FACULTAD DE EDUCACIÓN DE PALENCIA

UNIVERSIDAD DE VALLADOLID

DEVELOPING THINKING SKILLS THROUGH A 2ND LANGUAGE AT EARLY PRIMARY LEVELS: TOOLS AND RESOURCES

DESARROLLO DE HABILIDADES DE PENSAMIENTO A TRAVÉS DE UNA SEGUNDA LENGUA EN LOS PRIMEROS NIVELES DE PRIMARIA: HERRAMIENTAS Y RECURSOS

TRABAJO FIN DE GRADO

MAESTRO/MAESTRA EN EDUCACIÓN

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RESUMEN: Este trabajo se centra en cómo la utilización de diferentes estrategias dentro del aula ayuda al alumnado a desarrollar y mejorar sus habilidades de pensamiento. Estas herramientas sirven como soporte para alcanzar los objetivos de aprendizaje del alumnado y mejorar, al mismo tiempo, su pensamiento crítico y constructivo. Crear situaciones rutinarias dentro del aula aumenta el propio aprendizaje intelectual y social del alumnado, al mismo tiempo se crea un aula pensante donde alumnas y alumnos se implican en la comprensión y explicación de conceptos, búsqueda de patrones o aprendizaje a través de la clasificación y categorización. Como señala Tessa Woodward in her book *Thinking in the ELF Classroom (2011)* se trata de crear buenos pensadores, preparados para cualquier situación dentro y fuera del aula. Herramientas como: Mediadores o Mapas Mentales, entre otros, puede ayudar al aprendizaje de pensar del alumnado: son una oportunidad para aquellos que tienen alguna necesidad intelectual o déficit de atención, lectora, escritora e incluso de rutinas, ya que les permite mejorar su habilidad pensante. David Hyerle escribió en su *libro El éxito de los estudiantes con los Mapas Mentales* (2011), el aprendizaje de los alumnos puede llevarse a cabo en menor tiempo gracias a la utilización de éstos. En definitiva, la creación de diferentes medios para construir una buena atmósfera que ayude a los alumnos a formar parte de ella y desarrollar la capacidad pensante dentro del aula es labor del maestro.

ABSTRACT: This study is focused on how using different strategies in the classroom helps pupils develop and improve their thinking skills. Moreover, these tools are a support in achieving the learning objectives of students and improving them, while they develop their critical and constructive thinking. Creating routine situations in the classroom increases the intellectual and social learning of pupils. Simultaneously this generates a thinking classroom where pupils are involved in the comprehension of concepts, looking for patterns and learning through classification and categorization. As Tessa Woodward argued in her book *Thinking in the ELF Class (2011),* "the goals to create good thinkers, require preparing students for any situation inside and outside the classroom". Mediators and Thinking Maps, among others, can help pupils learn to think: they are an opportunity for those who have an intellectual need or attention deficit, problems in reading, writing and even following routine, as these allow them to improve their thinking ability. David Hyerle wrote in his book *Student Successes with Thinking Maps (2011)* that the students' learning could be accomplished in less time thanks to the use of Thinking Maps. In essence, it is the teacher's job to create different ways to build a positive atmosphere that helps students participate and develop their thinking skill in the classroom.

PALABRAS CLAVES: Mapas Mentales, Habilidades de Pensamiento, Habilidades de Escritura, rutinas, Autodidactas, Resolución de Problemas, Necesidad de Aprendizaje, alumnos pensadores, aulas para pensar, Curriculum Nacional Británico, las técnicas de pensamiento, metodologías de pensamiento, proceso de aprendizaje, intercambio de ideas, exposiciones, pensamiento múltiple, estrategias de pensamiento, herramientas de pensamiento, el pensamiento reflexivo, rutinas de pensamiento, Show and Tell, pensadores,

KEY WORD: Thinking Maps, Thinking Skills, Writing Skills, Routines, Self- learners, Solving- problem people, Learning Needs, Thinker, Thinking Classroom, British National Curriculum, thinking techniques, thinking methodologies, learning process, brainstorming, Show and Tell, multiple thinking, thinking strategies, thinking tools, reflexive thinking, thinking routines, Show and Tell, thinkers,

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1.   INTRODUCTION

The aim of this study is to develop thinking skills in a "thinking classroom", the place where different strategies and methods are applied in order to increase pupils´ learning and knowledge, while exploring ideas and sharing them with each other and where pupils want to communicate and to express themselves. While routines and brainstorming are helpful when using prior knowledge, there are other tools, such as "show and tell" or Thinking Maps that have proven very useful in primary education, as the goals of these resources are to help pupils not only to read or write, but also to speak and generate thoughts or ideas.

These activities are used to apply "multiple thinking" and develop "multiple intelligences" where the teacher works with all the pupils´ possibilities when dealing with a problem. They help pupils to organise and classify all types of information. At the same time, we can find a common language through "mediators"[1] in the classroom or in the school; these help the teacher to observe if pupils are focused on the same points he/she is emphasising.

Thinking is a natural trait, but it is just as important to learn how to think. This is why it is necessary to develop "thinking classrooms" where all pupils feel comfortable and involved in their learning. Nowadays, the Primary Education Curriculum is focused on categorising concepts, improving speaking techniques as well as developing communication skills: speaking, listening, writing and reading or interaction skills. Thus "thinking classrooms" are more relevant than ever. Through the development of these skills, pupils will be self-confident, self-thinkers and self-learners as long as they can freely express themselves. At the same time, the teacher must provide an accommodating and positive atmosphere to facilitate this.

Therefore, increasing thinking skills provides a significant opportunity for developing not only problem solving strategies and "multiple intelligences", but also emotional and core-competencies. The opportunity to test this theory in a school located in a mid-lower class neighbourhood in Palencia, allowed me to focus my study on the use of "thinking strategies" as "thinking tools" for children of Year 2 (7 to 8 years old), that it to say, the use of different resources to develop thinking skills. At these ages, pupils can manipulate and observe objects, as well as think and link different concepts. However, there were pupils

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[1] They are a simple visual tool that approach students to the targets or contents that the teacher wants them to achieve during their learning process.

with different needs in the classroom such as motor skills problems, autism and learning needs; so it was a unique situation to get first-hand evidence of the way thought could be trained, showing how this project proved useful in a multitude of given situations. The planning of these strategies and activities will lead to better results in pupils, awakening their interest in shared experiences and increasing participation in learning and thinking activities. , The key goal is to help students to be aware of different ways of learning, and to guide and direct their own personal development and thinking skills.

Ultimately, it is necessary to provide a rich, helpful, motivating and unique environment with a wide range of opportunities to think and learn. Thus the teacher must ask him or herself: *What do I expect from my students? How can I make them autonomous thinkers? What activities should be developed in the classroom for children to demonstrate interest and develop their full capabilities?* If the teacher is to achieve this purpose, real thinkers will be fostered, not only within the context of a classroom, but outside the academic sphere and for the rest of their lives.

2.   OBJETIVES

This study is concerned with the following aims:

- Showing that "thinking classrooms" help to increase thinking and communication skills in a constructive way, while taking responsibilities, producing, visualising, innovating and listening with understanding and empathy are presented in the classroom.
- Presenting different strategies and tools that help pupils to develop the brain´s ability to construct patterns and thoughts.
- Analysing how these resources allow the teacher to ensure pupils´ learning, so that his or her assessment can be more effective.
- Providing options on how all these tools can be applied in the area of Science in Year-2, and how they can help pupils to understand certain topics, improve reflexive thinking and learning, as well as how a pupil has understood something and how he or she is able to summarise. Meanwhile the teacher is focused on maintaining interest within the classroom and less focus on presenting and discussing abstract and terminological frameworks.

- Assessing the efficiency of selected techniques in the implementation of these tools.
- Encouraging the use of the strategies and resources within the classroom and school to promote thinking skills and thinking pupils.

3.   JUSTIFICATION

The present hypothesis starts with a wonder whether age supposes any constrain to the usage the main tools associated with "thinking methodologies", or on the contrary, they can be used in a "thinking classroom". Every one of the tools selected facilitates an easier understanding of the curriculum and targets to be achieved during their learning process. However, despite the work being focused on Year-2 Science, these tools could have been used as early as Infant Education to ensure the strength on pupils´ progression.

Carol McGuiness wrote in her study *From Thinking Skills to Thinking Classrooms (1999)* that "thinking methodologies with learning outcomes in short and long term can be carried out if there are specific materials, pedagogy and support of a good teacher to develop thinking skills in students, help them to improve not only their listening, reading, writing and speaking skills, but they also learn to consider, reflect, imagine, assume, suppose, formulate, realise, analyse and socialize."[2] It is also worth noting Teresa Woodward's[3] view who suggests that, "developing "Thinking Classrooms" at school are necessary because the world in which we live has changed and it is required to develop all kinds of skills that allow students to be self-sufficient, self-learners, sociable and thinkers. One should note that every resource and tool are necessary to use at school for enlarging pupils´ capacities, mental abilities, emotions and manual or physical skills

Working with students in the first cycle of a primary school, makes this argument more compelling, since it is at this stage that students must begin to develop their communicative and thinking skills. As pupils begin to explore new concepts in different areas they have to follow routines, while understanding brainstorming concepts and begin to learn to organise, compare, classify, give descriptions and translate them into reports, registration

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[2] McGuinnes, C. (April 1999), *From Thinking Skills to Thinking Classrooms. School of Psychology, Queen´s University, Belfast.* http://www.qsm.ac.il/userfiles/ershad_tarbawi/general/Greenhouse.pdf
[3] Woodward, T. (2011). *Thinking in the EFL class.* Helbling Languages, London, the United Kingdom. pp 9- 19.

forms or thinking maps. During their years at school, students will see "visual and thinking tools" in the classrooms, such as "mediators" or "thinking Maps" that *"become a language for learning in a whole school for children who are rarely perceived as having a good chance of "making it" in our educational system and in our society".*[4]

To develop thinking skills in Year-2, it is important to know who and how the pupils are going to build up their knowledge according to their various stages of progression which is gathered in the Integrated Curriculum. Theory and practice are closely related. Whether we are trying to get our pupils to notice a language pattern or to work on a specific topic in science, we can provide a rich, supportive and interesting environment where exploring and talking about ideas, – helping them to "ask their own questions", analysing functions, building relationships and creating interactions are present.

According to the Northern Ireland Curriculum, at *Key Stage 1* the pupils should:

- observe and explore the world around them in a scientific background, so experiments are conducted;
- begin to work together, so all activities must be done in pairs or groups;
- start to assess first-hand evidence from experiments, learn how to evaluate data and report it;
- use specific scientific language in order to share conclusions, understand "mediators" and create "thinking maps". Pupils are taught to learn this simple language to communicate ideas, and name and describe objects or living things;
- use "morning routines" and "brainstorming" to help them to increase their learning by composing individual sentences, orally and written, while the thinking ability is present.

Depending on the Thinking Maps theory, it is worth noting that those tools can be used not just as school practice, but it usage may also become part of the learning strategies students can develop on their own at home. Pupils develop reading, writing and thinking skills that allow them to make decisions and solve certain real-life problems[5].

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[4] Manning, Cynthia. *Thinking Maps for Special Needs*. Publication: September 5, 2008 Edition: 2nd, pp. 144-145

[5] Hyerle, D. and Alper, L. (2011). *Student Successes With Thinking Maps? School-Based Research, Results.* Corwing. Chapter 12, pp.137-140.

There are three distinct types of maps that can be used in a Year-2 classroom, according to a given situation or topic. Thinking Maps with words and pictures are useful when the teacher wants to be sure that all the pupils, regardless of their needs, understand the message, topic or content. When pupils from Year-2 already know how to read and write, words replace drawings and pictures. The Thinking Maps developed may be:

- Rich pictures: pupils must link and identify some concepts in a given problem situation.
- Concept maps: pupils have to find the link between concepts.
- Mind maps: a visual information map that is created around a word or text.

For the implementation of these thinking tools it is necessary to follow these steps:

1. The teacher must think about what type of model is the most suitable one.
2. It is important to introduce this resource during a training period, in order to show pupils how to use and understand these tools.
3. From a specific topic, the teacher must guide the students through the development of the thinking skill.
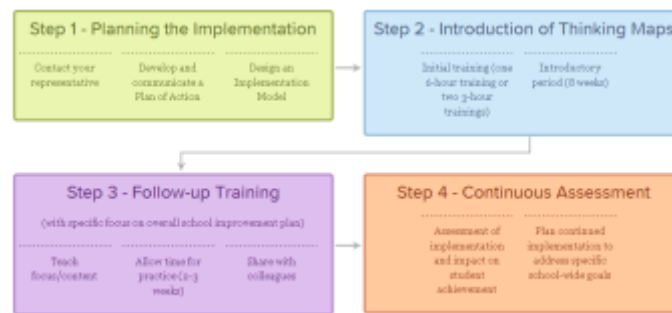4. Use the Thinking Maps as an assessment tool.

Figure 1: How to Implement Thinking Maps® School-wide. (www.thinkingmaps.com)

"Thinking maps" are not only used to learn new concepts or topics, they are also used to encourage different activities that engage physical movements and routines. In fact when using Thinking Maps, many second year pupils can develop a routine every day using mediators, concept maps and pictures in order to build up their thinking skills.

Ultimately, the implementation of these thinking resources belongs to a "thinking classroom", while the assessment of the targets can be made by the pupil and the teacher.

As Maria Birbili[6] argued in *Mapping Knowledge: Concept Maps in Early Childhood Education*, once a pupil learns how to use thinking, concept or mind maps, and represents or identifies the information through these tools, the teacher can use it as an evaluation tool in order to confirm whether the student has understood the topic or message, and if this has been achieved, then this tool is appropriate.

4.   THEORETICAL FOUNDATION

4.1.   LANGUAGE AND THOUGHT

In the last few years the education community has been concerned about how to improve learning and understanding skills within school. Therefore, many tools have brought to the classroom in order to develop thinking and learning skills. The emergence of these tools brings out activities, such as daily routines, "show and tell" practices and thinking maps to help, not only the teacher but also the student, to respond to the demands of the curriculum and educational needs in the 21st century.

Tessa Woodward in her book *Planning Lessons and Courses. Designing sequences of work for the language classroom*[7], claims that a good lesson is one where language is learnt and where pupils and the teacher feel relaxed, physically and psychologically. The participants should know each other, be aware of the things they have to learn, do activities in class and experiment with everything around them. It is also important to know how to learn better, take the initiative or make decisions. Ultimately, the aim is to develop thinkers in the classroom in every language and situation.

Taking into consideration all these conditions, we can then conceptualize the classroom to be a "thinking classroom". Carol McGuinness offers a category of the different types of thinking associated to the tasks they are most frequently used. She organized these thinking processes linked into these situations: being creative, self-managing, problem solving, critical thinking, working with others and managing information. It is also noted that a

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[6] Annenberg Learner. Teacher resources and professional development across the curriculum. Neuroscience & the Classroom: Making Connections.
http://www.learner.org/courses/neuroscience/

[7] Woodward, T., (2001). Planning Lessons and Courses. Designing sequences of work for the language classroom. *Chapter 3: What can go into a lesson*. Cambridge University Press. London, pp. 73- 109.

certain degree of planning is necessary by the teacher to improve children's thinking and learning skills, "through a pedagogical approach that emphasises thinking processes in the classroom"[8].

 With all of this in mind, and to succeed when creating a "thinking classroom", it is vital to develop a language for "talking about thinking". This would help to make decisions, and would also help pupils to use the method of thinking diagrams or thinking maps. This language can be developed by:

- Brainstorming sessions to get all the pupils´ ideas and information. Teacher's involvement stimulates their thinking and inspires them to develop new judgements.
- Conversation, searching and sharing must be present during the entire lesson.
- Evaluating the goals of the exercise in relation to their own thinking through self-assessment and thinking maps.

Dr. David Hyerle created Thinking Maps to be used from pre-K up to the Secondary levels, as he thought these are the tools that develop thinking skills. In his book *Visual Tools for Transforming Information into Knowledge* (2009)[9] he claims that visual tools are basics for improving not only thinking but also problem solving skills and communication. These visual tools for thinking are very helpful for any teacher wishing to develop the thinking and understanding of concepts that pupils need to learn.

Thinking Maps are "dynamic graphic designs" used by teachers to develop new skills in their pupils such as: life-long thinking, cooperative learning, communicating, self- learning and assessing. These visual tools can improve reading comprehension, writing skills, scientific thinking, and numerical skills.

David N. Hyerle and Larry Alper demonstrated in an experiment included in their book *Student Successes with Thinking Maps? School-Based Research, Results*[10]. One of their main conclusions is that it´s fundamental to know which map or "mediator" could be useful in every single situation. Therefore the teacher must pay attention to how these resources are

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[8] *The journey to excellent. McGuinness A framework for thinking.*
http://www.journeytoexcellence.org.uk/videos/expertspeakers/aframeworkforthinkingskillscarolmcguinness.asp
[9] *Hyerle, D. (2008) Visual tools for transforming information into knowledge. Chapter 7: Thinking Map gives a chance to learn. London.* Sage Publications Ltd. Edition: 2nd.
[10] Op.cit. pp. 137- 140.

used by the pupils. The tools are also used to apply multiple thinking and to find solutions to particular problems. Additionally, they can be used to develop tasks done by pupils, in pairs or in cooperative groups.

Nowadays it is held that teachers should pay attention to the needs of each student and the diversity of the group. It has been demonstrated that the use of "mediators", graphics or "thinking maps" are very useful to establish the teacher role as well as assuming all participants as equals to develop learning skills, and to ensure participation and inclusion are fostered. Nancy d´Hemecourt in *Thinking Maps for Special Needs* argues: "It is shown that mind maps help pupils to develop their thoughts from low-level to high- level thinking". At the same time Cynthia Manning in this book write about how mind maps are a change for those who wants to be part of the educational system and society.

Following the same idea, Maria Birbili (2006)[11] wrote that a visual tool can be useful in every type of activities that involve not only thinking but also physical movements and daily routines.

Pann Baltz, 1993 ATA[12] Teacher of the Year, in *Creativity in the Classroom: An Exploration* mentions that the classroom materials and tools are focused on the development of environments in which students' creativity, thoughtful, and thinking can grow and here is where routines, mediators, mind and thinking maps take its role. Through short thinking routines pupils can learn strategies to develop thinking skills, so that it is important these routines become part of the classroom life.

The development and improvement of thinking and learning skills complies with the guidelines of the Common European Framework of Reference for Languages, and the reference documents as the European Portfolio for Languages. The L.O.E. (n- 106, Thursday 4th May, 2006) and the Curriculum for Primary Education in the Community of Castilla y León (BOCYL n 89, 3rd May, 2007) suggests that: *"La constante utilización en el área de técnicas para aprender, para trabajar en equipo, para organizar, memorizar y recuperar la información,*

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[11] Birbili, M. (2006). *Mapping Knowledge: Concept Maps in Early Childhood Education.* Vol. 8. Number 2.
[12] *The Alberta Teacher´s Association. The Association adopted the following mission statement in October 1993: "The Alberta Teachers' Association, as the professional organisation of teachers, promotes and advances public education, safeguards standards of professional practice and serves as the advocate for its members. From time to time, each year the Association bestows honorary membership on teachers and others who have given meritorious service to the teaching profession or the advancement of education."*
http://www.teachers.ab.ca/About%20the%20ATA/Pages/default.aspx

tales como resúmenes, esquemas, mapas mentales, etc., favorecen al desarrollo de la competencia para aprender a aprender.[13]

The constant use of tools for learning, working in teams, organising, memorising and getting information, such as: summaries, diagrams, mental maps, etc. benefit the development of the competency for learning to learn.

4.2. MULTIPLE INTELLIGENCES

Gardner denied the existence of intelligence as traditionally understood –a set of capabilities that facilitate the academic performance of subjects-, and instead of using the word "intelligence" where other people have traditionally used other attributes and words, he started to talk about "ability" and "aptitude".

In the topic of "thinking in a classroom" it is possible to develop some of Gardner´s intelligence. These are:

- Logical-mathematical: refers to self-communing using numbers and thinking through different strategies and graphics. It is important to point out the non-verbal nature of mathematical intelligence, because it is related to thought and the development of thinking skills.
- Linguistic: refers to the ability of express and receive communication. Linguistic communication can consolidate the group. The ability to communicate allows the thinking skill to be developed from an early age. This allows the student to be involved in a huge amount of complex thinking.
- Interpersonal: relates to the interaction with others while working in tasks. Interpersonal intelligence allows pupils to understand and work with others.
- Intrapersonal: involves the increase of reflective capacities. Pupils have to realise their strengths and weaknesses. Intrapersonal intelligence allows better understanding and enables them to work on their own. The role of the teacher is crucial as it helps the student to get to know him/herself through thinking and developed routines.

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[13] The Curriculum for Primary Education in the Community of Castilla y León (BOCYL n 89, 3rd May, 2007) *"The constant use of tools for learning, working in teams, organising, memorising and getting information, such as summaries, diagrams, mental maps, etc. benefit the development of the competency for learning to learn." P. 9858*

- Kinaesthetic: refers to movement of the body, which is used to express emotions and encourages thinking ability. A thinking classroom requires great physical and mental spaces, so that the student body and mind can feel free to do any kind of activity, either in one particular place or in the entire classroom.

It is important to mention multiple intelligences with Project Zero. It was founded at the Harvard Graduate School of Education in 1967 by Nelson Goodman, but it was in 1972 when David Perkins and Howard Gardner served as co-directors of Project Zero; so the project is much focused on the development of multiple intelligences. Project Zero helps teachers and students to develop learning, creativity and thinking skills in all the disciplines. At the same time this project is trying to build up independent learners and thinkers, and promote critical and creative thinking. When pupils have to work on projects, such as a Science experiment or a report, they have a single chance to show skills and considerate in several areas and through a diversity of media. The classroom materials not must be focused only on the growth of students' creativity, but also on the increase of environments in which pupils´ and teachers' creativity and thinking can grow. Therefore, this project helps me to design my hypothesis and the use of some tools in the classroom while thinking ability and inspiration were present.

4.3. VYGOTSKY'S THEORIES (LANGUAGE)

Considering Vygotsky's general theory as the basis for development of the thinking Classroom and thinking ability is important to emphasize, in this section, his Sociocultural Theory. He states that it is not always necessary to be fluent in a language to be able to learn from activities. When pupils cannot complete a task by themselves, the teacher should support them with verbal help and guided assistance. As formerly it was said, Vygotsky demonstrates that some language registers used in the classroom are linked to thinking skills, as they help pupils to develop their communication abilities. Vygotsky´s languages are:

- **Public Language**; refers to the ability of the pupil to talk with other students.
- **Social language and private speech**; "a critical intermediate stage in the transition from external social communication to internal self-direction and as the cornerstone of all higher cognitive processes, including selective attention, voluntary, memory, planning, concept formation and self-reflection" (Berk 1992, quoted in Fernyhough

and Lloyd 1999: 34). It is the way of talking with oneself or repeating something in order to understand and memorize.

- **Inner Language**; the way to connect to neural linguistics and start to think by himself, i.e. for a pupil to be able to question him/herself.
- **Verbal thoughts**; refers thoughts focused on the words themselves.

In addition, it is worth noting Vygotsky's **"Zone of Proximal Development" (ZPD**), which is the term for the range of tasks that a child can complete independently, and those completed with the guidance and assistance of adults or more-skilled children. There are two limits:

- The lower limit of ZPD is the level of skill reached by the child working independently.
- The upper limit is the level of additional responsibility the child can accept with the assistance of an able instructor.

Vygotsky focuses on the child-in-context acting in a situation or event as the smallest unit of study. Vygotsky argued that looking at children increase without cultural background deform our point of view of development. Learning situations have to be structured while pupils are learning and the teacher is supported them in the construction of appropriate understanding within a real context, in which we can talk about "individual activities" and "Share activities".

4.4.   JEROME BRUNER

Jerome Bruner was one of the most influential constructivists. He was influenced by the widely known Piaget's ideas about cognitive development in children. Based on Vygotsky's ideas about the "Zone of Proximal Development", Jerome Bruner developed the concept of "Instructional Scaffolding". This theory refers to the process in which peers or adults are able to act as learning supports. This help becomes gradually less frequent as it becomes less required. The pathways to developing thinking skills are based on a scaffold-type structure. It is necessary to prepare the topic that will be learnt by the pupils, get information about it and organise ideas related to it. From the introduction to the topic, the teacher´s questions have to be aimed at the students in order for them to think, relate to the topic and eventually be able to work on a perfectly organized and thought process that leads students to develop their learning from least to most: routines, mediators, brainstorming, Thinking Maps and Show And Tell as final task. Initially the teacher will

lead the students through double option questions, but little by little students will be able to do it by themselves, as they assume the pattern. At this moment, not only could the teacher assess pupils´ learning but the pupils also could perform their own self- assessment.

4.5.   METACOGNITION

Metacognition is the concept of thinking about thinking. Metacognition is what someone knows, as well as proper comprehension of the task, knowledge and skills that are required for assessing any given situation. Three different types of knowledge can be described:

- Declarative, related to the information a pupil has. It could be spoken or written. This knowledge is used at the beginning of each lesson in brainstorming activities.
- Procedural, linked to the knowledge of how to perform a task and what steps are required to understand it. This knowledge is applied in thinking maps and routines.
- Conditional, related to the knowledge of when to use a strategy. For example, a pupil needs to realise that to do a "Show and Tell" activity, it will be required to use short sentences or some key words to be understood by others.

As William Pierce argued in *Metacognition affects motivation because it affects attribution and self-efficacy* (2003), to help pupils to develop their thinking skills and be focused on the topic and task are essential in a "thinking classroom". This helps them to be more motivated, so their grades improve. It also makes them think about their own talent and effort.

For the teacher to develop thinking skills in the classroom it is necessary to increase metacognitive skills. This can be achieved through:

- Self-assessing, when pupils demonstrate their learning and show how their skills have been developed every week.
- Self-questioning, when pupils question themselves about their learning, worries, difficulties, etc... Pupils should use questionnaires to assess their own knowledge at the end of each topic.

4.6. VISIBLE THINKING

"Visible thinking" can be found in a classroom when thinking routines that help pupils to build their own thoughts have been fostered. This is also what Project Zero tried to develop in many schools. Visible thinking helps pupils to understand the contents of a task. They are also more motivated to learn, while they develop thinking and learning abilities. Visible Thinking argues that knowledge and skills are not as important if not accompanied by situations that require thinking or positive attitudes toward thinking. It is necessary for a really good thinking to be involved by abilities, approaches, and awareness, all three at once: "Technically this is called a dispositional view of thinking. Visible Thinking is designed to foster all three."

As Ron **Ritchhart** and **David Perkins** argued in the Teaching *Students to Think Magazine* (February 2008), there are six key principles that anchor Visible Thinking:
-   "Learning is a consequence of thinking".
-   "Good thinking is not only a matter of skills".
-   "The development of thinking is a social endeavour".
-   "Fostering thinking requires making thinking visible".
-   "Classroom culture sets the tone for learning and shapes what is learned".
-   "Schools must be cultures of thinking for teachers".

4.7. THINKING MAP METHOD

Thinking Maps are a set of graphic organisers that help pupils to develop skills to be "thinkers, problem solvers and decision makers". These set of visual organisers was created by Dr. David Hyerle. Thinking Maps is a type of language used by pupils to learn more successfully. Thinking Maps were created to become an effective tool in child education, as a way to help develop every skill in the classroom. Thinking Maps are help pupils to learn result reading, writing, listening, and speaking.

There are eight Thinking Maps but not all of them can be used for the first cycle of primary school because of its difficulty. Some of them are focused for high school. The aim of these maps is to point out a concrete or an abstract idea. The different types of Thinking Maps are:

- **Circle Map**. It is used to brainstorm ideas and when the teacher wants to show prior knowledge about a topic.

Figure 2: Circle Map

- **Bubble Map.** It is used to express qualities using adjectives.

Figure 3: Bubble Map

- **Double Bubble Map.** It is used for comparing and contrasting.

Figure 4: Double Bubble Map

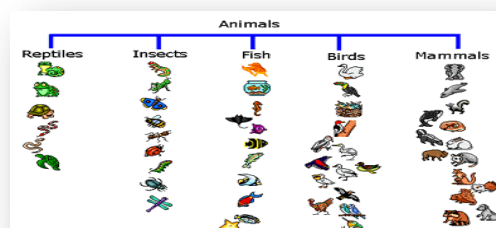- **Tree Map.** It is used for "classifying and grouping".

Figure 5: Multi- flow map

- **Multi – Flow maps.** It helps pupils question a situation by looking at "the cause and effect".

Figure 6: Multi- flow map

The following "Thinking Maps" are not use in year-2 because of their difficulty:

- **Brace Map**. It helps pupils understand the relationship between an object and its parts.

Figure 7: Brace Map

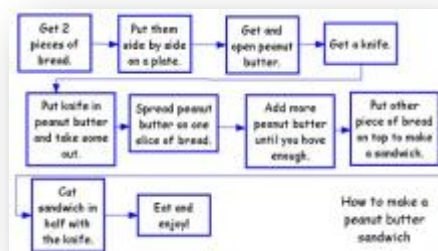- **Flow map.** It helps understand steps and order a process.

Figure 8: Flow map

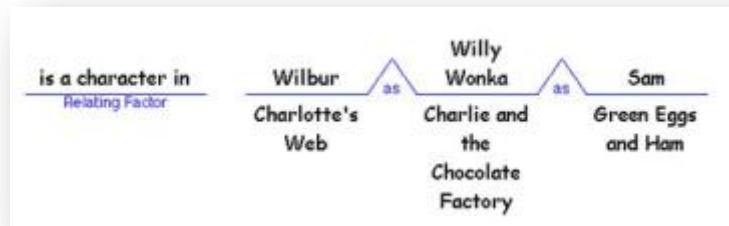- **Bridge map.** It is used for identifying similarities and associations.

Pupils and teachers are able to develop thinking skills using these tools. A daily routine, a "show and tell" activity, as the way to organize information to be shared, or a "thinking map" are processes that assist the act of thinking. All these tools and resources organise pupils´ ideas and help them to learn from different topics. They also help them to retain information and knowledge for a long time.

5. DESIGN

5.1. BACKGROUND AND SCHOOL CONTEXT

This project was carried out in a British school in Palencia very close to the city centre. In 1996, MEC and British Council signed an agreement which aims to develop an integrated curriculum in Spanish public schools. The British program has different bilingual aims, such as: encouraging the acquisition and learning of both languages through an integrated curriculum where Science and Literacy are taught following the British Curriculum as a comprehensive school with students of different abilities. This school focuses on this British National Curriculum, besides where the teacher emphasizes the development of certain attitudes, as essential: the spiritual, honest, civilizing, thinking and corporal development of pupils at the school, and set up pupils for the chances, every day jobs and experiences of their future. To achieve these goals, the school provides opportunities in students to develop their capacities through learning and experimentation from the age of 3 years, where pupils can increase not only their English language but also the right way of thinking, socializing, experimenting, understanding the English culture and feel part of it. Science and Literacy subjects are prepared to reach these objects through different thinking activities, one of the leading techniques are "show and tells" that allowed pupils from early

ages, to investigate about a topic, organize the information as well as be aware of three important steps they should follow: preparation, exposure of the topic and outcome at the end of the show.

The present work focused on KStage-1, Year-2, where there are two classes with 25 pupils in each one. Due to the great diversity of these classrooms, this project is an opportunity not only for the teacher but also for students because in these classes different learning pace and abilities are found. As I mentioned in the section on theoretical methodology, the tools selected to be done should concentrate on: thinking techniques, but only the ones that responding to this diversity and the student achievements as an opportunity for everyone to learn, if we want to develop communicative competence in our students following the European Linguistic Headline Language, analyzing the researches about languages of school[14]. Science could never be taught without language, in this way we cannot forget an essential tool for English school. The Common European Framework of Reference for Languages defines the capabilities that the student must check in each category levels to understand, speak and write. Speaking skill includes oral expression and oral interaction and writing category comprises expressing skill. Ks-1 pupils should learn to:

- Read and write with confidence and understanding;
- Be interested in books, enjoy reading and know what they really like to read.
- Understand a range of field in fiction and non- fiction text: poetry and narratives.
- Monitor and self-correct their reading.
- Prepare their writing.
- Be interested in new words and word meanings, while they are improving their vocabulary.
- Have good and understandable handwriting.

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[14] Council of Europe - http://www.coe.int/t/dg4/education/elp/elp-reg/cefr_EN.asp- has promoted several studies at English Level about the presence of language in other subjects at school. Especially outstanding should be develop, while learner autonomy and communicative competence (relating to the Common European Framework of Reference for Languages CEFR) are increased. The CEFR defines six common reference levels (A1, A2, B1, B2, C1, C2), to define the learner´s proficiency at each level.

When a teacher implements based on these premises, it is necessary to refer at the Content and Language Integrated Learning (CLIL)[15] premises. This is an educational approach where subjects such as Science and Literacy are taught through a foreign language.

5.2. LITERACY AND SCIENCE. LITERACY THROUGH SCIENCE.

The language of instruction is not used in pupils´ everyday life and the teacher is not, for the present experience, a native speaker, which requires a necessary coordinated work between both teachers: Science and Literacy.

- **Literacy**

Literacy is one of the British Project School subjects, as it has formerly said. This subject makes a clear distinguishing quality from other bilingual programs. Literacy is seen further from writing or reading skills. It focuses on production "know how to do". Literacy occupies the five skills of language: understanding, speaking, reading, writing and interacting (CEFR). All of them give the pupils a knowledge and have power over the language which allows children to work with both fiction and non-fiction materials. These targets are structured into Word Level, Sentence Level and Text Level[16]:

> "The term level is used to refer to structural/organizational layers in texts. Each of the levels is essential to effective reading and writing and there is a very close inter-relationship between them. At different stages of learning literacy, however, some levels will assume greater prominence in teaching. Word level work will, for example, be very much to the fore in the beginning stages of literacy learning even though teachers will also want to enable pupils

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[15] In a *Content and Language Integrated Learning (CLIL)* language is used as a medium for learning concepts, and they are used as a way of learning languages. Students can put the language they are learning into practice. This is why CLIL is receiving special attention at British School in order to get the aim of learning another language in addition to the mother tongue. "CLIL is listed as one of the innovative methods to improve the quality of language teaching". (European language policy and CLIL. A selection of EU- funded projects. European Commission B-1049 Brussel Belgium. http://www.ua.gov.tr/docs/avrupa-dil-%C3%B6d%C3%BCl%C3%BC/finarep_en.pdf?sfvrsn=2)
[16] Word level work: i.e. phonics, spelling and vocabulary; sentence level work: i.e. grammar and punctuation, and text level work: i.e. comprehension and composition.

to locate such work in correctly formed sentences and meaningful texts rather than pursuing it as an end in itself."[17]

- At Word Level; pupils from year two work on topic vocabulary in Science and Literacy. They use these new terms[18] in order to do their "show and tell" and share their opinions during the lessons. Knowing these new terms help pupils to be more confidence. Pupils should be able to express. They may ask classmates and teachers questions and use simple sources to find answers. There is always a time for questions and doubts, so they begin to develop the ability to think before speak. For example, during Science lessons pupils must be aware about their scientific thoughts. The creation of a Science context must be made by the teacher.

- At Sentence Level, pupils start to apply familiar grammatical structures properly, and can provide simple sentences in organization. So that, different activities are used such as: sort out words within a sentence, each set of word (adjective, verb, noun, pronouns...) are written with different colours which helps students to develop their thinking skills and organize the sentences correctly. And other activity used for increasing this sentence level is to do incomplete sentences where students must fill in the gaps with the words given.

- At Text Level; the students increasingly work with all type of text: songs, riddles, fiction- non fictions. One of the activities that pupils of first cycle do is to look terms up in the dictionary. After this, they read to the rest of the class the meanings. With this activity pupils improve the love for using dictionaries, looking up new terns and interesting for learning and sharing.

The pupils must achieve the targets set up at the given level according to the specific topic. For this purpose different tools and routines will be used at the beginning of the lesson

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[17] Medwell, J., Wray, D., Poulson, L. & Fox, R. (1998) *Effective Teachers of Literacy*, University of Leeds, The United Kingdom.

[18] Scientific terms: "Pupils should be able to describe associated processes and key characteristics in common language, but they should also be familiar with, and use, technical terminology accurately and precisely. They should build up an extended specialist vocabulary. The national curriculum for science reflects the importance of spoken language in pupils' development across the whole curriculum – cognitively, socially and linguistically. The quality and variety of language that pupils hear and speak are key factors in developing their scientific vocabulary and articulating scientific concepts clearly and precisely. They must be assisted in making their thinking clear, both to themselves and others, and teachers should ensure that pupils build secure foundations by using discussion to probe and remedy their misconceptions" (Science programmes of study: key stages 1 and 2. National Curriculum in England. Page 4).

where overviews of scientific terms are checked. It will be useful for working them in a proper way. The most usual techniques are:

- reading specific texts selected by the teacher, through which students can question themselves, and understanding and interpreting the different aspects of the subject that is being developed.

- An additional way used to get pupils acquire and use new vocabulary is the use of the whiteboard for different issues: a game or a song where pupils can write sentences on leaving gaps, they write the correct word and show it. In the reading lessons, teachers and pupils use songs to develop children's phonic awareness, as they include practice and metalinguistic reflection on paralinguistic features.
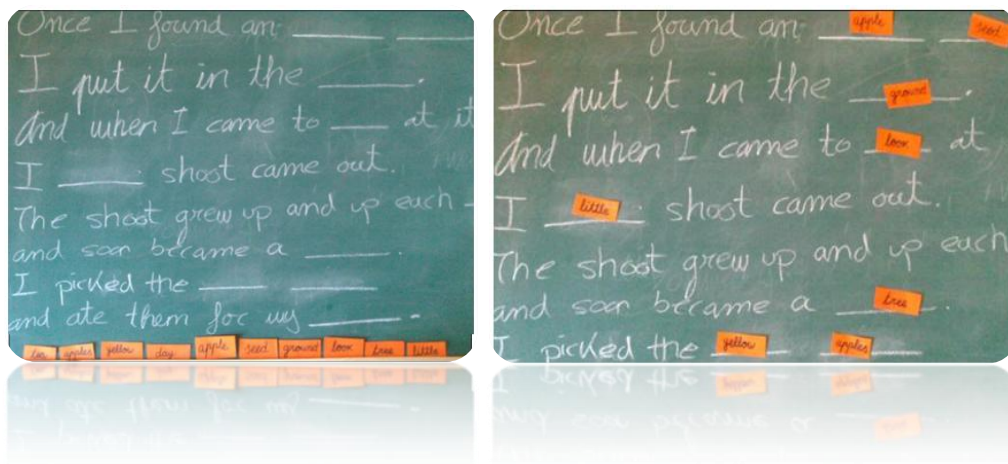

Figure 10: Seed Tree song

- Riddles motivate pupils for participation. The teacher will read a riddle, always referred to the topic, and students will have to give an answer. The student of the correct answer will be responsible for reading the following riddle, thereby working orally and written while thinking skills develop. With this activity the pupils are able to understand the topic and the teacher is able to know if they are learning, at the same time they are increasing the reading, listening, speaking and understanding skills.

- **Science**

The learning of Science presents the understanding of the world. Pupils have to know how this science has changed the world and life. It is very important to focus them on the

"knowledge, methods, processes and uses of science". Through different activities, pupils will be able to give explanations, develop their curiosity, predict, analyse and share their conclusions. As there is no Science without thinking and no thinking without language, we have to include both in our design. All the levels above are essential to begin to be, do, know and think like a scientist. For this purpose different tools and techniques are used to the development of thoughts and thinking skills. Searching is used with different codes - verbal, written and iconic- along activities carried out and be developing singular skills. But, where are the premises of Science learning? British Council tries to create scientific thought in our pupil, where they learn through experimentation, while they learn how to do. Therefore, language is necessary to get the following goals:

- Sequence, sort and classify.
- Make predictions as well as examine evidences.
- Give opinions and justify conclusion.
- Use different kind of questions.
- Work with problem- solving and decision- making.
- Be creative: inventing and imagining.
- Working with others: listen and share opinions.

The essential steps that pupils in Science must be follow are:

- Observation: Pupils must ask themselves a question or have some curiosity.
- Hypothesis: This is attempted explanation given to the fact or phenomenon observed previously
- Thesis: Explain what they use to test our theory.
- Experimentation: This consists of testing to verify the validity of the hypothesis raised or discard.
- Conclusion / Law: the hypothesis becomes law when it is demonstrated by experiment.

This process, the scientific process, would be achieved through any of the languages; the important is the process itself. But taking into consideration that my work in a British school. The School has the premise to set outcomes with three different levels of achievements, so every student would recognize himself/ herself in one. In this way, individual needs are included in lessons plan either British or Spanish curriculum subject.

To pay attention to what type of language and multiple intelligences pupils can develop across the different strategies and resources used during the activities of thinking skill that I mention in "Theoretical foundations" section.

Along KStage-1 pupils have to explore the world and nature around them through practical activities and give scientific answers[19]. Simple objects can be used in order to help them how to observe and short depending on the lessons and record their findings and conclusions before sharing. In the world of science is very important that pupils start to know how to be and to respect all things around them and know how important they are: analyze the human behaviour in the natural environment and the area of science. Experience is the only way to learn about nature. They will understand better the world around them if they have their own experiences. Language and thinking skill are related in every lesson. Pupils are using *Vygotsky's* language such as, public, social and inner language. Pupils are learning in a new way, so the language used in Science mainly focuses on problem solving and collaborative work, which means including ICTs and PC, as well.

5.3.   STEPS TO MAKE THOUGHT VISIBLE

For the development of my work I have assumed the hypothesis of Visible Thinking. To have better learning and more thoughtful students, Visible Thinking is a way of helping to achieve thinking skills. Some of the goals reached of visible thinking are:

- Understanding of contents.
- Motivation for learning.
- Development of learners' thinking, learning abilities and attitudes.
- Development opportunities for thinking and learning.
- A change in the culture of the classroom into a community of thinkers and students that work with enthusiasm.

Visible Thinking engages several performs and resources. The idea of visible thinking helps the teacher to transform into real, what a thoughtful classroom could be. The teacher must ask him or herself if "thinking visible" is present, if the students are able to explain things to the others, if they are creative and if they are using the thought language. There are

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[19] *Ley Orgánica 8/2013, de 9 de diciembre, para la mejora de la calidad educativa (*LOMCE). Preámbulo IV: *"es necesario adquirir desde edades tempranas competencias transversales, como el* **pensamiento crítico**, *la gestión de la* **diversidad**, *la* **creatividad** *o la* **capacidad de comunicar**, *y actitudes clave como la confianza individual, el entusiasmo, la constancia y la aceptación del cambio."*

metacognitive pupils when thinking visible is in the classroom and they learn to think about their thinking and the process of learning while setting up rules for the language and the communication. As I mentioned formerly, we cannot understand thinking without language because a natural language is learning every day. In fact, using different strategies during the lessons pupils are going to:

- be aware of how to exposure –spontaneous and planned language-;
- Have the opportunity to use the target language for expressing meaning. Vygotsky's languages are presented at this moment. *Private language* –related to student's repetition-, *public language* – linked to the teacher´s speech- and *inner language* – associated to the pupils´ thoughts-; and
- Use what they know to communicate what they want to say.

Furthermore, we cannot understand verbal language without no-verbal communication. Communication in the classroom is the way to be in contact with other classmates. It is when they are able to transmit information. In every communication there are always an intension, a strategy and a way of speaking, and teacher must be focused on this. There are two categories of communication into the classroom: verbal communication: when the teacher and pupils speak with someone using words; and non- verbal communication (*paralanguage*): gestures, body language, movements, hands, legs, face or eye contact. Both of them are very important for a teacher and it is very important to know why they are moving, when they are looking at, how and for what purpose. So that, *paralanguage* is very important during these actions while movements must be paid attention in order to reach the purpose to get over the lesson: non-verbal language and voice. It reinforces learning, engage and motivate.[20] Taking into account the Northern Ireland Curriculum on how to develop thinking skills and language abilities in the classroom, the design of the class model and its strategy is as follow:

Lesson Phase	Strategies	Activities
1st moment The teacher is using this moment to set up the opportunity to learn and keep their interest.	- Give time to students to seek clarify. - Connect the learning to previous learning. - Share information using all type of languages. - Generate pupils´ interest.	- Routines - Brainstorming. - "Show and Tell".

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[20] Jen Saul 3rd Grade/ Teacher. Teaching Channel.
https://www.teachingchannel.org/videos/student-silent-signals.

Routines[21]. This is the easiest way to start with Visible Thinking. Pupils should be prepared for learning when they go into the classroom. They must hang their coats; they take out their books from their bags, and then, sit down in their own places. If the teacher constructs the routines to his/ her pupils from the very beginning of the year, they will be able to do it by themselves without any command. The routines done during the lessons permit participation, concentration and effort. So that, the routines are very important if the teacher wants to develop these abilities in pupils. Normally classrooms routines allow:

- o Manage student behaviour and communications.
- o Organize the work of learning.
- o Establish rules for communication and conversation.
- o Understand how pupils go about the process of learning.

These learning routines can be simple structures, such as answering simple questions that have been designed to improve pupils´ thinking. These questions could be:

- o *What day is it today? What day was it yesterday?* And *What day will it be tomorrow?*
- o *What´s the weather like? What was the weather yesterday?* And *What will be the weather tomorrow?*
- o Ask about feelings: *How do you feel today? Why?*

Those are done at the beginning of the session everyday in order to be able to express about this issue. This routine is also useful to improve English language in pupils, as well. They also develop responding and speaking skills, reading, understanding and listening skills. During these routines the public language, social language, inner language and thinking are recognized. We identify a well-planned learning context when the pupils know exactly what to do next.

Brainstorming. It helps students consider different points of view involved in a topic. To begin each lesson, questions are asked in order to do a brainstorm about the topic to identify what pupils really know about it. During the activity, they share their previous knowledge and ideas that the teacher is going to use during the lesson. So, the lesson should start activating the students´ thinking skill. This is essential for the teacher to know what students have learned before. Sometimes, the pupils need help, so the teacher will ask the required questions. Different strategies can be used, for example: a report to focus on the task/ topic. For this activity every pupil has his/ her white board. Firstly, pupils are

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[21] Appendix 1: Thinking and daily routines.

working individually during the estimated time that the teacher select, then make pairs and share what has been done. The whiteboard allows "be wrong and rethink how it could be better," while the language and communication takes place within the classroom. After working in pairs, they can work in groups to share ideas while improving their thinking and reaching conclusions in the group to be share at the end.
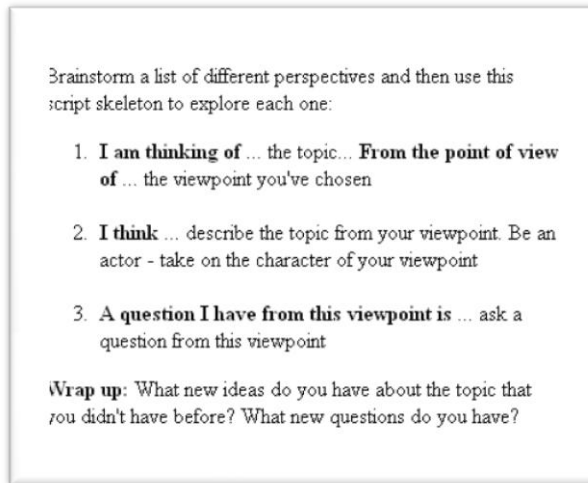

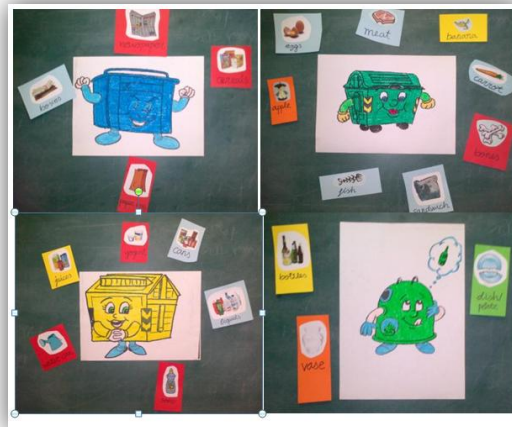*Figure 11: A routine for exploring diverse perspectives.*

Figure 12: Brainstorming about "recycling area".

Show and tell[22] activity. Pupils have to learn about the topic, investigate, discover, find out information and prepare resources that they could needs for exhibition. They must use a range of sources of information, including ICTs at home in order to prepare their "show and tell". The pupil should begin to be able to express, so they must be learnt to use scientific language to communicate the main ideas about animals, plants or materials. It is very important that they prepare it at home for showing their job to his classmates. A

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[22] Appendix 2:   Show and tell videos and teacher´s assessment.

simple structure is used which have been prepared at home in advance: *"Good morning. My name is Marco and I am going to talk about materials and properties (e.g.): This is an iron. This is my grandmother´s iron. She used to iron with it many years ago. The iron is made of iron and it is very heavy. It is not transparent it is opaque. The iron is firm and dull. It is grey. My grandmother ironed clothes made of wool and cotton. This iron is very old. I like this type of irons. This is my show and tell. I hope you like it".* At the end of his "show and tell", there is always a time for questions and doubts, so they begin to develop the ability to think before they speak (inner and private language) and ask a question. Exposing student also face to questions that can be performed by the peers or the teacher. This is the moment of self- assessment where the pupils are aware of his job. It is a motivating moment for the children and they find it more significant and important personally. Teacher´s role is to support and assist students to create a comfortable and thinking environment. This activity is very complete for the thinking skill because from the beginning to the end students develop this capacity.

Lesson Phase	Strategies	Activities
2nd moment - The teacher engages pupils in an activity where they have to develop all skills and abilities while basic competences are presented.	- The teacher organises work and plan. - Pupils can work in peers or groups on the task. - Use thinking frames to help pupils to be focused on the task. - Use questions to think, classify, explore, give opinions and communicate using the language.	- Mediators. - Experimentation.

Mediators. They should be in every corner of the school such as playground, stairways, corridors and classrooms. All mediators show values, so this means that the school works constantly them. They are designed to have a common understanding of things and thinking with basic principles for life at school and in the society. These mediators help pupils to have an thoughtful of values and contents, development of pupils´ thinking and learning abilities, increasing of learners' attitudes toward thinking and learning, they are an opportunity for reflecting and acquire and they are a great motivation for learning. The mediators are present in the classroom with the intention of capturing the attention and the meaning of the relevant task. These Mediators help students understand and structure more easily way the meaning of the matter.

Experimentation[23]. Experiments are taken place into the classroom. Pupils have the opportunity to apply their skills: observing, analysing, comparing, contrasting, taking conclusions and reporting them. During this year pupils are using the language in every ways, so this helps them to be good thinkers and speakers. Science reproduces the association of spoken language in pupils' development across year- 2. The quality and variety of language that pupils hear and speak are input issues in developing their scientific vocabulary. They must be supported by the teacher in making their thinking clear, both to themselves and others. Pupils should be persuaded to be curious and ask questions about what they see and think. "They should be helped to develop their understanding of scientific ideas by using different types of scientific enquiry to answer their own questions".[24]

Lesson Phase	Strategies	Activities
3rd moment - This is the opportunity to know pupils´ learning (contents and skills) and promote a language for talking about what has been learned.	- Conduct a well- planned activity, reviewing the skills and capabilities. - "Use a set of questions to make the pupils think" about what they have done formerly. - Create a whole- class activity.	- Thinking Maps. - Self- assessment

Thinking Maps[25] are a very significant strategy at school. They are the best tool for visible thinking. These are easily accessible to students, provide many opportunities for making connections, and help to do conversations and thinking in new directions and interesting ideas. The teacher's show and tell will be always focusing in developing Thinking Maps in order to generate a visible tool where thinking skill is always present. For this issue simple closed questions are used where the teacher formulates them and the pupils respond. In this way, it will be gradually forming a visible thinking where students have fun and learn at the same time. By using this tool during lessons the student begins to understand what is expected of them at all times, developing understanding, thinking, oral interaction, reading, writing and responding skills. Thinking Map tool allows not only to develop pupils´ learning but also to evaluate certain aspects as prior knowledge, curiosity, creativity, cooperation, interaction and thinking. This tool is intended to gradually build

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[23] Appendix 3: Experiment report.
[24] National Curriculum in England: Science. Key Stage 1, p.5.
[25] Appendix 4: Thinking Maps.

their knowledge, improve their learning in a simple and easy way to understand and remember in a short and long term. Students´ autonomy was increased when they started to know how to do their own thinking maps. They also have the opportunity to review and think by themselves about the topic given before. The realization of thinking maps in the classroom and after each topic allows the teacher to know what the achievements of the students are and be aware of if they have dominated what the teacher aimed them to know.
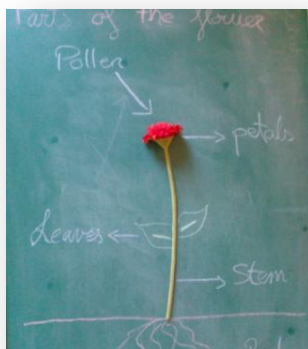

Figure 13: Example of a Bubble map

Therefore, this technique not only helps students to cement their skills and think about them, but it also helps the teacher assess knowledge from them Thinking maps are a tool through which make visible pupil´s thinking. These maps are a routine through which children learn and work in the classroom. The use of these maps makes thinking gradually become part of what they learn to understand and be aware of how and when to use it, thus promoting the thought of pupils. The mind maps used in the year-2 classroom are very simple and they have to be practiced, again and again, until it became part of the course itself and make the knowledge of the topic, we can talk about almost routine. So this "routine" has become strategies to strengthen interest, thinking and learning in the classroom. Gradually, pupils will develop their common sense and, step by step, they are able to make the scheme by their own (Scaffolding through shared activities). So, it is important that pupils not only know how to perform oral summaries, as they do in their "show and tell", but also executive written summaries. So, this is the reason why Thinking Maps should be implemented. It is necessary to follow some steps:

1. Think about what type of model is wanted to use. It depends on what knowledge it is necessary to develop in pupils´ learning and what their

previous knowledge is. The teacher has to organize and plan the work so that they can articulate and relate the contents of the given topic.

2. Introduce these Thinking Maps during a training period, in order to show pupils how to do them. There are eight types of Thinking Maps but not all of them can be used for the first cycle of primary school because of its difficulty.

3. Start with a specific topic to do the Thinking Map. The pupils through teacher´s questions fill the thinking map. The teacher guides the students through the development of the thinking map.

4. Use the Thinking Maps as an assessment tool. In this point I can talk about two types of assessments:

   – Assessment for learning, where pupils are encouraged to be more active in their learning, but it is necessary to know what the pupils´ learning is. So, pupils are guide by the teacher and be checked how the quality work looks like.

   – Assessment of learning, this is referred to those strategies that are designed to know student´s knowledge and where pupils can demonstrate their skills, knowledge and attitudes. But this type of assessment not only include test, but also a variety of products of learning – worksheets, show and tells and thinking maps-.
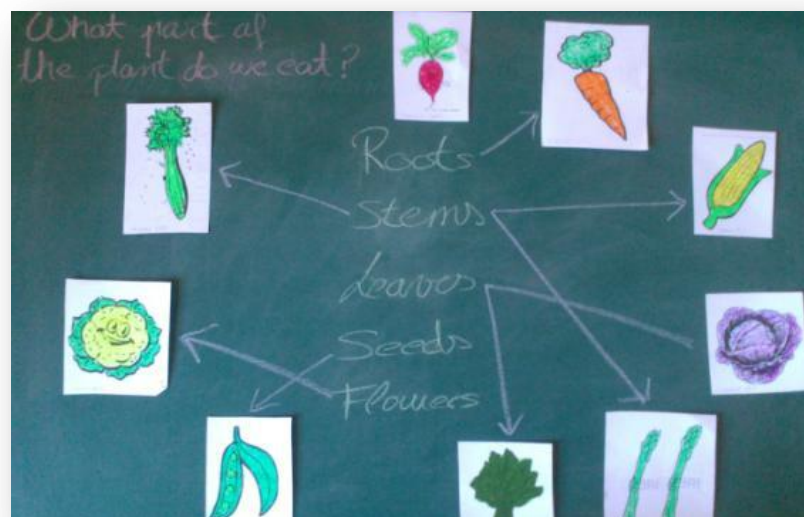

Figure 14: Tree Map. It is used for "classifying and grouping".

In fact, carrying out thinking maps in the classroom allows students to think, search for information, make decisions, reach conclusions, and understand what the previous lessons showed. It is a tool that serves all those students with different needs, it is an opportunity to understand and learn.

Self-assessment. You should note that evaluation and feedback are important aspects of the classroom. The teacher has to monitor on pupil´s achievements in a specific grid and students should be aware of the criteria on which their evaluation is basing, to know what they are go getting for. The task is always finished with a filled self-assessment process. This method enables children to be aware of their strengths and weaknesses about their learning. It is important to look back over what they have learnt and recognize its value.
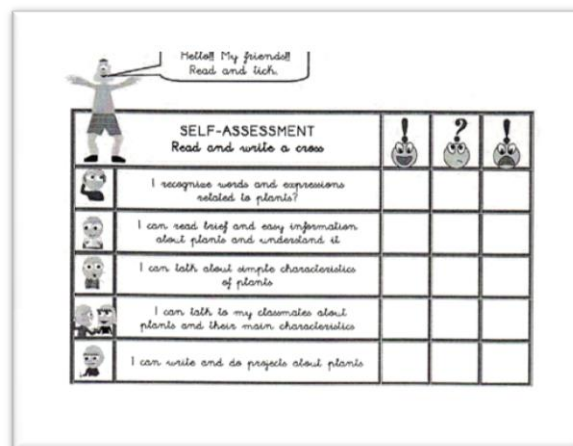

Figure 15: Self- assessment

5.4.   A THINKING CLASSROOM

A Thinking Classroom allows pupils the opportunity to practise their skills, to reveal on their successes, and to recognise their strong point and weaknesses. It is very important to create a good environment for a thinking classroom. So, a space must be provided in the classroom to promote thinking and creativity. The teacher can do these using new and active strategies, where pupils will be able to:

- Promote the development of skills and capabilities.
- Deal with decisions.
- Develop attitudes and thinking skills through questions.
- Create a hard link between the developed skills and assessment for learning.

- Collaborate and cooperate, expressing different point of view –agree and disagree-.
- Independent learning: observing, evaluating and planning what to do after that.
- Know how apply the concepts and skills in other subjects, topics and backgrounds.

Under Gardner's theory of Multiple Intelligences and the point of view of Carol McGuiness ("From thinking skill to thinking classroom", April 1999) we can draw a connection between them, because developing thinking skills and personal competences are related to the classrooms. Both ideas are focused on:

- Paying attention to the process of learning and not the product.
- Active learners and not passive pupils.
- Allowing the students deepening the topic and remember the long term.
- Learning to learn by them own, developing thinking skills they can think more and reach to quality thinking.
- Competences (skills) create opportunities for pupils: learn from mistakes, initiative, collaboration, self- confidence and self-learners. Personal and interpersonal skills are developed. It is very important to focus on the dynamic of the classroom, because pupils must be aware of who they are, what they feel and what role they are playing within the group in the classroom. The pupil, who knows himself, is able to observe both inside and outside, and even more, is capable of responding to all others. At the same time, pupils are the makers of their learning and knowledge.

Multiple intelligences and thinking skills are present in our classroom when:

- The student collects different information: e.g. write groups of materials from their properties.
- There is an understanding such that it is capable to perform a show and tell.
- Pupil is able to apply the knowledge in their working environment. E.g. able to identify between evergreens and deciduous.
- To translate the information into a report.
- To synthesize information through thinking maps.

Regarding to a dynamic class timetable when developing a routine, it is important to create a good thinking atmosphere. This environment improves pupils´ motivation to learn. They must be active by asking questions and encourage them to ask questions, too. After the question, the teacher must wait and give the pupil a time to give an answer, because they

have to know that this is what the teacher is expecting from them. The teacher must perform that the students´ daily routine is clear. In the main wall of the classroom it is read the Today's plan and the Today's goal. The framework of the lesson is:

This is today´s plan:

- Routines.

- Show and Tell.

- Review of previous lesson.

- Today's goal: I can classify materials.

- Activity/ experiment.

- Conclusion.

Concerning the design of the classroom it is easy to understand a Content and Language Integrated Learning (CLIL) classroom with enough spaces and corners to be dedicated to every issue, but this is sometimes difficult. The teacher must pay attention to the multiple intelligences to develop in pupils in a possible weak space, and basic competences, as well. As it is a Content and Language Integrated Learning classroom, all learning activities were planned to be done, not only in language development, with oral interaction between pupils and the teacher, but also with written activities adapted to their level. Think in their body and its attitude and presence in different spaces and different moments of the day. The design can´t be based on an open space where pupils could move from one to other space depending on the activity they are doing, but the tables are set in a strategy way in order to have an open space in the middle of the class. So, for different activities, pupils used this space sitting on the floor, others on chairs; sometimes individually, other in pairs or groups. One of the things that help to have a good dynamic of the classroom is the agreement of rules between the teacher and the pupils. This helps to have a good environment and an easy management classroom. All students welcome them, respect the rules and ensure compliance.

5.5.   SPECIFIC THINKING MAPS FOR SCIENCE THOUGHTS

Thinking Maps in the classroom and lesson are a great tool. On the one hand, Thinking Maps are a teaching strategy that responds to different features, rhythms and ways of learning of students to enhance their maximum development. Pay attention to these thinking maps could help pupils to learn science thoughts. The best Thinking maps used for Ks-1 are:

- **Circle Map**. It is the first map introduced to students. This map is used for *"Brainstorming"*. There is a smaller circle within the large on. It helps to know pupils´ prior knowledge about the topic and how they know this information. They start to learn new terms and this helps them to participate in a scientific environment.
- **Bubble Map.** This variety is very useful to express qualities of plants, animals or materials and properties. At the same time they learn to classify and short. It is very useful to express qualities using adjectives.
- **Double Bubble Map.** It is very similar to previous, but it is used when the teacher wants to compare and contrast different objects.
- **Tree Map. I used it for "**classifying and grouping". This is a very easy way to understand materials and plants.

On the other hand, with all these thinking maps, pupils are developing thinking skills. These graphics organize pupils´ ideas and helps them to increase the retention of different topics and they are kept for a long time. A proposed work clearly, informing the students of the task, goals, objectives, steps and everything that helps them to do a thinking map, help them to have a clear idea about what to do and how to do it by themselves.

Finally, the students play a very important role in the teaching-learning process through thinking maps. The whole process has been designed to develop the ability to learn through thinking exercise. The development of mental maps has been developed from teaching methods based on pupils´ experience and the desire to learn how to learn. The best way to awaken the desire to learn is that they are part of this learning and feelings, as when they do scientific experiments in the classroom. Use Thinking Maps is very motivating because students can see all the knowledge they learnt during the lessons. This has reinforced the student and set new challenges: emotional intelligence is working. Thinking maps can be carried out through individual and group tasks, depending on the moment, and it has been an appropriate strategy to motivate, although this needs to make a careful scheduling and prior training.

5.6. THINKING ACTIVITIES AND ASSOCIATED LANGUAGE

In a British School, language is one of the most important skills to develop. Every activity must be focused to encourage this skill in pupils. The main goal that the teacher wants to get in his students is that there is no difficulty sharing opinion and emotions with others, socialize, learn to communicate, understand and provide information. To help pupils in

their English Language improvement it is important to set up daily routines where pupils can build up both oral and written skills. These routines provide pupils chances for learning and thinking. Once such routines and activities become a habit, the teacher should be leaving students alone and realizing it will have its own initiative, thus not only develop their language skills, but will be learning to be self-sufficient and autonomous learners. There is a great connection between thinking and language, because pupils usually learn with these to:

- Organize new terms and words.
- Be social. They learn to be in contact with other pupils, start a conversation, ask questions and answer them.
- Participate into the classroom and share conclusions and feelings.
- Interact and respect turns speaking.

Regarding to my experience, many activities are included into the classroom in order to develop critical, positivism, creative thinking, positive language development and motivation. So, there are a lot of activities that help pupils to improve these skills and learn at the same time. The teacher´s objective is to make students become better thinkers. If the teacher succeeds, students will become more independent, happy, responsible, creative and resourceful. A teacher of languages must work in this point, because pupils are not only learning a language –grammar rules, terms, written and reading text- but they also are learning all kind of topics, so that the teacher must develop a large way of creative activities –mentioned above- where pupils could be interested in. When a lesson is planned it is important to know what ways of thinking with language learning are wanted to focus on. All the activities must be very dynamic, so pupils are lively during all the time and this helped them to learn. Some of the advantages are:

- Working on thinking is interesting and it is useful in a language lesson.
- Good thinkers make good learners.
- Teaching thinking helps to develop language learning and achievement.
- Helping to know what students know and how they are learning.
- Using interesting topics and materials.

Learning a language is a long process. Previous to any design, the teacher must understand a concept of a topic clearly. To work from the known to the unknown is necessary to learn an issue in a foreign language, so many of the activities where language is used are done in

the classrooms. As it has formerly said, when there are different needs in these classrooms it is very important to work in the intrapersonal and interpersonal intelligences; so, the first thing to do is to know pupils while the self- knowledge; self regulation and self control are developed. At the same time, to create on them the ability to listen and understand is very important: respect the right to speak or raising a hand. At this stage, type of languages must be used by pupils in the classroom in order to promote on them the love for thinking and learning the language: e.g. pubic, social and inner language and verbal thoughts in order to increase pupils´ motivation for learning, writing and speaking.

Another way of teaching "ways of thinking" is providing a rich and interesting environment plenty of opportunities to learn and think. Pupils from year two have the opportunity to improve their learning and thinking through different activities as:

- Being positive. It is a good idea to congratulate students for any develops skill they have: e.g. *"well done", "very good", "congratulation" or "sticking figures on a board"* improve their love for thinking and learning and highlight the positive in their language learning. Pupils should be realistic about their learning; it is to understand mistakes as a useful step that can be improved.

- Create a recycle area[26] where pupils can use every day. The different colours of the containers help them to classify and analyze materials at the same time care and respect for the environment is being created in their thoughts.

- The autonomy for going to the bathroom[27] is also a way of thinking. They must be autonomous, self- control and responsible. Some displays can be stuck on the bathroom´s door to remember washing hands and flushing the toilet. This help them to develop competences like social and civic, and interaction with physical world.

- To make a significant learning, after they have already internalized the category of healthy and unhealthy food, the "Healthy Snack"[28] project is proposed. The pupils are suggested to bring healthy food for their snack time. Everybody is sitting on the carpet before the break and every pupil show the kind of aliment brought; then, the teacher asks: "Is this a healthy food?" And all the students are expected to reply in chorus "yes, it is" or "no, it isn´t" and why (they will see the pyramid to be sure).

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[26] Appendix 5: Recycling area.
[27] Appendix 6: Mediators in the bathroom.
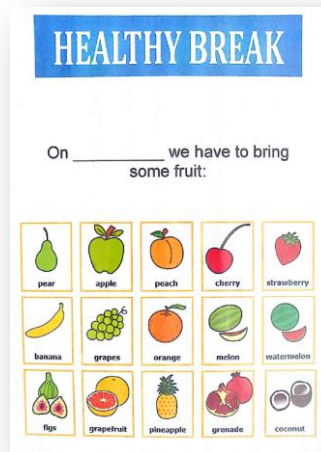[28] Appendix 7: "Healthy Snack" project.

Figure 16: Healthy Snack project

6. PROJECT RESULTS

This British School is characterised for developing pupils´ learning and knowledge through different activities, tools and resources that increase thinking skills. Throughout this thesis and considering improvements that can be made in the classroom, it is shown that thinking skills using different strategies can increase pupils´ understanding and knowledge. The development of thinking skills in the first cycle is an opportunity for the students, as they can have a huge impact on their school performance, while using these skills to further their learning. To increase the number of thinkers in our classrooms it is necessary to know what strategies and methodologies are used in the classroom and what is the type of language that the teacher wants to develop. In this way the British School will have a positive focus on its oral communicative and linguistic competence, while the art of thinking is ever-present. Thinking skills, and thoughts themselves, are supported by language. It helps to build up the thinking ability, while pupils learn how to select and understand information, followed by accepting, memorising, predicting and deducing that information, and finally sharing and drawing conclusions. Thus *visible thinking* is very important in every lesson, as it helps pupils to learn at the same time they are developing as self-sufficient, self-taught, self-management and social beings. *Visible Thinking* "is the development of a culture of thinking in the classrooms and schools"[29]. Through the design

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[29] www.visiblethinkingpz.org

shown in this project, one can see how, applying different tools to the classroom, visible language and thinking can be achieved. These tools are:

- Mediators and routines. There is *visible thinking* throughout the school and classrooms with one single objective: to develop thinking skills while improving knowledge, communication and responsibilities, depending on the teacher´s goal. These tools incorporated by the teacher are essential to develop thinking skills and thinking classrooms, where pupils have the opportunity to be interested and motivated in thinking and learning new subjects. During the daily routines pupils are able to:
    - learn how to focus their attention on thinking ;
    - have a conversation and discussion about different issues;
    - answer the teacher´s questions and give their opinion;
    - think and communicate with precision and correctness; and,
    - start the day thinking and organising their ideas.

- Show and tell. This activity is very useful to develop many capacities and skills. The main ability in a British School is the linguistic competence. During the research for this project, a great deal of aptitudes and attitudes were observed and improvements in the following areas were noted:
    - speaking using their body language and paralanguage to support their ideas;
    - increasing their confidence;
    - having a project to show to their classmates using a clear structure;
    - learning how to talk in a stressful situation;
    - seeking information, translating it for the activity and communicating it in an appropriate manner;
    - being trained to memorise new concepts and topics; and,
    - accepting other classmates' opinion.

- Thinking maps. This tool can be used before, during and after a lesson, because it offers to the pupils the following:
    - Cognitive challenge. This is when students are faced by their learning, before and after every lesson. The thinking ability is very significant at this

point. Students are taught how to participate in this activity, and it is a chance for them to demonstrate their knowledge.

- Assimilate their understanding. This thinking tool can be used across the curriculum and, also, it can be used by pupils during their homework, as they need to make decisions and evaluate real problems.

- Create a thinking atmosphere in class in which pupils´ collaboration is present. Every pupil does improve their knowledge while participating and collaborating with others. Classification and association of ideas helps them to develop thinking skills in a thinking classroom. At the same time they are collaborating, as well as respecting each pupil's turn to speak while they are writing their knowledge.

- Some pupils may not able to construct a thinking map on their own. So they must be taught how to do it. However, it is important that it is the pupil who sees how the teacher and classmates create one, thus sharing this information becomes very important for the student.
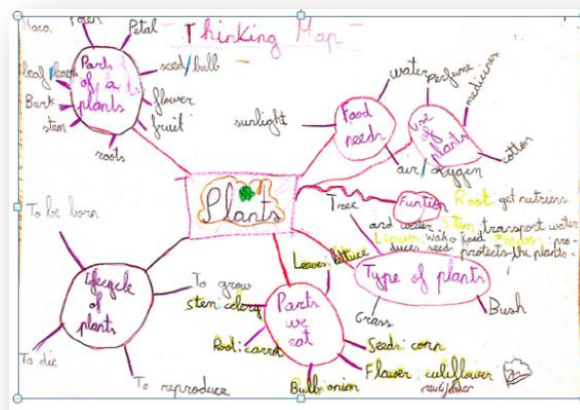

Figure 17: Pupil with special learning needs´ thinking map.

According to the results of testing all of these activities, pupils clearly show great motivation and participation. They are always ready to give their opinion and share experiences. Performing these activities, the teacher develops thinking skills in the pupils, as they are helped and taught how to think with every task. One should note that it is necessary to perform activities and tasks that can be used in every class and they need to have interesting contents, clear actions and show ways of working in the classroom. Tessa

Woodward argues that some conditions have to be present to develop a "thinking classroom":

1. pupils must be supported by their teacher;
2. building concepts, looking for patterns and memorising are all required to be performed successfully;
3. starting to build up their knowledge, learning from stories or from problem solving situations;
4. doing mental exercises;
5. sharing ideas and designing tasks such as "show and tell" is vital, where pupils show their knowledge and work; and,
6. empathising and communicating with others in a foreign language helps the "thinking classroom" to progress.

With this in mind, the most relevant aspects observed in the students during the duration of this project, having used different strategies and activities were:

- routines and strategies help the students to be involved, motivated and interested from the beginning;
- students can ask questions of everyday life and give them an answer while good thinkers are being created;
- pupils can expose and reflect on their work accepting all kinds of opinions from other peers, developing self-evaluation;
- performing work in pairs or groups help to develop language;
- students begin to show scientific thinking where experimentation, observation, and range of hypotheses and conclusions are developed; and
- pupils´ desire to learn more while they are able to relate their knowledge and understanding to other ideas and answer questions by themselves.

Ultimately, it is important to remember that within a culture of thinking, pupils understand school as a place where creative thinking is valued. It is essential that the teacher is able not only to see the different learning needs of the student, but also knows how to fulfil them. That way thinking classrooms and better thinkers will be created every day and their learning will also accompany them into their adult life.

7. CONCLUSION

7.1. ANALYSIS OF SCOPE

Every project requires an evaluation that generates a proposal for future action. With this project I have tried to demonstrate how the use of different tools in the classroom allows students to be aware of their learning thoughts. Student participation in the classroom is vital. Until very recently lessons were structured to help the teacher's motivation, but that meant that students' motivation suffered and the result was a considerable lack of interest from their part. The actions of the student in the classroom is the starting point of this design, where the student is able to innovate, seek information, participate or express opinions. Throughout the implementation of this project and based on some tools already used, it is possible to develop thinking and communication skills which are essential for later learning. One cannot understand a word without thinking, so it is necessary to focus on those skills throughout the student's training. It is necessary to assess what methodological strategies are being implemented in the classroom to help children to be thinkers.

The work of the teacher, together with the use of different learning tools, plays a very important role in the development of thinking skills. Learning tools have to focus on planning, and they need to propose activities that help the student to work independently, but in a communicative way. All the strategies discussed in this project have helped pupils to participate, increase and getting use to some of the following aspects: critical thinking, reflection, interaction, participation, and the ability to learn from mistakes and successes. The development of this range of skills can be used in any learning situation in future. While these skills are developed, the student participates in the classroom with a higher level of motivation. In Year-2 it is very important to start working in pairs or groups, so performing some of these activities can be interesting and appropriate for the student. He/she will be able to experiment, explore and reflect, respecting the opinions of others. Teamwork makes the students interact and leave aside their innate egocentric social stage.

Ultimately, classroom observations have shown that the use of learning mediators leads to the improvement of the learning process. All the tools are used to develop a key element and to meet basic criteria for meaningful learning and develop thinking skills. All of this

will have a very positive influence on the learning process, while the pupils will start to become aware of their own capabilities.

7.2. CONSIDERATIONS

One must note that considering the development of thinking skills in the classroom allows pupils to be more social, improve their language and be prepared for adult life. The Educative Community must be part of this new learning concept, using the thoughts, ideas, fresh strategies and tools for students to learn and think. While not only is this important to increase the number of thinkers, it is also useful for them to understand the world around them and control their emotions[30]. Throughout the study it was possible to assess how the performance of strategies for developing thinking skills and thoughts is used to apply all sorts of competences, multiple intelligences and *visible thinking* in the classroom. As a teacher I paid attention to help students with the difficulty of learning at school, and the best way is to focus on enjoying the lesson, fun, creativity and rigor in my work. Another important point is to increase the number of thinkers in our classrooms; it is significant to enhance pupil confidence and exploratory thinking, through different activities and resources.

I had de opportunity to see how pupils start to think in their daily routines or brainstorm or learn and discover the world around them, while developing thinking skills and multiple intelligences are present. Students need both, flexible thinking skills and knowledge, as each pupil learns in a unique way. To achieve this, I had to match the teaching to the learning needs; evaluate students not only for their knowledge, but also for their skills, attitudes and values. If we allow students to properly think, reflect and review information, the teacher will be able to make students be present, motivated and engaged in lessons, while the relationships between them grows and they become good citizens in a thinking society.

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[30] Punset, E. Redes - Aprender a gestionar las emociones. Daniel Goleman. N- 130.

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APPENDIX

APPENDIX 1: Thinking and daily routines.

What day is it today? ●

Today is... ●

MONDAY

24th

FEBRUARY

What's the weather like today? ●

The weather is ●

Cold

WHAT SEASON ARE WE IN ?

We are in ●

Winter

bear	cat
bird	chick
cock	deer
cow	dolphin
dog	duck
eagle	frog
elephant	goat
fish	gorilla
fox	hen
hippo	kangaroo
horse	lion
koala	moose
monkey	mouse

octopus	owl
penguin	rabbit
pig	rhino
seagull	seal
shark	snail
sheep	snake
tiger	stork
whale	zebra
wings	fins
beak	paws
feathers	scales
shell	fur

feelings

How are you?   Why

happy	sad
tired	scared
shocked	embarrassed
surprised	angry
sleepy	cross

APPENDIX 2: Show and tell videos and teacher´s assessment.

http://ceiptellotellez.centros.educa.jcyl.es/sitio/index.cgi?wid_item=218&wid_seccion=14

APPENDIX 3: Experiment report

EXPERIMENT: SEED GERMINATION

| Material Heded	A plastic bag		
	Fresh seed of lentil		
	Paper towel		
	Water		
	Ruler for our measures.		
First Week From FECHA to FECHA	Dates for Watering 6th March, 2014 7th March, 2014 …	Observation My seed is in a warm /cold place. My seed is in a light / dark place.	How our seed are They are fresh seeds. There are 4 seeds in my bag.
Second Week From FECHA to FECHA	Dates for Watering 6th March, 2014 7th March, 2014	Observation Can I see something different? Has thy started to grow? How much?	How our seed is Can I see stems? Can I see leaves? Can I see flowers? The growth rates in centimeters.

|			
Third Week From FECHA to FECHA	*Dates for Watering* 6th March, 2014 7th March, 2014	*Observation* Can I see something different? Has thy started to grow? How much?	*How our seed is* Can I see stem? Can I see leaves? Can I see flowers? The growth rates in centimeters.
Fourth Week From FECHA to FECHA	*Dates for Watering* 6th March, 2014 7th March, 2014	*Observation* Can I see the stem? The growth rates in centimeters.	*How our seed is* Can I see stem? Can I see leaves? Can I see flowers? The growth rates in centimeters.

When the plants reach the top of the plastic bag they can be carefully removed and potted up.
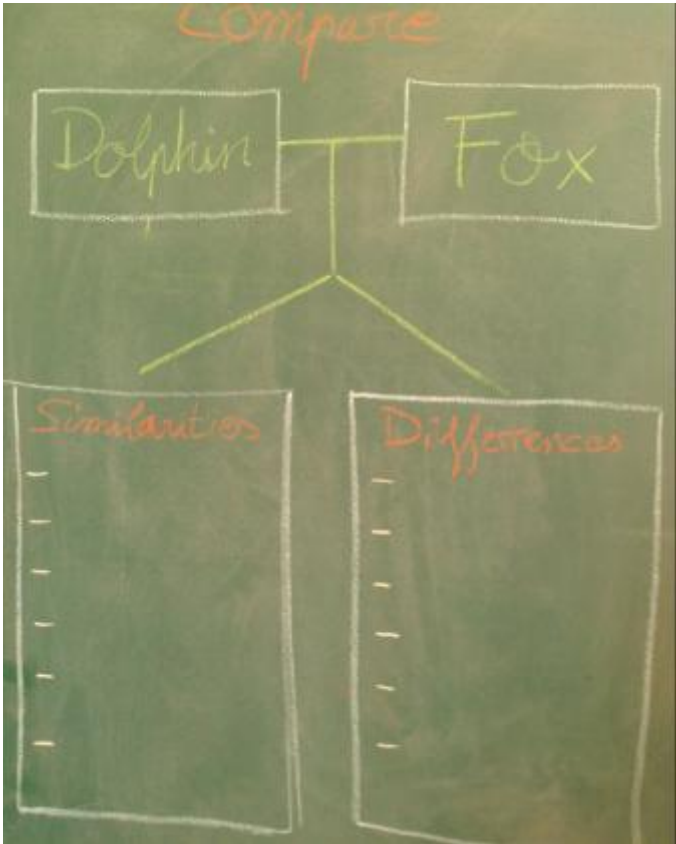
APPENDIX 4: Thinking Map

Example of a Double Bubble map
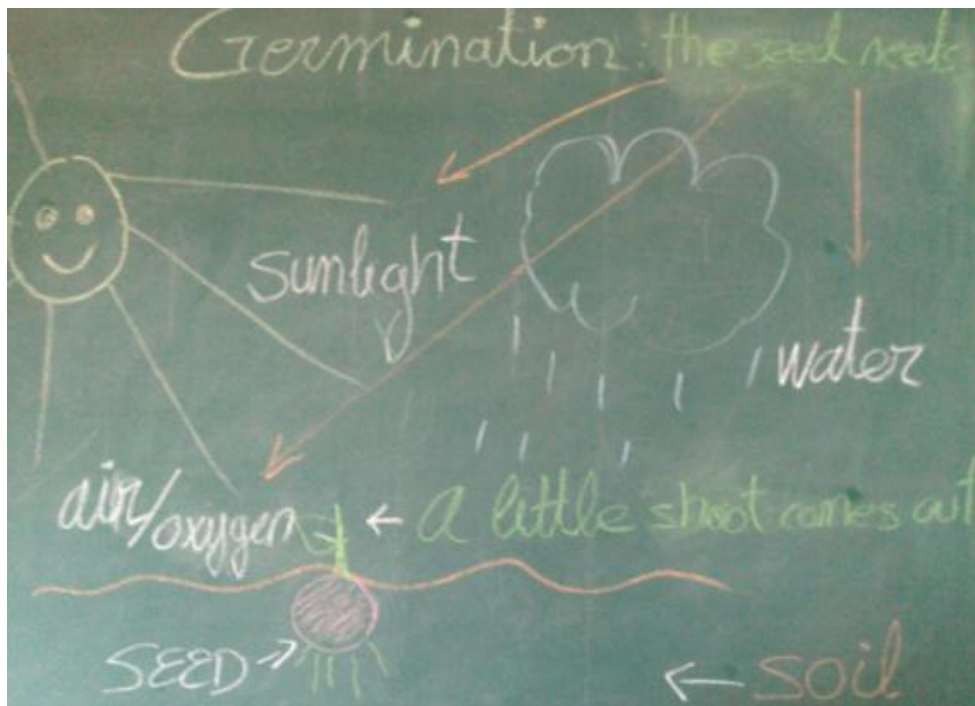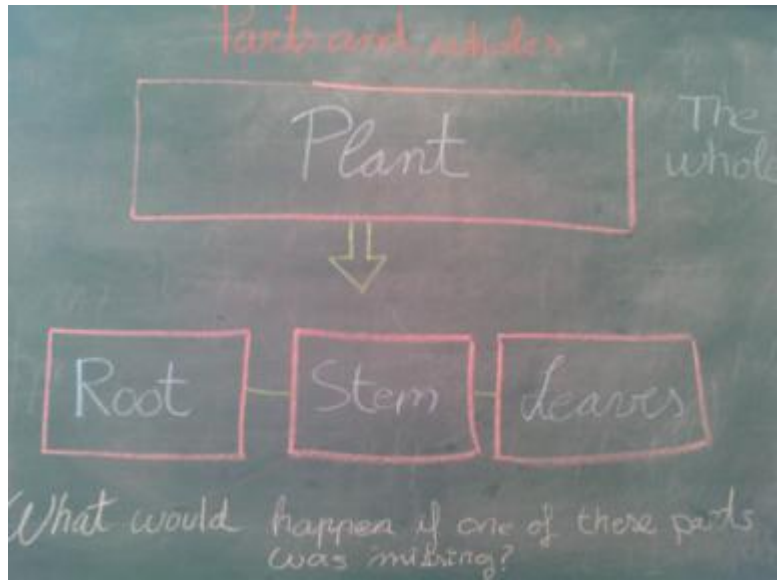
Example of a Bubble map

Example of a Double Bubble Map

APPENDIX 5: Recycling area

APPENDIX 6: Mediators in the bathroom

REGISTER ABOUT THE HEALTHY BREAK   **CLASS:**

MY SNACK IS...

NAMES			
CRISTIAN			
SAMUEL			
DANIEL G.			
MIGUEL			
HECTOR G.			
ALEJANDRO			
SERGIO			
ECATERINA			
SORAYA			
VERA			
MIRIAM			
IZAN			
DAVID M.			

DANIEL MODRON			
DANIEL ORTEGA			
DAVID P.			
NOELIA			
IRENE RICO			
AROA			
LAURA			
ERIC			
JAIME			
ELSA			
HECTOR V.			
IRENE YUDEGO			