with specific objectives
- Cumulative transmission of knowledge
- Active construction of knowledge

Draw the education process in the box below in a simple and schematic way.

Describe the education process in the box below in a simple and schematic way.

How to read the questionnaire

The former questionnaire is made up of two parts: choosing statements, which is a declarative, more explicit way of assessing one's teaching approach, and drawing a sketch of the teaching/learning relationship, a more spontaneous task usually revealing the implicit model adopted by the teacher.

Part 1

1	Learning habits
2	Sequences of instructions allowing to organise strategies
3	Organisation of metacognitive strategies
4	Conditioning and practice
5	Explaining and understanding
6	Cooperative learning and socialising
7	Preparation aimed at reinforcement
8	Finely-tuned and task-oriented preparation
9	Distributed, mediated, shared knowledge
10	Monitoring and assessing learning
11	In-progress revision of teaching
12	Preparation aimed at reflection
13	Class control through signals
14	Linguistic organisation
15	Linguistic mediation and discursive practice
16	Didactic planning with specific objectives
17	Cumulative transmission of knowledge
18	Active construction of knowledge

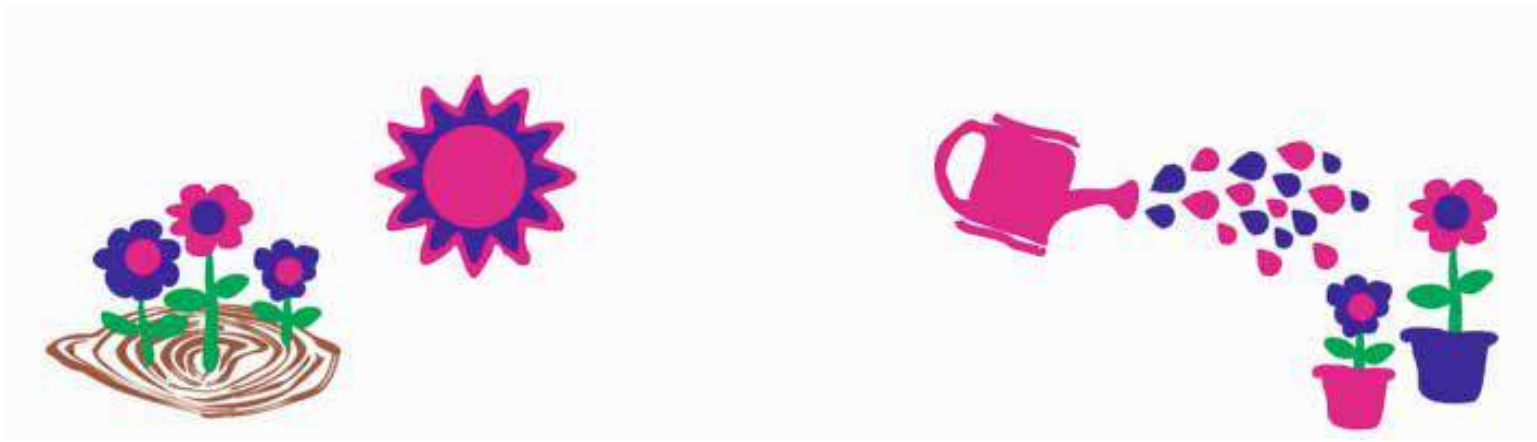
The first statements of each triplet (red number) correspond to **Behaviourism**, the second ones to **Cognitivism** (black number) and the third ones (blue number) to **Post-cognitivism**.
According to the scores in the three areas, it is possible to see which is the predominantly inspiring model for the teacher.

Part 2

How to read your drawing

Does your drawing coincide with the idea about teaching you have expressed in the previous test?

- If your drawing looks like this:



Your idea of the teaching/learning process is close to the BEHAVIOURIST MODEL

- If your drawing looks like this:

Your idea of the teaching/learning process is close to the COGNITIVIST MODEL

- If your drawing looks like this:

Your idea of the teaching/learning process is close to the POST-COGNITIVIST MODEL

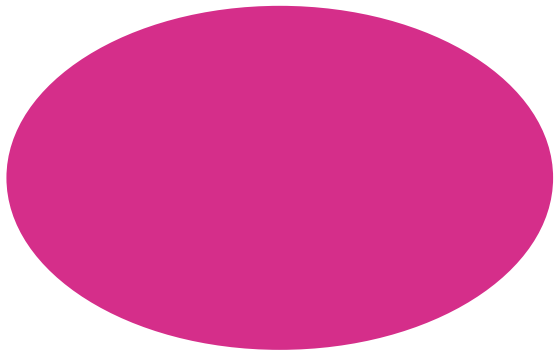
C) Self reporting test

The following questionnaire will help you reflect on the relationship between personal and professional life.
Assign scores from 1 to 5 to the following statements considering that:

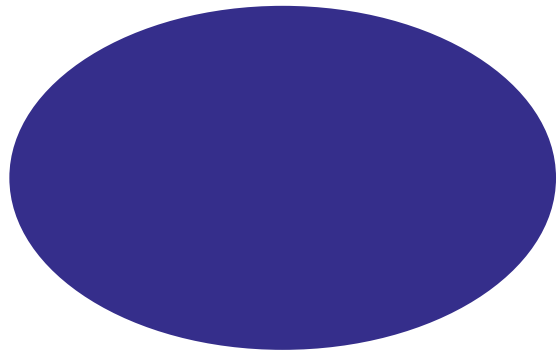
1 = very little
2 = little
3 = quite
4 = a lot
5 = very much

1. The experiences of my private life have also been useful for my work.
2. I am an emotional (anxious, sensitive, passionate) person.
3. My actions are guided by my emotions.
4. I find very useful sharing experiences with my colleagues.
5. I have a tendency to reason before acting.
6. If I feel motivated, I do things at my best.
7. My professional skills are enriched also by my personal skills.
8. I do what the others expect from me to get approval.
9. Being a teacher is exactly what I wished for.
10. I believe that the experiences in my life are orienting my current choices.
11. I feel a sense of accomplishment with regards to my personal life.
12. When I work I succeed in managing my emotions.
13. I can adapt very easily to new situations in life.
14. Over the years I have learned to do my work better.
15. My life has always been guided by objectives and goals.
16. I use my emotions to teach.
17. Teaching is a vocation for me.
18. If I receive criticism at work I do not consider it a personal attack.
19. I use my pupils' emotions as leverage in my teaching.
20. My motivation grows if I obtain professional recognition (from colleagues, principal, parents, pupils).
21. The rational sphere is the preponderant one in my teaching-learning relationship.
22. At work I am open to new proposals (charges, new tasks, projects, change of place).
23. I have a lot of interests and hobbies.

Draw the two ellipsis below in the square box, and place them in such a way that the drawing represents the relationship the two areas have in your experience.



PROFESSIONAL SPHERE



PERSONAL SPHERE

How to read the text

Step 1 – Assign a score to the statements of the questionnaire

AREA 1 – PERSONAL SPHERE

Score =
Max. 50
Min. 10

2. I am an emotional (anxious, sensitive, passionate) person.
3. My actions are guided by my emotions.
5. I have a tendency to reason before acting.
6. If I feel motivated, I perform at my best.
8. I do what the others expect from me to get approval.
10. I believe that the experiences in my life are orienting my current choices.
11. I feel a sense of accomplishment with regards to my personal life.
15. My life has always been guided by objectives and goals.
23. I have a lot of interests and hobbies.

AREA 2 – PROFESSIONAL SPHERE

Score =
Max. 50
Min. 10

16. I use my emotions to teach.
19. I use my pupils' emotions as leverage in my teaching.
7. Being a teacher is exactly what I wished for.
20. My motivation grows if I receive professional recognition (from colleagues, principal, parents, pupils).
4. I find sharing experiences with my colleagues very useful.
14. Over the years I have learned to do my work better.
21. The rational sphere is the preponderant one in my teaching-learning relationship.
17. Teaching is a vocation for me.
12. When I work, I succeed in managing my emotions.
22. At work I am open to new proposals (charges, new tasks, projects, change of place).

AREA 3 – INTERSECTION BETWEEN THE SPHERES

Score =
Max. 15
Min. 3

1. The experiences of my private life have also been useful for my work.
18. If I receive criticism at work, I do not consider it a personal attack.
7. My professional skills are enriched by my personal skills.

Step 2 – Identify your reference model

If the personal sphere prevails (over 10 points more than the professional one)
- Your reference model is distancing

If the scores of the two spheres are similar (within a 10 points range)
- Your reference model is integration

If the professional sphere prevails (over 10 points more than the personal one)
- Your reference model is overlapping

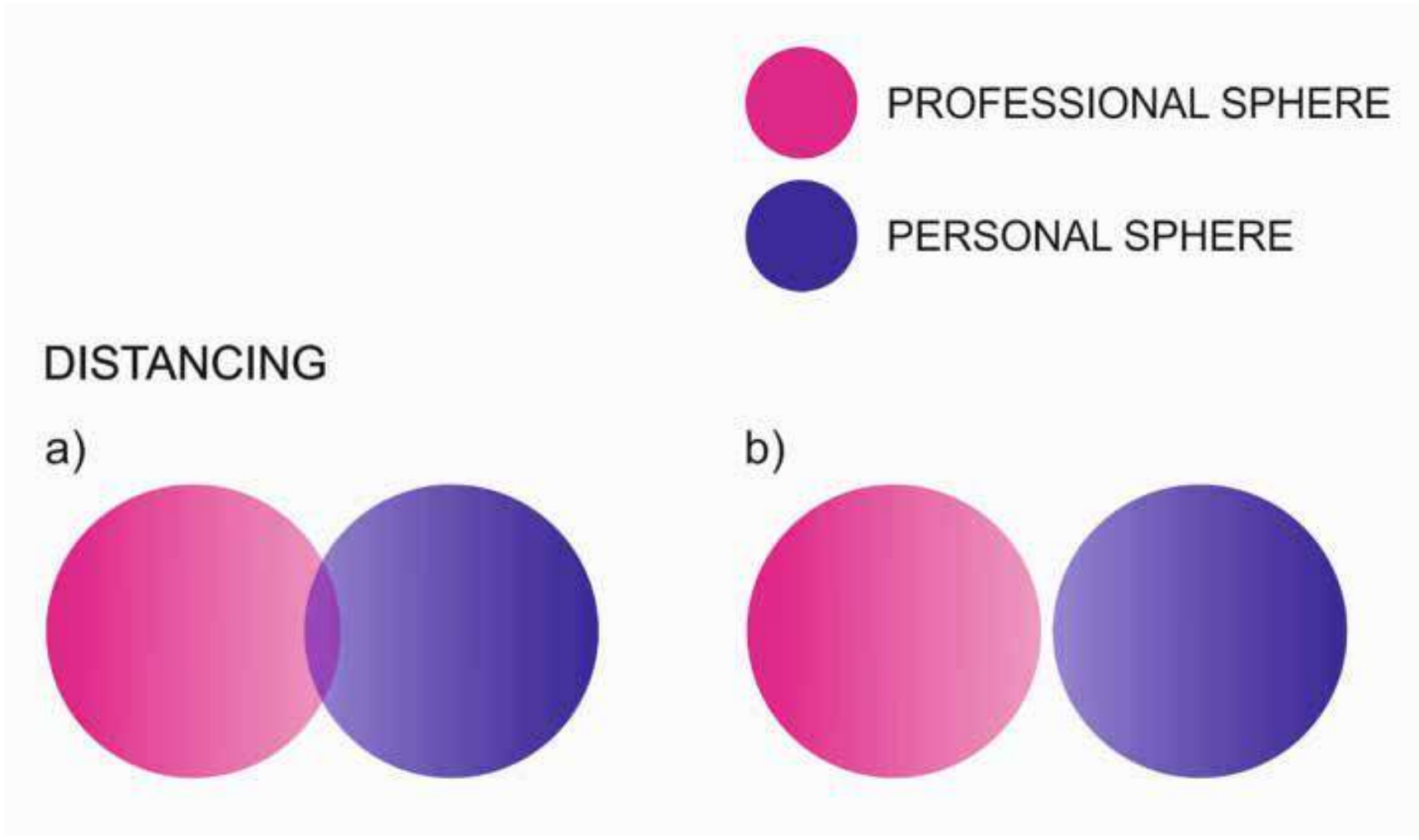
Step 3 – Check the area 3 score

Area 3 score

A score of 3 to 6 points to the distancing model.
7 to 10 points to the overlapping model.
11 to15 points to the integration model.

Step 4 – Put in relation the drawing you have made with one of the following models of relationship between the personal and the professional sphere:

DISTANCING
Prevalent behaviour in subjects whose motivational and vocational components are not at the basis of their professional choice.
The working activity often becomes a "compartmentalised" where one's emotions, feelings, and often one's competences too, are only marginally activated.
The space for sharing life experiences, for exposing oneself becomes really small: the subject is unchallengeable, because every *criticism* against their professional qualities does not touch their personal sphere and does not therefore provoke a critical revision of their deeds.

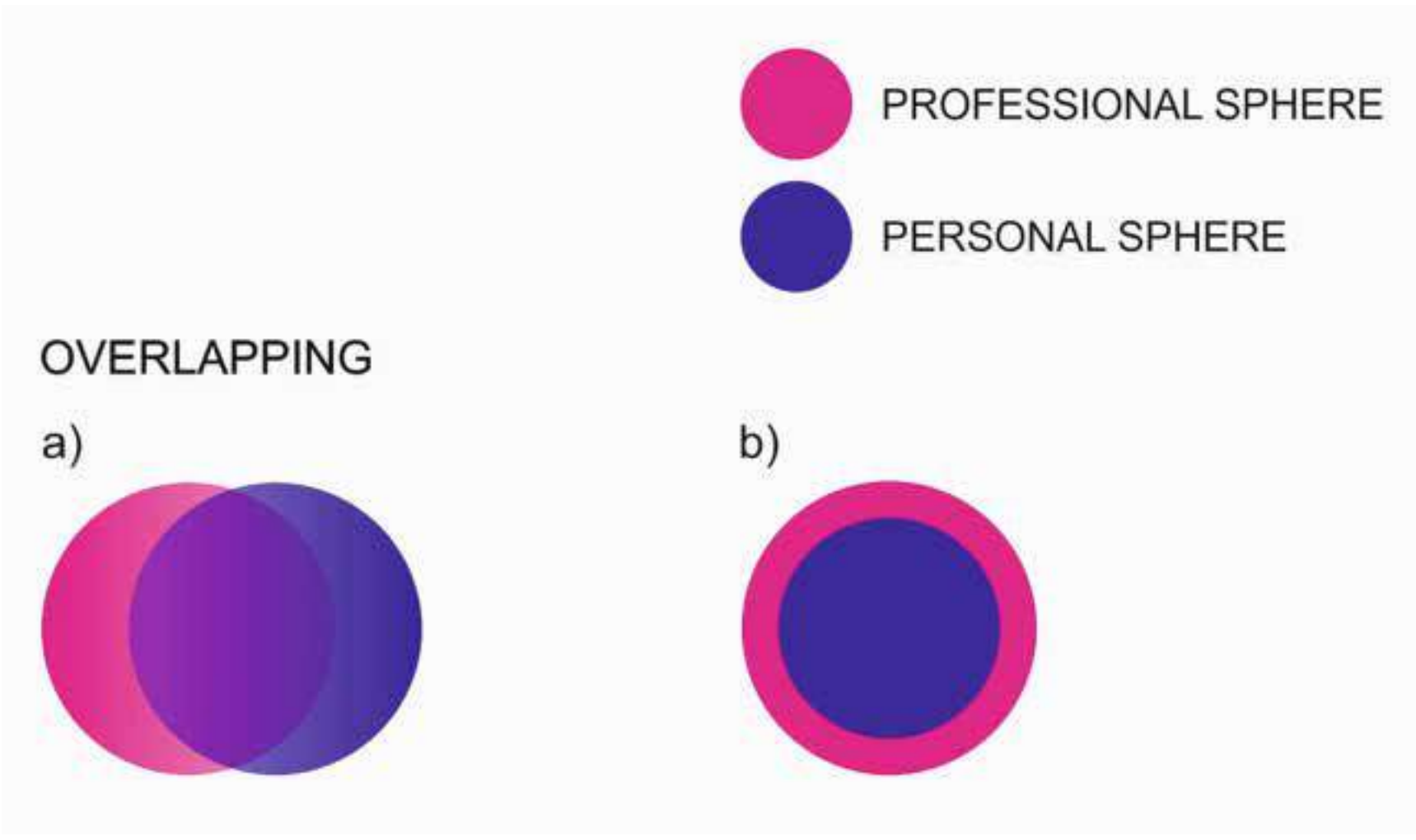


Minimum Overlapping Space

OVERLAPPING

Often the consequence of putting work at the centre your life, due for instance to an unsatisfactory personal life which leads to feeling helpful at work becoming your focus, is that work replaces affective relationships. Danger consists in considering success and failure at work as personal rather than just professional.

Each message, each request of help, each decision to be made touches the subject very deeply, impairing clear-thinking in the management of professional actions.

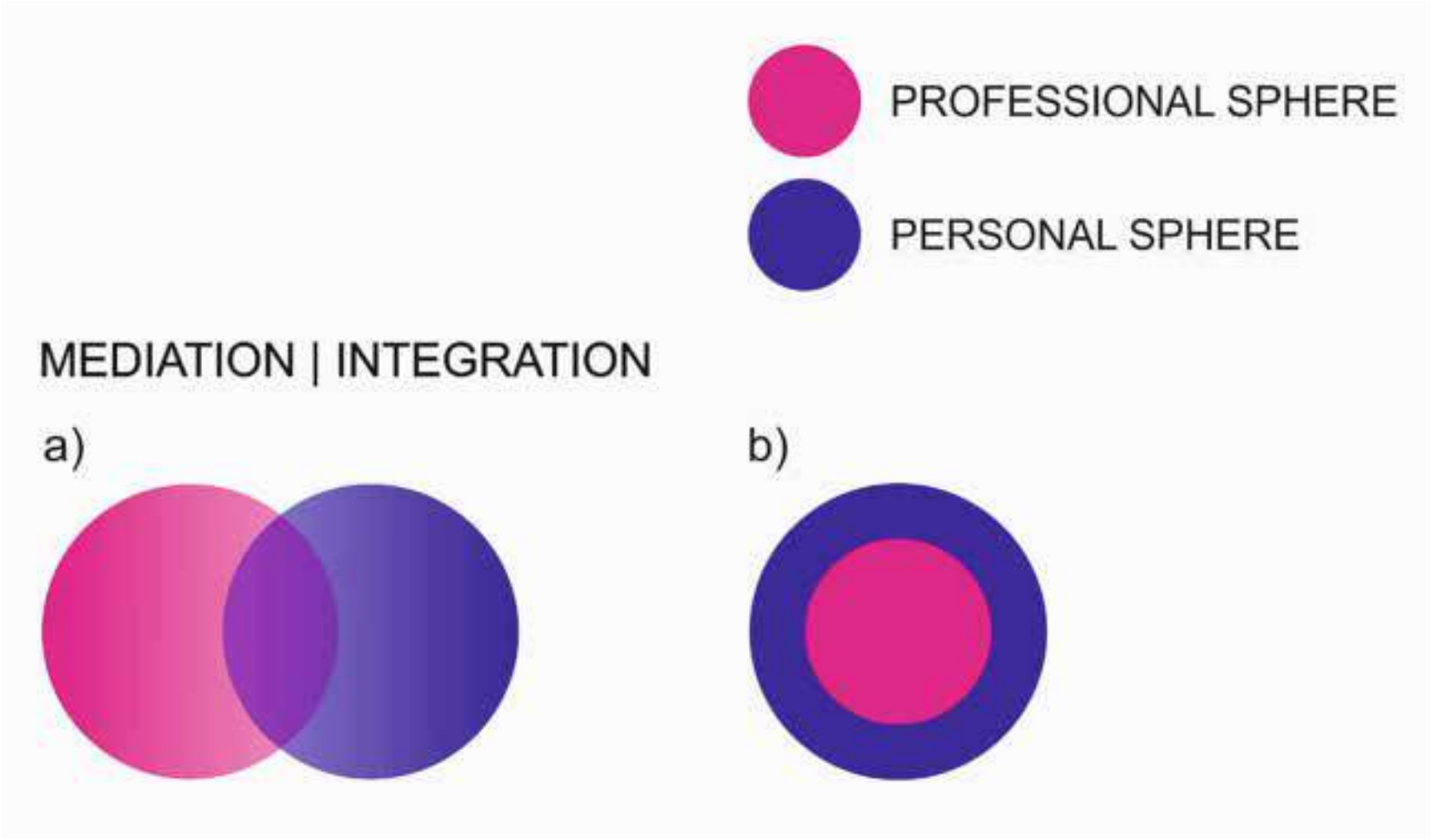


Maximum Overlapping Space

MEDIATION/INTEGRATION

Basic awareness of one's actions and of the real motivations and emotions underlying them.

Competences, integrated in the personal dimension and fundamental part of it, become a regulating factor of the action, which, avoiding automatic reactions due to the absence of self-awareness, becomes effective and consciously managed.



D) Self reporting: stagnation, change, improvement test

Considering your experience, indicate to what extent the following statements are true. Use scores 1 to (1 = Very untrue, 2 = Somewhat untrue, 3 = Slightly true 4 = Somewhat true, 5 = True). Please use the whole range of scores.

	Statement	**Score**
1	At university, I have not been taught effective or alternative ways of teaching	
2	No one tells me what to do when a class does not "move on"	
3	I adapt my teaching when there are textbook/curriculum changes	
4	I try to improve my way of teaching according to what I learn in training	
5	I try new ways of teaching when I hear or see successful examples from other colleagues	
6	I often realise that I do what my own teachers used to do	
7	I cooperate with colleagues in order to create new teaching materials	
8	Even when I want to change my way of teaching and to focus on the important things, consultants and the local education system do not allow this	
9	I have tried to change my teaching many times, but the curriculum is restrictive	
10	I search the internet to find exercises or teaching practices to change my teaching	
11	I want my teaching to be more interesting but I don't know how to do it	
12	If a way of teaching is effective, I don't change it because I fear that change may not bring about good results	
13	I independently seek out new exercises/topics that can engage the interest of my pupils	
14	I ask for help from experienced colleagues when teaching does not have the outcomes I want	
15	I change my teaching when I see that students do not acquire the concepts and skills needed	
16	Regardless of the requirements of the curriculum, I add new elements in my teaching that clarify a subject	
17	I respond with pleasure to the ideas, suggestions and initiatives of my pupils that help the lesson	
18	I wonder how I can keep the interest of my students during the lesson	
19	Sometimes I despair and revert to more traditional teaching strategies when pupils have no interest	
20	The obligations I have at home and school does not leave time to look and find material beyond textbooks	

How to read the questionnaire

This questionnaire is designed to single out the main elements of a teacher's professional history and it is part of the **SELF REPORTING** area of the teachers' protocol.
These indicators show the extent to which a teacher grows or not professionally. Indicators 1, 2 and 5 show a positive development when they receive high marks. On the other hand, a high rating for indicators 3 and 4 means negative development or stagnation.

In the grids below each number corresponds to a statement in the questionnaire.
Each grid groups together the questions belonging to the same area.
Add up the scores you have given to the statements belonging to each area and write the sum in the total cell.

Factors that trigger changes (1)

3	4	5	15	Total

Factors that help changes (2)

7	10	14	17	Total

External factors of stagnation (3)

1	2	8	9	Total

Internal factors of stagnation (4)

11	12	19	20	Total

Personal efforts to improve (5)

6	13	16	18	Total

PART THREE

THE PUPILS' MATERIAL

METAMINDS FOR PUPILS

Monica Melloni

The second part of the METAMINDS research was centred on the development of tools designed to help pupils develop meta-reflexive attitudes. This stage of the project was started by devising a questionnaire for pupils[17], based on the same four areas that were previously explored with teachers.

A number of 1269 10-to-15-year-old pupils belonging to all the partner schools participated in the survey. The results were once more consistent between the countries, as it appears from the graphs below, but when compared with the teachers' results, they showed different pupils' awareness of the impact of two of the four areas in the pupils' learning experiences. In particular, while similarly to the teachers' survey, Area 1 (Cognitive Architecture) appears to be the most developed area and Area 4 (Meta-reflexive Strategies) the least developed one, Area 3 (Emotions in Knowledge) is the second most important area for learning according to students and Area 2 (Self-Reporting) is the second least important.

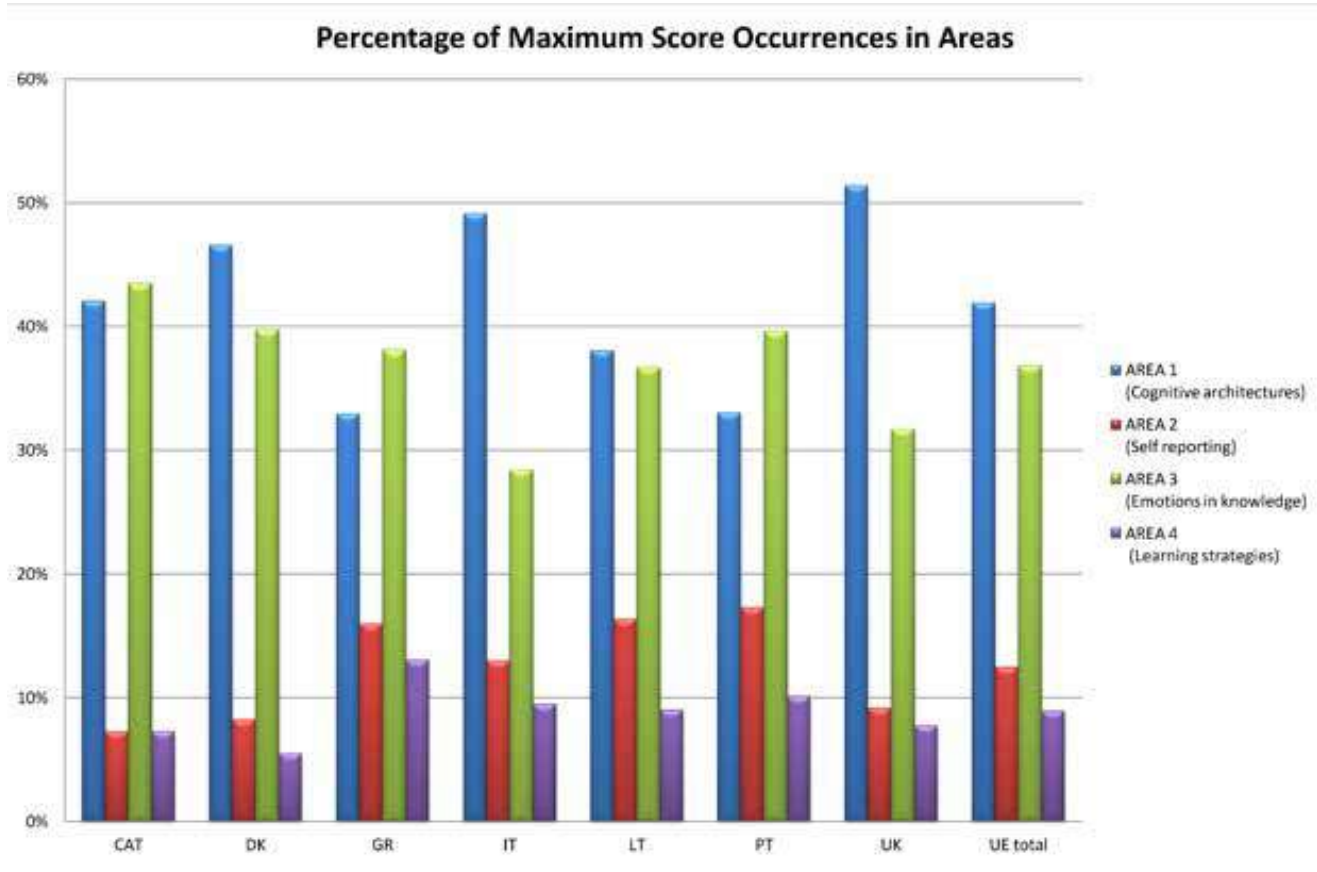


Fig.1 Areas that showed the highest score in the pupils' questionnaire.

For pupils, then, emotions are a key factor for learning, while they find difficulties in reporting their experiences.
These considerations triggered the third-year action of the project which was basedon collecting best practices in learning-to-learn activities from the partner schools on the one hand, and trying to find an effective way of connecting all the material to the 4 working areas on the other hand.
Each partner team took charge of one of the areas, set the objectives to be achieved and developed the activities for two age groups: **METAKIDS (8-11 years old)** and **METATEENS (12-14 years old),** while the coordinating institution supervised the products and created a framework to connect all the parts of the tool: the project dashboard.
The project dashboard is intended to involve pupils in a series of activities based on the same elements that have inspired the teacher training protocol. In the pupils' module, those elements have been articulated in a more interactive and simplified way, but the same 4 areas on which the METAMINDS research has been based on are central to the pupil sets of activities. The general idea is that metacognition in pupils can be described as a sort of machinery with three revolving cogs, representing the three main aspects that need to be activated in order to form a metacognitive attitude: 1) knowledge management, concerning the development of the strategies and the abilities to learn how to learn; 2) prediction ability, that is, if pupils have learned how to manage their knowledge, they will be also able to predict the number of things they can acquire in a given time, how much they will be able to remember, or to what extent they will be able to collaborate with others; 3) management of emotion, representing the third essential element for a smooth functioning of the machinery. As all pedagogical studies underline, metacognition is first and foremost a general attitude, a way of dealing with knowledge, in which the interaction with affect is essential to support the learning process.

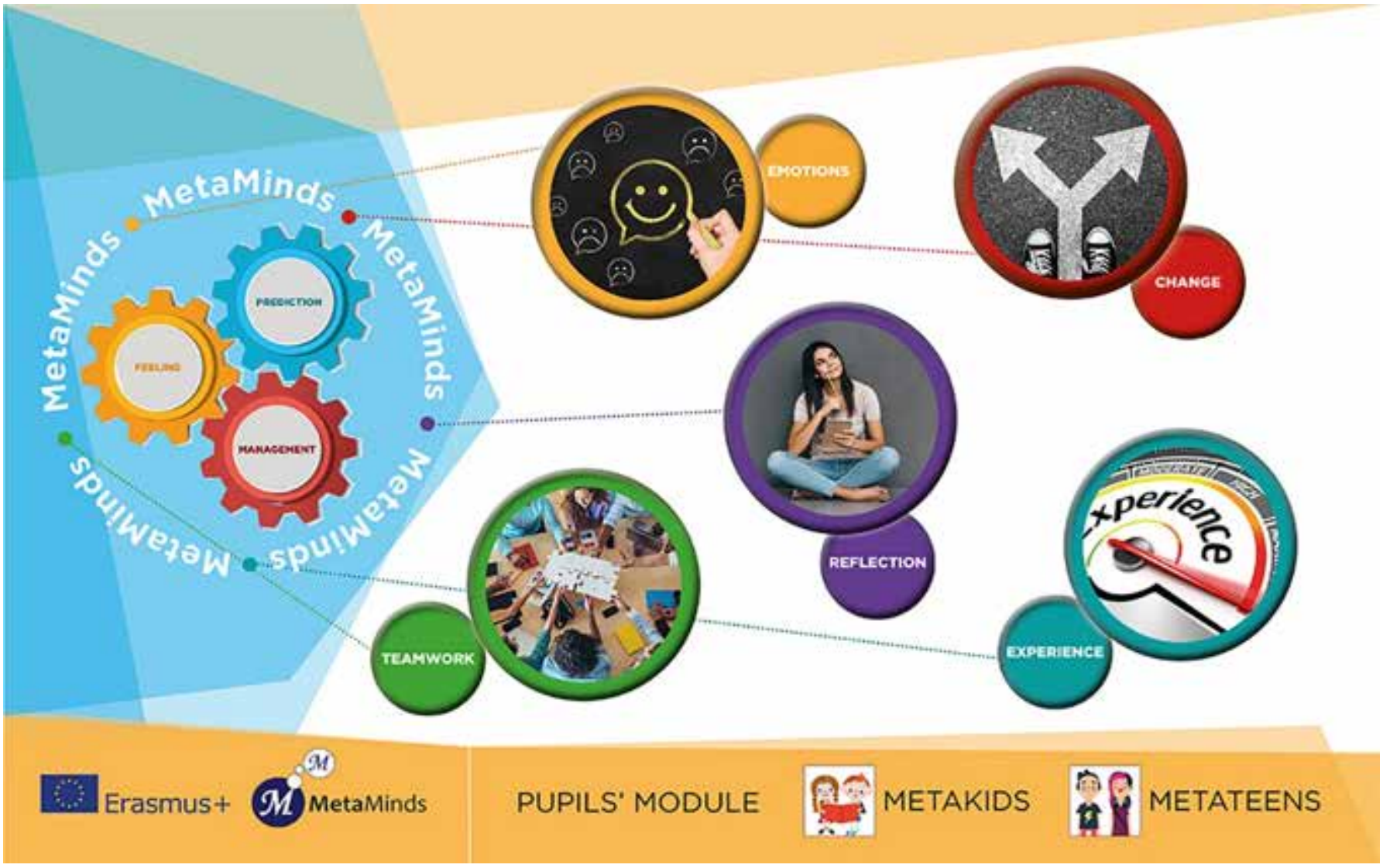


Fig. 2 -The Pupils' Dashboard

How can we trigger and keep the three-cog machinery of metacognition working? The METAMINDS research has focused on several areas that are connected with the above three elements and has devised a series of activities to help start the metacognitive process in pupils. All the material is presented through a dashboard, with five interactive components with each icon representing an area that can be developed with the help of the proposed games/activities. The instructions and demos are accessible by clicking on the icon of the area in the dedicated page of the METAMINDS website.

The **REFLECTION** button gives access to activities that help pupils reflect and gain awareness of themselves as learners. The **EMOTIONS** con presents activities fostering emotion recognition, games eliciting emotions on which pupils can reflect in the game follow-up, and emotion-based role-play activities. Files with instructions are accompanied by video tutorials showing the activities. The **EXPERIENCE** area includes questionnaires that have been devised to help pupils see how previous learning experiences can play a fundamental role in showing them the different ways in which they can best approach new learning tasks. The **CREATIVITY** area of the dashboard is meant to pinpoint the importance of creating as a metacognitive approach to learning, since it implies managing both cognitive and emotional elements together.

The last icon of the dashboard, TEAMWORK, is about the ability to work in a team. This fundamental aspect can be found also in the activities belonging to the other areas. Indeed, elements of different areas are often mixed with the main skills that each set of activities is meant to develop. In TEAMWORK pupils are specifically engaged in games that help them find out the importance of effective cooperation.

THE MATERIALS OF THE PUPILS' MODULE

A) Reflection

Mathematics: Relay race with the 9 times table

Langelinieskolen, Denmark

1	2	3	4	5
6	7	8	9	10

Practicing multiplication tables

For this activity, you will need the following for each group of pupils

- A game board listing the numbers from 1-10
- Cards showing the results of the 9 times table (9, 18, 27, …)
- A cone for each group

Cognitive learning objectives

- Learning the 9 times table
- Contribute in solving a mathematic assignment
- Strengthen the working memory

Social learning objectives

- Collaborate with one's group in order to solve an assignment
- To be able to understand their own role in a team assignment
- To acknowledge oneteammates' contributions
- To know when to ask for help

Description of activity

The pupils are divided into groups of approximately 4-5.
Each group is given a game board listing the numbers 1-10 and cards with numbers/ results are placed randomly under their cone. The cone is placed a few meters from the group.
The pupils are then instructed to take turn picking up a random number from under their cone. They are only allowed to pick one number and only allowed to lift the cone when it's their turn to run.
If a pupil picks the number 27, he/she must figure out what times 9 equals 27. The

answer in this case is 3, so the number is therefore placed on the number “3” on the game board.
If it’s too difficult for the pupil to get to the correct result, the rest of the group may help. It is, however, important that the pupil in question is given the opportunity to figure it out herself within a few seconds.

Possible variations
The activity can be used with all age groups and in all subjects. It only requires that there is an element of problem solving.

Examples
Languages: Foreign languages often involve the learning of declinations or strings of words. Simply replace the numbers with these (durch-für-gegen…).

Mathematics with older pupils
Try having the scales (eg. 3-6-9-12…) instead of numbers 1-9.

History
Instead of numbers use a series of events for the pupils to build a timeline. (Russian Revolution, World War II, 9/11…).

Geography
Instead of matching numbers, the pupils now have to match countries and their capitals (it will then not have to be done in a specific order).
Other ways of visualizing the cognitive assessment with older pupils can be to hang a poster of “Learning Pit” or the “Dynamic/Static Mindset” on the wall and have conversations with the pupils of where they position themselves with regard to the activity. E.g: “I think it was very difficult, I felt down in the gap, I would like somebody to help me up” or “I think I will never learn Math, so I guess I have a static mindset here”.

Evaluation of the activity

Individual evaluation
Young kids can self-assess the activity using emoticons.

Evaluation of cognitive learning objectives

Easy, intermediate, difficult

Evaluation of social learning objectives

Easy, intermediate, difficult

For individual evaluation the “Inside outside circle activity” can be used.
http://www.theteachertoolkit.com/index.php/tool/inside-outside-circles

The pupils have to reflect on what they have learned socially and professionally, so this is what they have to try to explain to a fellow pupil in the circle.
It is important that the pupils gain a common understanding of their classmates’ challenges and abilities. It then becomes easier to benefit and to profit from others’ competencies.
Some are good at cooperating, others at numbers and for some pupils it may be running etc.
What have we learned – what are we better at – what needs more practice at class level?

After the individual evaluation we evaluate at class level

- What was the most difficult?
- What was the easiest?
- What was the funniest?
- What new things have we learned?
- What did you become better at?
- What do you think a friend became better at?
- What is important to remember/what can we do better next time.

B) Experience

Life Experiences

3° Gymnasio, Greece

Indicator

Be aware of prior learning experiences outside school.

Metacognitive Goals

Reflect and be aware of how life experiences and prior learning affect the pupil's life and development.

Target Group

8 -11 years old pupils.

Time

45 minutes.

Organisation

The teacher hands out the worksheet you can find below to the pupils of their class. Each pupil is asked to match the experiences mentioned in the sheet with one or more words/expressions provided. For each experience they can match more than one word/expression, but not more than three. In the third column the pupils will also write whether the word/expression that they have chosen has a negative or a positive meaning. The teacher collects the sheets and uses the characterization and the questions below for reflection.

Material

Worksheets provided below. Teachers can modify the worksheet by adding/ removing items.

Worksheet

Match these words/expressions below with the activities of the table. You can use up to three words.

boring, exciting, interesting, impressive, easy, difficult, disappointing, involving, hurtful, annoying, foolish, relieving, embarrassing, helpful, pleasant, unpleasant, scary, horrible; it makes me happy, it makes me worry, it makes me sad, attentive, joyful, proud, weak

PERSONAL LIFE		
ACTIVITY	**WORD/EXPRESSION**	**NEGATIVE/POSITIVE**
Learn an artistic skill (Play an instrument, sing, act, dance, paint etc…) 		
Learn a sport (cycling swimming, skiing) 		
Play a team game 		
Make friends 		
Cross the street /buy or do something alone 		

Take care of pets/plants 		
Help with housework (tidy my room, lay/clear table etc.) 		
Learn how to behave with strangers 		
Participate in a competition 		
Accept refusal from adults 		
Tell about myself in the family 		
Express how I feel 		
Learn polite greetings 		

Observation/assessment criteria

The statements below are to be used by the teacher to help pupils reflect on their previous experiences outside school.

Think about the way you learnt to do this activity

- Did you learn this by yourself, with someone's help, or in a team?
- Did you like it or not?
- Why did you feel this way?
- Was it easy or difficult to do well in this activity?
- Are you satisfied with your progress?
- Would you like to do this activity again?
- In what ways do you think this experience will help you in the future?
- All the activities, the words/expressions and the questions for reflection are only indicative.

C) Experience

School Experiences

3° Gymnasio, Greece

Indicator

Be aware of prior learning experiences at school.

Metacognitive goals

Reflect and be aware of how school experiences and prior learning affect the pupil's life and development.

Target group

8 -11 years old pupils.

Time

45 minutes.

Organisation

The teacher hands out the worksheet you can find below to the pupils of their class. Each pupil is asked to match the experiences mentioned in the sheet with one or more words/expressions provided. For each experience they can match more than one word/expression, but not more than three. In the third column the pupils will also write whether the word/expression that they have chosen has a negative or a positive meaning. The teacher collects the sheets and uses the characterization and the questions below for reflection.

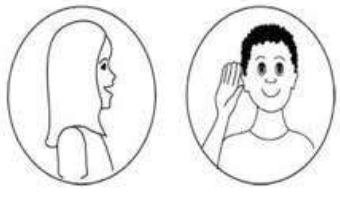
Material

Worksheets provided below. Teachers can modify the worksheet by adding/removing items.

Worksheet

Match these words/expressions below with the activities of the table. You can use up to three words.

boring, exciting, interesting, easy, difficult, impressive, disappointing, involving, hurtful, annoying, foolish, relieving, embarrassing, helpful, pleasant, unpleasant, scary, horrible; it makes me happy, it makes me worry, it makes me sad, attentive, joyful, proud, weak

SCHOOL LIFE		
ACTIVITY	**WORD/EXPRESSION**	**NEGATIVE/POSITIVE**
Read books 		
Write 		
Work in a group 		
Learn a foreign language 		
Listen to others (teacher, friends) 		

Tell others how I feel 		
Build things 		
Obey rules 		
Respect others' ideas and discuss politely 		
Enjoy/have fun with my classmates 		
Stay focused 		
Accept failure 		

Observation/assessment criteria

The statements below are to be used by the teacher to help pupils reflect on their previous experiences at school.

Think about the way you learnt to do this activity

- Did you learn this by yourself, with someone's help, or in a team?
- Did you like it or not?
- Why did you feel this way?
- Was it easy or difficult to do well in this activity?
- Are you satisfied with your progress?
- Would you like to do this activity again?
- In what ways do you think this experience will help you in the future?
- All the activities, the words/expressions and the questions for reflection are only indicative.

D) Emotions

Online Quiz Game

Hillview School For Girls, United Kingdom

Indicator

Recognising emotions in facial expressions.

Metacognitive goals

This activity should allow students to reflect upon how they use facial expressions to identify emotions.

- They will be able to see how well they do this as part of the quiz.
- A follow up discussion will allow them to reflect upon what makes this task easier or more difficult.
- If adapting for an older group of students, they might also discuss whether facial expressions are fully able to express the complicated emotions we feel or whether facial expressions can be misleading.

Target group

8 -11 years old pupils.

Time

The quiz should take 5-10 minutes. The teacher can decide on the length of the discussion.

It can be found at
https://www.metamindserasmusplus.eu/43-metakids-emotions

Organisation

Students could complete this quiz alone if computing facilities/mobile devices are available, or it could be projected/shown on a screen for a whole class and students answer on paper. Scores can be discussed at the end.

Observation/assessment criteria

There are three different results at the end of the quiz to indicate how well the student has performed. The teacher can also assess the students' understanding through

participation in the discussion and perhaps follow up with an activity producing a poster/guide to recognising facial expressions.
For teachers' observations and pupils' self-evaluation the common METAMINDS assessment sheets can be used.

E) Change

Draw and Create

Agrupamento de escolas Nº1 De Serpa, Portugal

Indicator

Develop cognitive modifiability and openness to change.

Metacognitive goals

In the present context, where the world is changing faster and faster, it becomes necessary to develop competences which makes children and teenagers able to face this challenge.

On the one hand, citizens of the future have to be conscious of a changing society, have to be ready to accept change, but perhaps even more importantly, have to show openness to lead and implement that change.

On the other hand, change brings in itself several opportunities for learning which, if well used, may project the individual towards new ladders of cognitive performance, transferrable to other identical situations or on a higher level, in that the achieved cognitive development is not only a limited and occasional consequence of the exposition to an isolated experience, but a type of change that affects the basic structure of behaviour.

Therefore, the activities that are presented face the child with a simple situation (learning experience) where he/she is asked for a concrete response. Through that response, it is possible to check the pupil's ability to take advantage of that situation as an opportunity for evolution, or, on the contrary, we can see if he/she shows little openness to change or tends to follow stereotypes.

Time

45 to 60 minutes, longer if the teacher desires.

Organisation

Individual work

The activity consists in giving the students a sheet of paper with an unfinished graphic composition (drawing). The pupils are asked to complete the composition as they wish.

The activity is developed in two phases:

- Step one: the teacher gives children an exercise sheet with a drawing which is already started and invites them to complete the drawing (example sheets *A1* or *B1* in appendix). Pupils should conclude this phase in 15-20 minutes, but it may take longer if the teacher allows them to. When the activity is finished, the teacher collects the exercise sheets.
- Step two: the teacher hands out the same exercise sheet to the pupils. Before asking them to repeat the task, he/she shows them an innovative example of what they could have done on phase one, making it clear that that is only an example among many possible examples (for instance, the teacher can show the sheets *A2* or *B2* in appendix). The students should conclude this phase in 15-20 minutes, but it may take longer if the teacher allows them to. When the activity is finished, the teacher takes the exercise sheets.

The size of the graphic composition shouldn't be larger than A4, so that the activity doesn't take longer than expected.
According to the time available, the composition may be drawn in pencil or coloured with colour pencils or felt-tip pens.

Material
Sheet of paper with a graphic composition, pencil, eraser, pencil sharpener, colour pencils, colour pens.

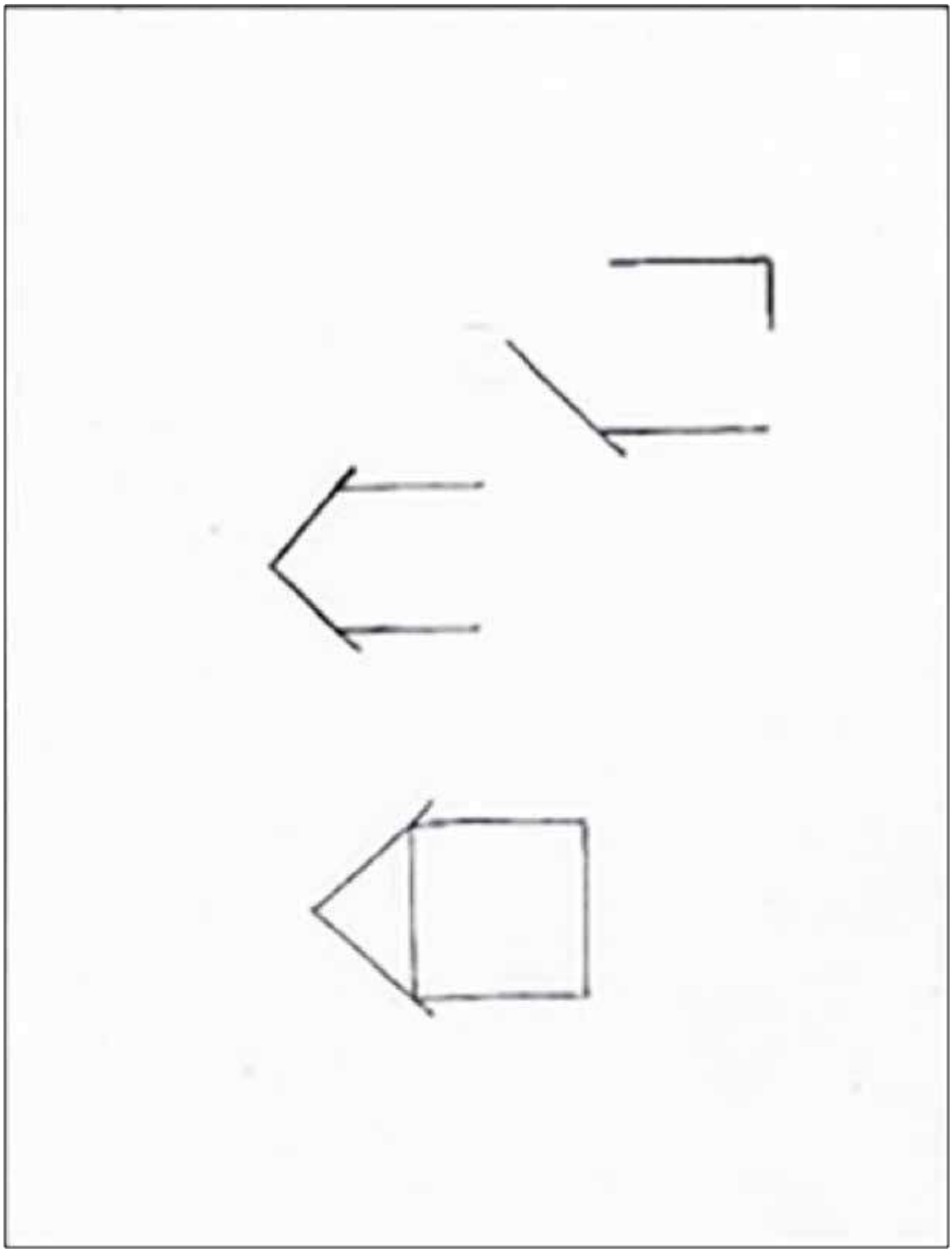
Observation/assessment criteria
After concluding the activity, the teacher may be able to assess how the child took advantage of the learning situation which was presented to him/her and whether he/she appears to be more or less open to change and cognitive development.
These aspects can be checked according to the way the graphic composition was continued and finished: the teacher should compare the work done on phase one with the one done on phase two, checking if the student changed (or not) his/her graphic approach after being shown an example with a different solution. If the student has changed his initial approach, we may conclude that, on a higher or lower degree, he/she is open to change.
If, however, the student merely copied the example shown by the teacher, it means that there is openness to change, but more in the sense of pleasing the teacher.
It is important to mention that this activity is not destined merely to the arts, for more important than the technical skill of the answer (its graphical quality, i.e. if the drawing is well done or not) is its conceptual analysis.
For each of the proposed activities, there are usually three possible types of response, which may guide the teacher in his/her analysis, being that:

A – After being shown the example, the pupil seems to pay little attention to the new suggested solutions and completes the second composition in more or less the same way as the first time without adding any new element. In this case, the student shows little or no openness to change and little ability to take advantage of a learning opportunity.

B – introducing some additional elements which enrich the composition, somehow copying the new elements introduced in the image shown by the teacher. In this case, the pupil shows some openness to change and some ability to take advantage of a learning opportunity, but also a tendency to be too complacent.

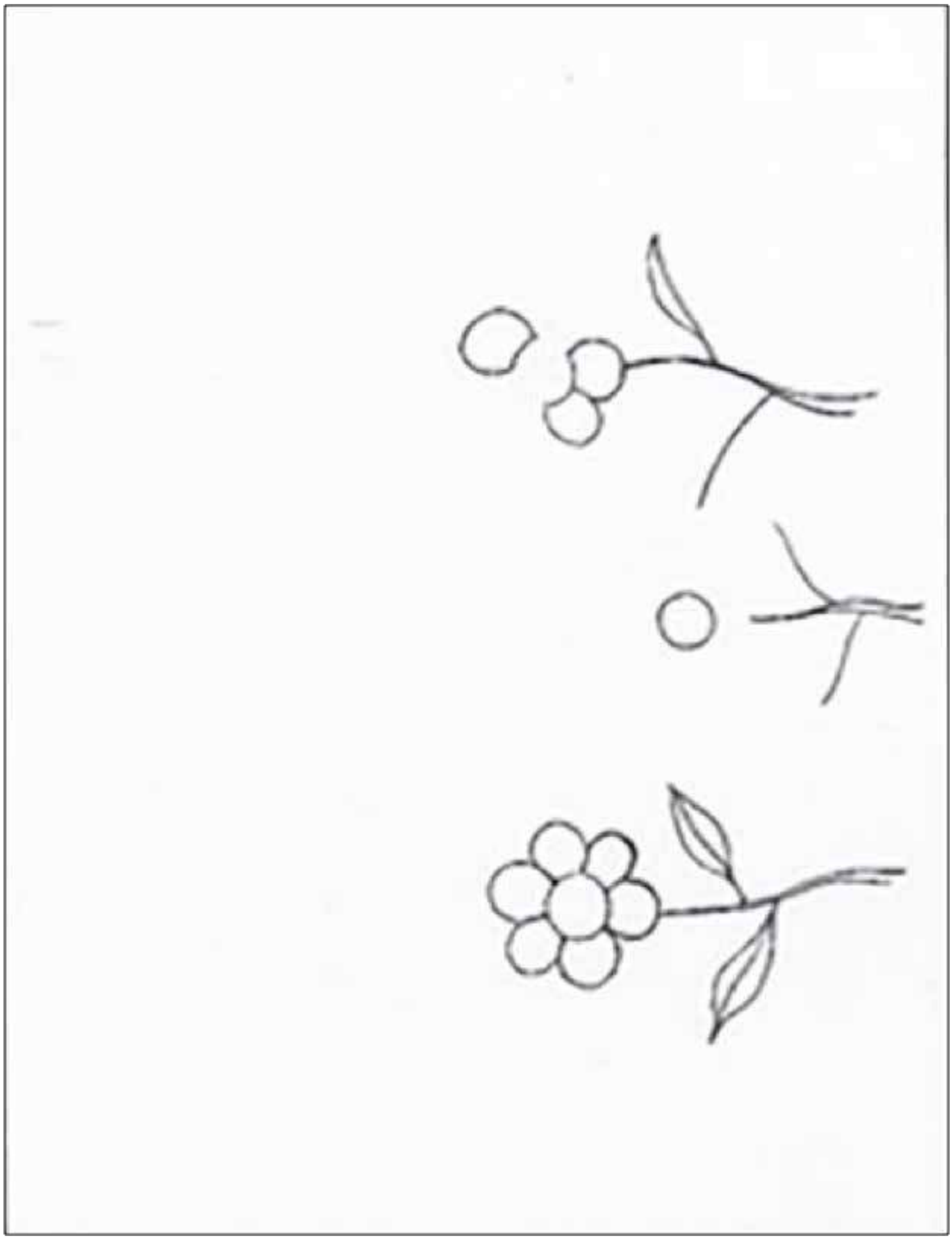
C – After being shown the example, the pupil completes the graphic composition introducing some new elements, unpredicted and creative, which enrich it, dramatize it or create a different context. In this case, the pupil shows openness to change and the ability to take good advantage of a learning opportunity.

Appendix A1



Appendix A2

Appendix B1



Appendix B2

F) Teamwork

Hot and Cold

Viltis Progymnasium, Lithuania

Indicator
To develop an ability to communicate in a group without speaking.

Metacognitive goals
To build on the confidence and trust factor of team members, to develop a feeling of physical and emotional safety with one another.

Target group
8 -11 years old pupils.

Time
10-15 minutes.

Organisation
The game is played with the whole class. After one pupil leaves the classroom, a teacher or one of the pupils hides an object. Everyone sees where it is hidden. Then the pupil is invited back to the room. He/she has to walk around looking for a hidden object following the class directions. The directions include only clapping (silently – louder – loudly). The further from the hidden object the seeker is, the quieter the class clap their hands, the closer he/she gets, the louder they have to clap.

Observation/assessment criteria
The game finishes when the seeker finds the object. The faster the pupil finds the object, the better the team has performed.
For teachers' observations and pupils' self-evaluation the common METAMINDS assessment sheets can be used.

G) Teamwork

Pendolum

Viltis Progymnasium, Lithuania

Indicator

Work well in a team.

Metacognitive goals

To build on the confidence and trust factor of team members, to develop a feeling of physical and emotional safety with one another.

Target group

8 -11 years old pupils.

Time

10-15 minutes.

Organisation

The game is played in groups. One player is standing in the centre with his/her eyes closed, leaning slowly in any direction to the point of losing balance while other team members are standing around in a tight circle, ready to catch and redirect the faller by softly pushing him/her towards each other.

Observation/assessment criteria

The aim of the game for each team is to swing longer than the other teams.
For teachers' observations and pupils' self-evaluation the common METAMINDS.

THE MATERIALS OF THE PUPILS' MODULE

A) Reflection

English as a Foreign Language: Relay race with verbs
Langelinieskolen, Denmark

begin	keep	forget	ride	say
hold	meet	sing	bring	put
grow	feed	understand	forgive	know

Practicing verbs

For this activity, you will need the following for each group of pupils

- A game board listing the base form of verbs
- Cards showing the translation in the local language of each verb
- A cone

Professional learning objectives

- Learning English verbs
- Contribute in solving a linguistic task
- Strengthen the working memory

Social learning objectives

- Collaborate with one's group in order to solve an assignment
- To be able to understand their own role in a team assignment
- To acknowledge one's teammates contributions
- To know when to ask for help

Description of activity

The pupils are divided into groups of approximately 4-5.
Each group is given a game board the base form of verbs and cards with the translation of the verbs are placed randomly under their cone. The cone is placed a few meters from the group.
The pupils are then instructed to take turn picking up a random card with the translation of an English verb from under their cone. They are only allowed to pick one card and only allowed to lift the cone when it's their turn to run.
The pupil must figure out what English verb in the board corresponds to the translation

in the card and put the card on the corresponding verb on the game board.
If it's too difficult for the pupil to get to the correct result, the rest of the group may help. It is, however, important that the pupil in question is given the opportunity to figure it out him/herself within a few seconds.

Possible variations
The activity can be used with all age groups and in all subjects. It only requires that there is an element of problem solving.

Examples

Languages
Foreign languages often involve the learning of declinations or strings of words. The activity can be repeated with prepositions/ irregular verbs/ nouns etc.

Mathematics
Try having the powers/fractions.

History
Instead of numbers use a series of events for the pupils to build a timeline. (Russian Revolution, World War II, 9/11, …).

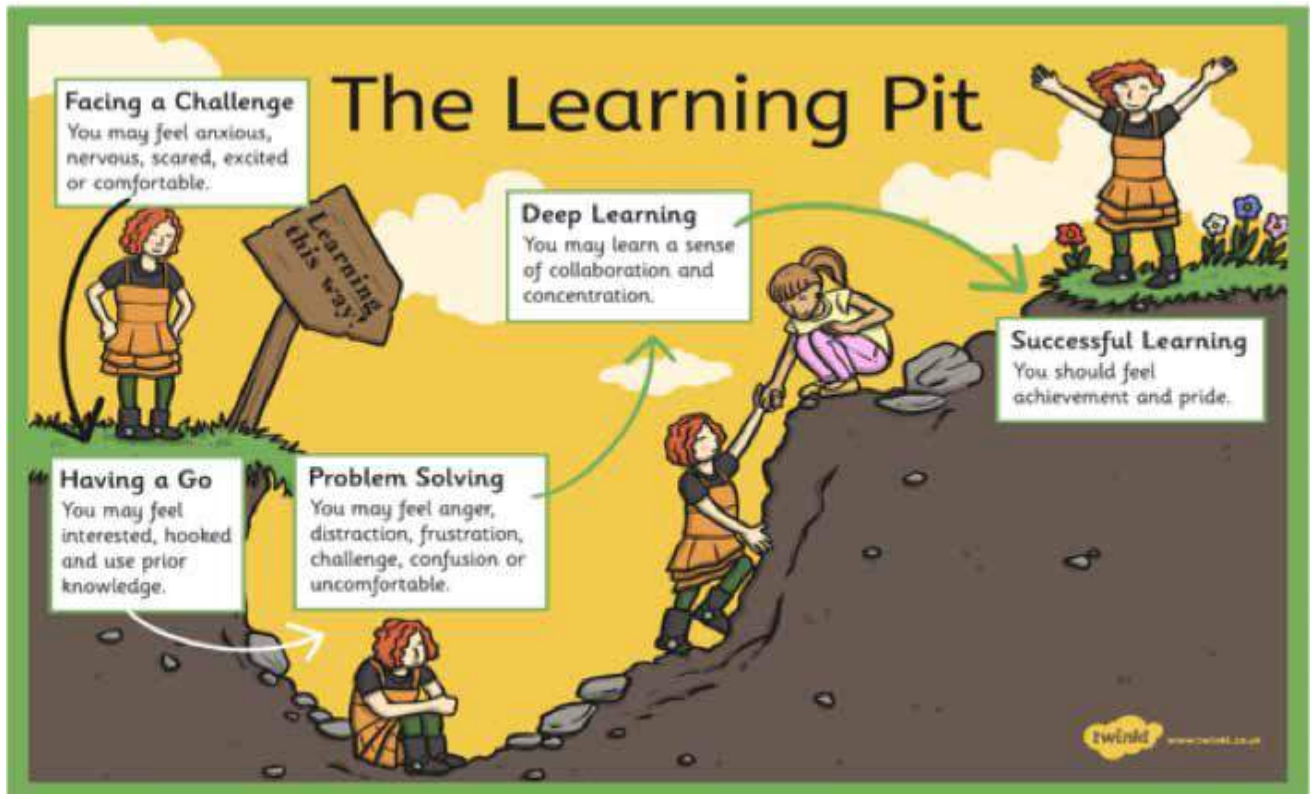
Geography
Instead of matching numbers, the pupils now have to match countries and their capitals (it will then not have to be done in a specific order).

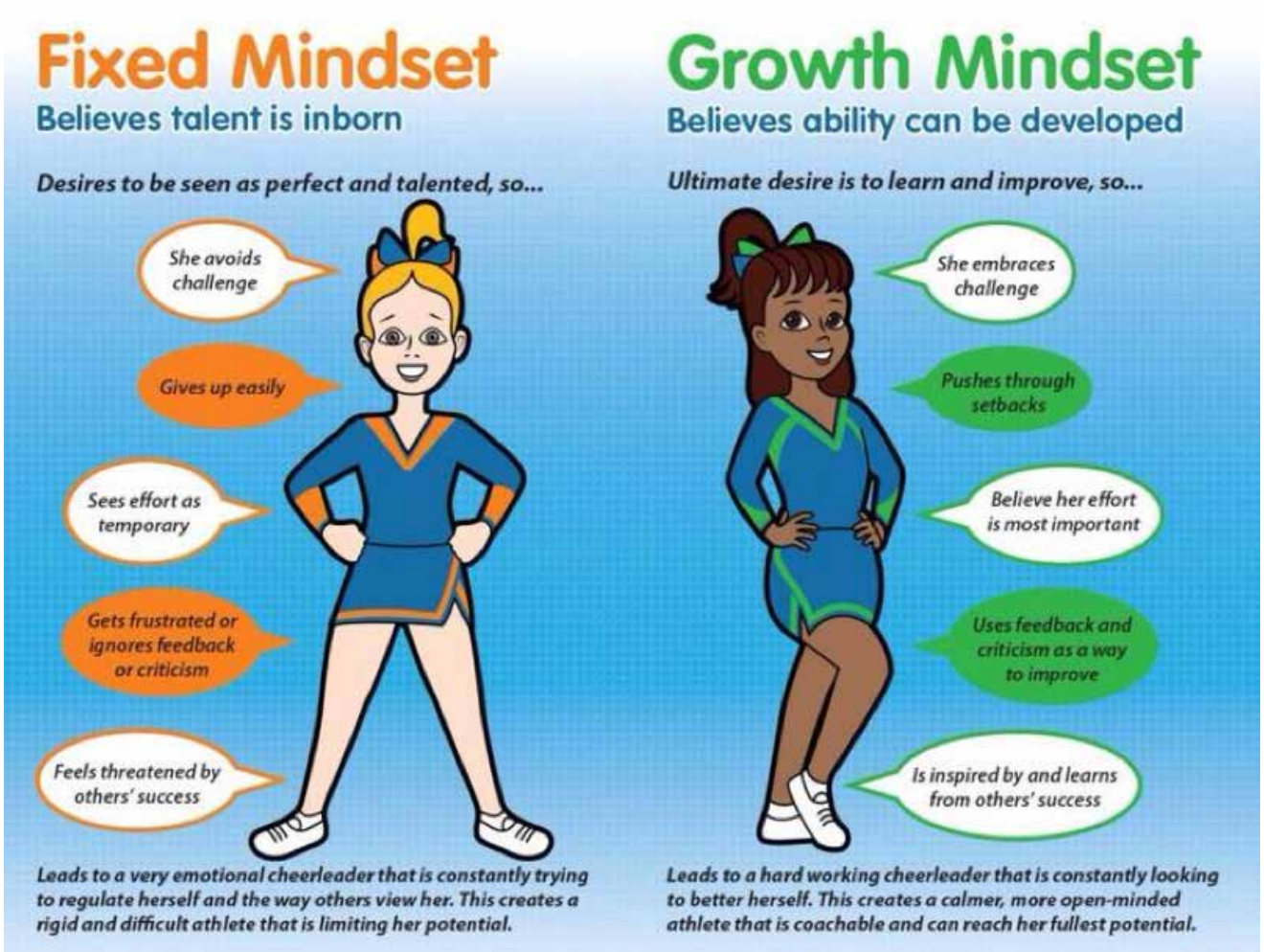
Evaluation of the activity
Individual evaluation
Individual evaluation using the ”Inside outside circle activity”.
http://www.theteachertoolkit.com/index.php/tool/inside-outside-circles

The pupils have to reflect on what they have learned socially and cognitively, so this is what they have to try to explain to a fellow pupil in the circle.
It is important that the pupils gain a common understanding of their classmates' challenges and abilities. It then becomes easier to benefit and to profit from others' competencies.
Some are good at cooperating, others at numbers and for some pupils it may be running etc.

What have we learned – what are we better at – what needs more practice at class level?

Other ways of visualizing the cognitive assessment with older pupils can be to hang a poster of "Learning Pit" or the "Dynamic/Static Mindset" on the wall and have conversations with the pupils of where they position themselves with regard to the activity. E.g.: "I think it was very difficult, I felt down in the gap, I would like somebody to help me up" or "I think I will never learn Math, so I guess I have a static mindset here".





DEVELOPING A GROWTH MINDSET

INSTEAD OF.....	TRY THINKING....
I'm not good at this	What am I missing?
I give up	I'll use a different strategy
It's good enough	Is this really my best work?
I can't make this any better	I can always improve
This is too hard	This may take some time
I made a mistake	Mistakes help me to learn
I just can't do this	I am going to train my brain
I'll never be that smart	I will learn how to do this
Plan A didn't work	There's always Plan B
My friend can do it	I will learn from them

After the individual evaluation we evaluate at class level

- What was the most difficult?
- What was the easiest?
- What was the funniest?
- What new things have we learned?
- What did you become better at?
- What do you think a friend became better at?
- What is important to remember/what can we do better next time.

B) Experience

Life Experiences

3° Gymnasio, Greece

Indicator

Be aware of prior learning experiences outside school.

Metacognitive Goals

Reflect and be aware of how life experiences and prior learning affect the pupil's life and development.

Target Group

12 -14 years old pupils.

Time

45 minutes.

Organisation

The teacher hands out the worksheet you can find below to the pupils of their class. Each pupil is asked to match the experiences mentioned in the sheet with one or more words/expressions provided. For each experience they can match more than one word/expression, but not more than three. In the third column the pupils will also write whether the word/expression that they have chosen has a negative or a positive meaning. The teacher collects the sheets and uses the characterization and the questions below for reflection.

Material

Worksheets provided below. Teachers can modify the worksheet by adding/removing items.

Worksheet

Match these words/expressions below with the activities of the table. You can use up to three words:

boring, exciting, interesting, impressive, easy, difficult, disappointing, involving, hurtful, annoying, foolish, relieving, embarrassing, helpful, pleasant, unpleasant, scary, horrible, it makes me happy, it makes me worry, it makes me sad, attentive, joyful, proud, weak

PERSONAL LIFE		
ACTIVITY	**WORD/EXPRESSION**	**NEGATIVE/POSITIVE**
Learn an artistic skill (Play an instrument, sing, act, dance, paint etc…)		
Play a team game		
Learn a sport (cycling swimming, skiing)		
Take care of pets/plants/younger siblings		
Help with housework (tidy my room, lay/ clear table)		
Know what to do in an emergency		
Borrow a book from the library		
Take part in a competition		
Know how to behave in public places		
Attending a family activity		
Know what is morally right or wrong		
Cooking		
Flirting		
Be autonomous/ independent (find one's way, buy a ticket, go shopping)		
Make friends		

Observation/assessment criteria

The statements below are to be used by the teacher to help pupils reflect on their previous experiences outside school.

Think about the way you learnt to do this activity

- Did you learn this by yourself, with someone's help, or in a team?
- Did you like it or not?
- Why did you feel this way?
- Was it easy or difficult to do well in this activity?
- Are you satisfied with your progress?
- Would you like to do this activity again?
- In what ways do you think this experience will help you in the future?
- All the activities, the words/expressions and the questions for reflection are only indicative.

C) Experience

School Experiences

3° Gymnasio, Greece

Indicator

Be aware of prior learning experiences at school.

Metacognitive goals

Reflect and be aware of how school experiences and prior learning affect the pupil's life and development.

Target group

12 -14 years old pupils.

Time

45 minutes.

Organisation

The teacher hands out the worksheet you can find below to the pupils of their class. Each pupil is asked to match the experiences mentioned in the sheet with one or more words/expressions provided. For each experience they can match more than one word/expression, but not more than three. In the third column the pupils will also write whether the word/expression that they have chosen has a negative or a positive meaning. The teacher collects the sheets and uses the characterization and the questions below for reflection.

Material

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boring, exciting, interesting, impressive, easy, difficult, disappointing, involving, hurtful, annoying, foolish, relieving, embarrassing, helpful, pleasant, unpleasant, scary, horrible, it makes me happy, it makes me worry, it makes me sad, attentive, joyful, proud, weak

PERSONAL LIFE		
ACTIVITY	**WORD/EXPRESSION**	**NEGATIVE/POSITIVE**
Read		
Write		
Work in a group		
Learn a foreign language		
Listen		
Create		
Combine		
Obey rules		
Communicate		
Discuss		
Enjoy		
Respect		
Stay focused		
Define		
Compose		
Criticise		
Analyze		

Observation/assessment criteria
The statements below are to be used by the teacher to help pupils reflect on their previous experiences outside school.

Think about the way you learnt to do this activity:

- Did you learn this by yourself, with someone's help, or in a team?
- Did you like it or not?
- Why did you feel this way?
- Was it easy or difficult to do well in this activity?
- Are you satisfied with your progress?
- Would you like to do this activity again?
- In what ways do you think this experience will help you in the future?

All the activities, the words/expressions and the questions for reflection are only indicative.

D) Emotions

The Chairs Game

Ins Aubenç, Catalonia-Spain

Indicator

Be able to self-assess emotional skills.

Metacognitive goals

- Identify several emotions that we feel during the activity
- Recognise how we manage the emotion

Target group

12 -14 years old pupils.

Time

Approximately 1h

- Explaining the activity needs just 5 minutes
- Depending on the number of pupils the game can last from 15 to 30 minutes
- After that the feedback can be done in around 15 minutes

Material

One chair for each pupil, 4 coloured pencils.

Organisation

This activity can be done with the whole group at the same time.
The feedback can be done with all the group or in small groups of 5-6 pupils.

Step by step instructions

Detailed explanations of the activity for someone who has never done it before.
Every pupil takes his chair and they all together sit making a circle looking at the centre of the circle.
The teacher stands in the middle of the circle and gives the instructions of the activity to the group.

1. He says that he has 4 different colour pencils and assigns to each pupil one of this four colours always with the series (i.e. yellow-red- blue-green-yellow-red-

blue-green…) It's really important that everyone remembers his colour. If the number of pupils is divisible by 4 (for example 16, 20, 24, 28) then it's better to work with 5 colour pencils instead of 4 to make the game more fun.

2. The teacher hides the colour pencils behind his back and each time he takes randomly one of them without looking. Then he shows the colour and says the colour name out loud.
3. The pupils with the same colour that the teacher has said have to move one position clockwise to the following chair. If the chair is not empty they have to sit over the lap of upper pupil that is in this chair.
4. Only the pupils that haven't anyone on their laps are allowed to move when the teacher says their colour.
5. The game is over when a pupil does the whole circle and arrives back at his starting position. If it takes too long, the teacher can finish the game whenever he wants to.
6. After that each pupil returns to his own chair to listen to the instructions for the feedback on the activity. One option could be that the teacher makes four groups using the same colours of the activity and gives them a questionnaire for the feedback.
7. The colour groups get together to discuss the questions of the feedback. Finally each group explains to the whole classroom their conclusions about using the questionnaire.

The class discussion can be guided, extended, developed by the teacher to include exchanges around how and why the emotion was expressed; how different emotions can be superficially similar and how confusion could be avoided; which emotion was hardest to express and why.
Students should be encouraged to develop their own ideas about the ease or difficulty of the task, and whether they felt their group worked co-operatively or not.

Observation/assessment criteria
In this game there are no winners or losers. The feedback can be done answering some of following questions that they will find within the questionnaire:

Which were the emotions that I felt during the game…

- When I was allowed to move?
- When the teacher said my colour but I couldn't move because I had people on my lap?
- When the teacher didn't say my colour for a while?

- What have you done after feeling each of these emotions during the activity?
- What have you thought? What have you done? How have you reacted?
- Have you enjoyed the activity? Why? Why not?

Improvement measures:
Is there anything you would like to change? Why?

Feedback
If the pupils are shy, another option for assessment is distributing them in two rows on the laterals of the classroom and reformulate these questions in a dual format (yes or no). In case their answers are yes they are allowed to move to the centre of the classroom and if not they just stand still.
Another possibility could be to create links between the reflection on the game and its day by day life application

- Which reflection did you do with this activity? What have you learnt? Is there anything different in you or in the way you think after the activity?
- Do you think that this activity can help you for future day life situations?

E) Emotions

Tied Hands

Ins Aubenç, Catalonia-Spain

Indicator

Be able to self-assess emotional skills.

Metacognitive goals

- Identify several emotions that we feel during the activity
- Recognise how we manage the emotion

Target group

12 -14 years old pupils.

Time

Approximately 1h

- Explaining the activity needs just 5 minutes
- Depending on the number of pupils the game can last from 15 to 30 minutes.
- After that the feedback can be done in around 15 minutes.

Material

- One chair for each pupil
- One pen per pupil
- One table per pair
- One cord or string of 40 cm per pair

Organisation

- This activity can be done with the whole group at the same time.
- The feedback can be done with all the group or in small groups of 5-6 pupils.

Step by step instructions

Detailed explanations of the activity for someone who has never done it before

1. The teacher stands in front of the group and gives them a general explanation of the game and the goals.
2. The pupils join tables and chairs in pairs.

3. Every pupil takes a pen.
4. The teacher gives a cord to each pair and help them tie their closer hands with it.
5. The teacher gives every pupil a paper sheet.
6. The teacher explains them that they have to draw a landscape with their tied hands.
7. Pupils start drawing for 20 minutes.
8. The teacher observes how they develop their creations and how they manage the issue of drawing with tied hands.
9. After 20 minutes, the teacher allows them to free themselves untying their knots.
10. Pupils have to sign and write their names in in the back of the drawing.
11. The teacher collects all the drawings.
12. The teacher asks the class to sit in a circle. And starts the reflection phase giving them the instructions of the feedback of the activity. It can be done answering a written questionnaire or asking the same questions out loud.
13. The teacher shows the drawings to the pupils and asks them to try and guess who the authors are.

Observation/assessment criteria

In this game there are nowinners or losers. The feedback can be done by answering some of following questions:

Tied hands (drawing a landscape)

- Before starting drawing, once the teacher explained the task, which emotion did you have? What did you think? How did you feel?
- Did this emotion, thought or feeling change after you started drawing?
- Why do you think that it changed? What was the new emotion, thought or feeling?
  - What provoked it? Is there anything that helped you? How did you react?
- Explain how you and the friend whose hand was tied with yours managed to complete the task? Which steps did you follow?
- How did you feel once you had finished the task before untying the knots?

Free hands (signing and writing names)

- How did you feel when your hands were free again?
- How did you feel once you had written down your name without depending on anyone?
- Why did you feel like that? What did you do? What did you think? How did you react?

Day by day life application:

- Which reflection did you do with this activity? What have you learnt? Is there anything different in you or in the way you think after the activity?
- Do you think that this activity can help you for situations in your future daily life?

General Assessment

- Did you like it? Give it a score from 1 to 10.
- Express in one word your feelings about the activity.
- Would you like to suggest any improvement measures: Is there anything you would like to change? Why?

F) Emotions

Slow Motion Emotion

Hillview School For Girls, United Kingdom

Indicator

Recognising emotions both through facial expressions and whole body.

Metacognitive goals

This activity should allow students to reflect upon the variety of ways in which they identify and express emotions. It will also develop group/co-operative working patterns

- They will be able to see how well they do this in the feedback they get from others in the group.
- A follow up discussion will allow them to reflect upon what makes this task easier or more difficult – and which emotions are hardest to express or identify.

If adapting for an older group of students, they might also discuss the similarities or differences between the various emotions.

Target group

12 -14 year old pupils.

Time

The activity should take 15-30 minutes depending on the size of the class (and whether they have done this type of drama work previously). The teacher can decide on the length of the discussion.

Organisation

Students should be organised into groups of 3 (NO groups of 2 or 4 unless absolutely necessary – these must be kept to a minimum).

Each group should be given a slip of paper that contains an emotion (they can choose – blind choice or be given one – but students cannot select their own emotion to express). See appendix for suggested emotions.

Each group then works together as a group to gradually transform themselves into the emotion they have been given – to a slow count of 10. Given them 3 minutes to discuss and design their presentation – all students must participate in the final outcome.

Students then sit in a circle and watch each group present their emotion (to a slow count-down of 10). After each group, students have 1 minute to discuss (in their own groups) which emotion has been presented and feedback to the whole group. Students watching must justify their choice with reasons – 'what gave it away', 'how do you know'.
The class discussion can be guided, extended, developed by the teacher to include exchanges around how and why the emotion was expressed; how different emotions can be superficially similar – and how confusion could be avoided; which emotion was hardest to express and why…
Students should be encouraged to develop their own ideas about the ease or difficulty of the task, and whether they felt their group worked co-operatively or not.

Material
Slips of papers with the name of the emotions.

Observation/assessment criteria
The effectiveness of each group's presentation is judged by the whole class. Teachers can use the discussion to assess how far students engaged in the task and whether they can present or identify specific emotions. Students should also be encouraged to self-reflect on their own ease or difficulty in identifying or presenting emotions. Perhaps a written performance diary could be developed (if students are familiar with this type of task) or a reflection of their own strengths and weaknesses could be done.

Appendix

Suggested emotions

Friendly
Angry
Sad
Embarrassed
Frustrated
Annoyed
Eager
Shy
Nervous
Loving
Confident
Proud
Curious
Fascinated
Excited
Energetic
Surprised
Grateful
Touched
Hopeful
Happy
Peaceful

G) Change

Draw and Create

Agrupamento de escolas Nº1 De Serpa, Portugal

Indicator

Develop cognitive modifiability and openness to change.

Metacognitive goals

In the present context, where the world is changing faster and faster, it becomes necessary to develop competences which makes children and teenagers able to face this challenge.

On the one hand, citizens of the future have to be conscious of a changing society, have to be ready to accept change, but perhaps even more importantly, have to show openness to lead and implement that change.

On the other hand, change brings in itself several opportunities for learning which, if well used, may project the individual towards new ladders of cognitive performance, transferrable to other identical situations or on a higher level, in that the achieved cognitive development is not only a limited and occasional consequence of the exposition to an isolated experience, but a type of change that affects the basic structure of behaviour.

Therefore, the activities that are presented face the child with a simple situation (learning experience) where he/she is asked for a concrete response. Through that response, it is possible to check the pupil's ability to take advantage of that situation as an opportunity for evolution, or, on the contrary, we can see if he/she shows little openness to change or tends to follow stereotypes.

Time

45 to 60 minutes, longer if the teacher desires.

Organisation

Individual work

The activity consists in giving the students a sheet of paper with an unfinished graphic composition (drawing). The pupils are asked to complete the composition as they wish.

The activity is developed in two phases:

- Step one: the teacher gives children an exercise sheet with a drawing which is already started and invites them to complete the drawing (example sheets *A1* or *B1* in appendix). Pupils should conclude this phase in 15-20 minutes, but it may take longer if the teacher allows them to. When the activity is finished, the teacher collects the exercise sheets.
- Step two: the teacher hands out the same exercise sheet to the pupils. Before asking them to repeat the task, he/she shows them an innovative example of what they could have done on phase one, making it clear that that is only an example among many possible examples (for instance, the teacher can show the sheets *A2* or *B2* in appendix). The students should conclude this phase in 15-20 minutes, but it may take longer if the teacher allows them to. When the activity is finished, the teacher takes the exercise sheets.

The size of the graphic composition shouldn't be larger than A4, so that the activity doesn't take longer than expected.
According to the time available, the composition may be drawn in pencil or coloured with colour pencils or felt-tip pens.

Material
Sheet of paper with a graphic composition, pencil, eraser, pencil sharpener, colour pencils, felt-tip pens. Compasses can also be useful.

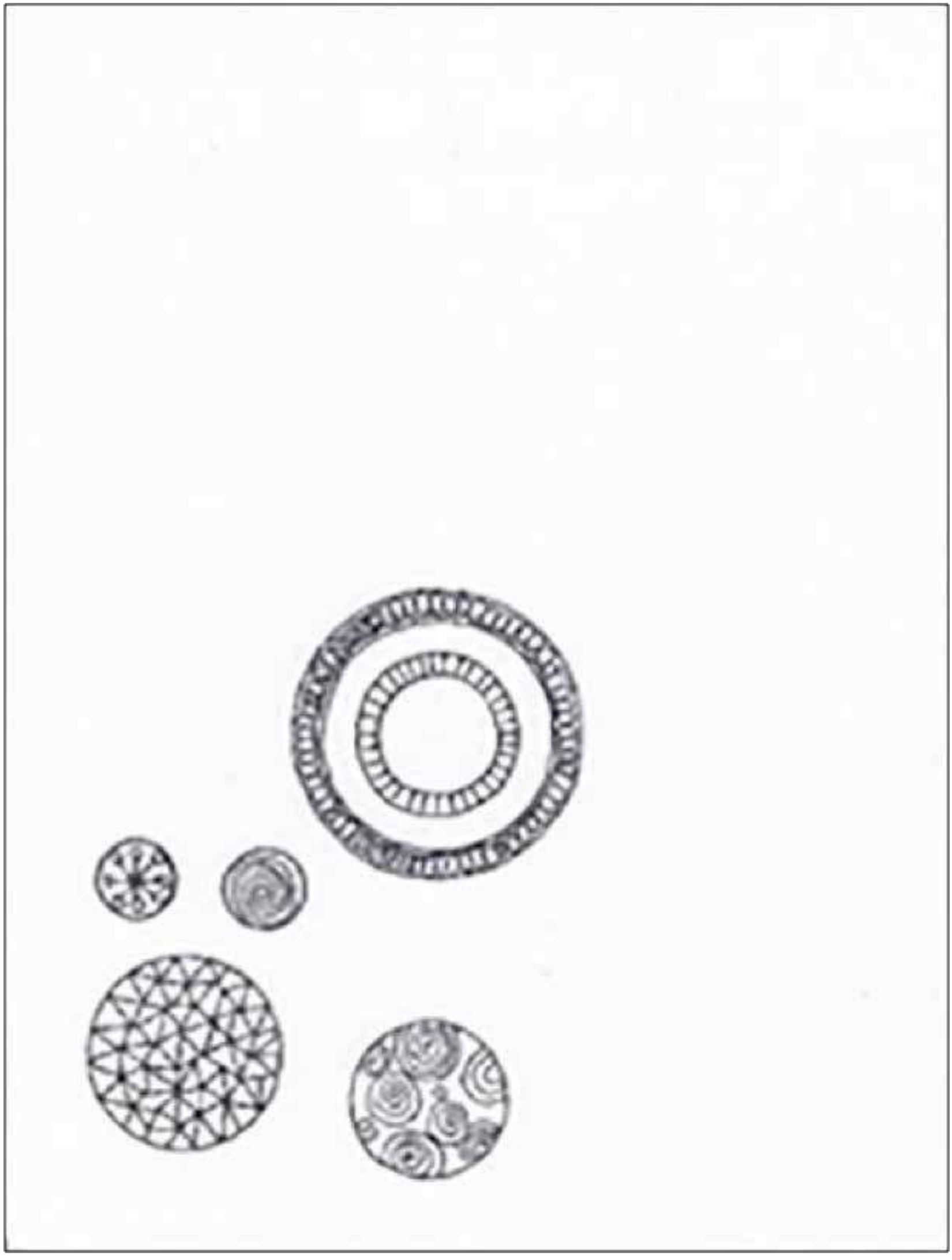
Observation/assessment criteria
After concluding the activity, the teacher may be able to assess how the pupil took advantage of the learning situation which was presented to him/her and whether he/she appears to be more or less open to change and cognitive development.
These aspects can be checked according to the way the graphic composition was continued and finished: the teacher should compare the work done on phase one with the one done on phase two, checking if the student changed (or not) his/her graphic approach after being shown an example with a different solution. If the student has changed his initial approach, we may conclude that, on a higher or lower degree, he/she is open to change.
If, however, the student merely copied the example shown by the teacher, it means that there is openness to change, but more in the sense of pleasing the teacher.
It is important to mention that this activity is not destined merely to the arts, for more important than the technical skill of the answer (its graphical quality, i.e. if the drawing is well done or not) is its conceptual analysis.
For each of the proposed activities, there are usually three possible types of response, which may guide the teacher in his/her analysis, being that:

A – After being shown the example, the pupil seems to pay little attention to the new suggested solutions and completes the second composition in more or less the same way as the first time without adding any new element. In this case, the student shows little or no openness to change and little ability to take advantage of a learning opportunity.

B – introducing some additional elements which enrich the composition, somehow copying the new elements introduced in the image shown by the teacher. In this case, the pupil shows some openness to change and some ability to take advantage of a learning opportunity, but also a tendency to be too complacent.

C – After being shown the example, the pupil completes the graphic composition introducing some new elements, unpredicted and creative, which enrich it, dramatize it or create a different context. In this case, the pupil shows openness to change and the ability to take good advantage of a learning opportunity.

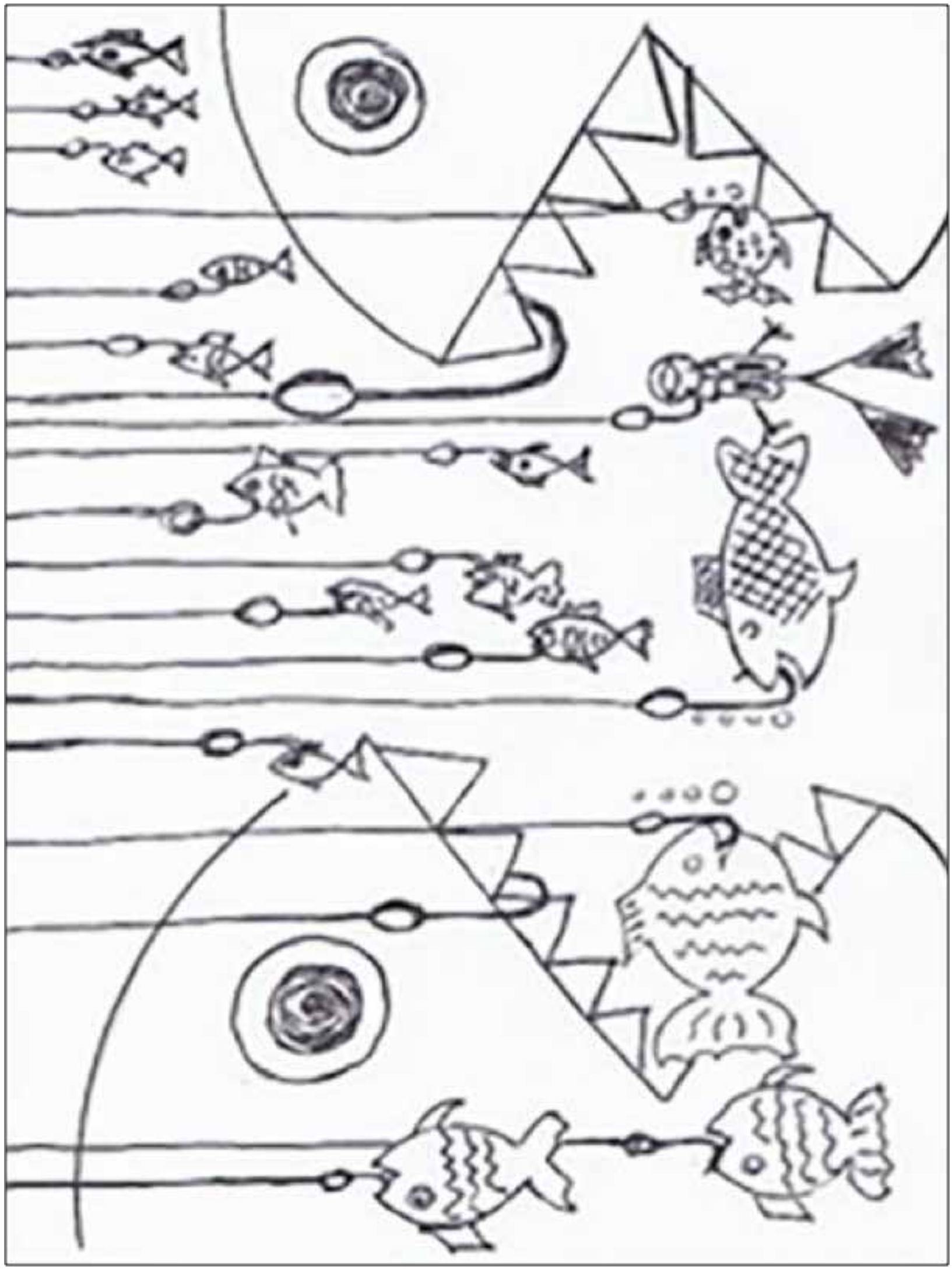
Appendix C1



Appendix C2

Appendix D1

Appendix D2



H) Teamwork

Snowflake

Viltis Progymnasium, Lithuania

Indicator

Work well in a team.

Metacognitive goals

To develop an ability to cooperate while working in a team.

Target group

12 -14 year old pupils.

Time

Approx 30 min.

Organisation

The game is played by 2 teams of 8-10 players. Two sets of 4-5 different coloured strings are needed. They are placed on the ground in the shape of 2 snowflakes, one for each team. Each player takes the end of one string with one hand while holding the other hand behind their backs. In 5 minutes, without speaking, the players have to tangle the ropes as much as possible. Then the groups switch places and they have to untangle the strings the other team have tangled as fast as possible. The team which untangles the snowflake first wins.

Material

Two sets of 4-5 different coloured strings.

Observation/assessment criteria

The first team to untangle the ropes wins.

For teachers' observations and pupils' self-evaluation the common METAMINDS assessment sheets can be used.

I) Teamwork

Marker

Viltis Progymnasium, Lithuania

Indicator

Work well in a team.

Metacognitive goals

To develop an ability to concentrate on working in a team to achieve a set goal.

Target group

12 -14 year old pupils.

Time

10-15 min.

Organisation

The game is played in small groups. You will need a marker and strings attached to it, one for each player in the group. Without speaking, holding a string with one hand, the team has to write a given word or a word phrase, e.g. “great team” as neatly as possible.

Material

A marker and some strings for each team.

Observation/assessment criteria

The products of the teams will be assessed for precision.
For teachers’ observations and pupils’ self-evaluation the common METAMINDS assessment sheets can be used.

The contributors

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Notes

1 M. Contini, Per una pedagogia delle emozioni, La Nuova Italia, Florence, 1992.

2 See A. Damásio, *Descartes' Error: Emotion, Reason, and the Human Brain*, Putnam Publishing, 1994 and Looking for Spinoza: Joy, Sorrow, and the Feeling Brain, Harcourt, 2003. For a pedagogical perspective to neuroscience see also, M. Contini/M. Fabbri/P. Manuzzi, *Non di solo cervello. Educare alle connessioni mente-corpo-significati-contesti*, Cortina, Milano, 2006.

3 See M.B. Arnold, *Emotion and personality*, Columbia Uiversity press, New York, 1960; Nico H. Frijda, *The Emotions*, Cambridge University Press, 1986 and N. Frijda, *Teorie recenti sulle emozioni*, in V. D'Urso, e R. Trentin (a cura di), *Psicologia delle emozioni*, Il Mulino, Bologna, 1990; Edgar Morin, *La Tête bien faite: Penser la réforme, reformer le pénsee*, Seuil, Italian translation, Cortina, Milano, 2000.

4 Many indications and stimuli for reflexivity, which also through writing becomes a way of taking care of oneself and one's emotions are in D. Demetrio: cfr., tra gli altri, *Raccontarsi: l'autobiografia come cura di sé*, Cortina, Milano, 1996; *L'educazione interiore. Introduzione alla pedagogia introspettiva*, RCS Libri, Milano 2000.

5 See M. Contini, La comunicazione empatica: presupposti cognitivi e implicazioni etiche, in M. Contini, *La comunicazione intesoggettiva fra solitudini e globalizzazione*, La Nuova Italia, Firenze, 2002.

6 The terms «talented" and "gifted" are used in this text interchangeably. In recent years the discussion about giftedness has been extended to include high ability students as well.

7 Among various contributions on this important issue see for example: European Commission, (1995) *Teaching and learning: towards the learning society" edited by Edith Cresson,* Brussels: European Commission (White Paper on Education and Training); G. Alessandrini, (2002) *Pedagogia e formazione nella società della conoscenza*, Franco Angeli, Milano.

8 Compare. *Dewey, John (1916). Democracy and Education: An Introduction to the Philosophy of Education. New York: Macmillan*. Retrieved 4 May 2016 – *via Internet Archive.*

9 Regarding the relationship between competence and reflexivity see what F. Cambi affirms: "Frontier research, (in didactics too), dealing with the extent of the intersection between competence and reflexivity is totally necessary and urgent. It is also a challenge to the past. It is also a bet: to bring useful and effective knowledge to school in an efficient way and to bring citizenship knowledge too, as this is the source of the only type of reflexivity which makes it possible to manage knowledge and fully control its use. (F. Cambi, (2004) *Saperi e competenze*, Laterza, Roma-Bari, p. 50).

10 de Mennato, P. (2003). *Il sapere personale,* Guerini, Milan, p. 116.

11 To this regard, see the important reflection proposed by D. Schön who, inspired by J. Dewey's Theory of Inquiry, hypothesises a model of professional practice based on problematic and not just "Technical" Rationality. In particular, Schön maintains that while according to Technical Rationality professional practise is to be intended as a problem solving process, "when someone reflects-in-action, he is not dependent on the categories of established theory and technique, but constructs a new theory of the unique case." The reflective practitioner's "inquiry is not limited to a deliberation about means which depends on a prior agreement about ends. He does not keep means and ends separate, but defines them interactively, as he frames a problematic situation. He does not separate thinking from doing, ratiocinating his way to a decision which he must later convert to action" (D.A. Schön, D.A. (1983) *The Reflective Practitioner*, Basic Books Inc., New York, 1993, pp. 30-31).

12 V.M. Bentz, J.J. Shapiro, *Mindful Inquiry in Social Research*, Sage, Thousand Oaks (CA) 1998.

13 Brookfield, Stephen. Becoming a Critically Reflective Teacher. San Francisco: Jossey Bass. 1995 S. Brookfield, *Becoming a Critically Reflective Teacher*, Open University Press, San Francisco, 1995, p. 15.

14 L. Mortari, *Apprendere*…, *Ibid.*, p. 78.

15 *Ibidem*, p. 80.

16 Appendix A-1.

17 Available in annex.