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PROGRAM OF THE LECTURE

Subject: Hinge strategy between types of knowledge: Visual Thinking

Author: Sué Gutiérrez Berciano

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Table of contents

1.1. Needs analysis

- **Visual thinking and its importance in education**

One of the latest trends in education is Visual Thinking (V.T.). Like any other didactic strategy, it needs to be analyzed and to know to what extent it is new, as well as to recognize its functionality in the teaching-learning process. And most importantly, do we know what elements it is structured into? And how to develop it in the classroom?

The first point to highlight is how we build our knowledge, since this process occurs from the combination of information, context and experience. The product arising from information management and learning processes, assimilation, understanding, thanks to which our knowledge is generated. Therefore, knowledge is an attribute that person has, it is an ability that person possesses.

The diversity of types of knowledge is complex and multiple, depending on the theoretical approaches of the disciplines that have tried to explain it (psychology, sociology and/or pedagogy). From the educational field, all learning theory depends on the conception of the nature of knowledge and cognitive development. On the one hand, the socio-cognitive approach understands learning as the achievement of competencies, the cognitive approach understands learning either as the acquisition of knowledge or as the construction of meanings, or the more traditional approach, the behaviorist approach, which understands learning as the acquisition of responses.

In this training we start from constructivism, which essentially states that knowledge is not the result of a mere copy of reality, but of a dynamic and interactive process through which external information is interpreted and reinterpreted by the mind. We will see later how Visual Thinking, visual thinking, makes sense in this psychopedagogical theory. If we rely on the advances of

Neuroscience, it tells us that each brain is unique and unrepeatable, with its own neural mesh, where experience shapes that tissue in a unique way, the details of the connection areas are as unique as the lines of hands. Therefore, we must distinguish the cognitive styles that focus on the organization and control of these processes and the learning styles that focus on monitoring the acquisition of knowledge. This diversity of learning styles requires a diversity of teaching methods and strategies, not simply expository classes, emphasis on orality and verbalization.

So far scientific evidence has been exposed since the last century. In this sense, we can demystify the idea that visual strategies in teaching are not new. Montanero (2019) in his study indicates, how V.T. is part of teaching focused on intelligence and thought, shows as examples that use this type of strategy: a) the Waldorf Method of Steiner's proposals between 1907 and 1987 , b) the study of executive functions dates from the works of Luria in 1974, Gardner in 1984 or the classic programs of teaching to think by Lipman in 1997, have their weight in this type of teaching and the incipient development of focused neurosciences to education. But, Visual Thinking as a genuine strategy, we can place it in the context of Design Thinking, Design Thinking, a different form of curricular planning that has its beginnings in the 60s/70s of the last century at the University where industrial processes and marketing allow the development of concepts associated with design and creativity. It was consolidated in the 90s, when IDEO consultancy was created, which teaches the subject of Design Thinking at this same University. And with the new century, the Stanford Design Institute specialized in the standardization of this tool for creating participatory projects was organized.

The goal of this visual thinking strategy is to communicate effectively. The educational utility is to use visual thinking as a learning tool in the classroom; and more and more cases as a teaching tool. It must be considered that learning has an affective, cognitive and psychomotor dimension, visual thinking is an active reflection of these three dimensions, allowing us to access information through sensory perception interpreting a reality. This gives way to the growth of ideas that reason, that connect and interfere with each other to organize themselves in an invented structure that shows reality through graphic interpretation, in an expressive and communicative sense.

If we understand that school and training activity must be guided by principles of contextualization, appropriation of the meaning and value of the acquired learning, there are three essential elements:

- Mediating nature between prior knowledge and the learner's cognitive structure.
- Concordance between the constructed meanings and the contents
- The teaching role, which is that of facilitator of this connection between the capacity of the students and the unveiling of the social, cultural and meaning meaning of the contents.

Therefore, the use of mental maps and other visual organizers of thought are a good hinge as tools for the construction, management and sharing-publication of knowledge and should be commonly used in the teacher's teaching model. They allow transmitting what is desired, reaching the assimilation of knowledge.

1.2. Objectives of the lecture

The aim of the lecture

The main purpose is to familiarize the participants with the different V.T. strategies. In addition, the participants will obtain the ability to use it in the educational process, both at school and in the university, as well as in self-improvement and self-education.

Specific objectives:

- Acquire the ability to analyze and create informative or academic texts that use different supports.
- Promote the importance of language and its semantics in oral and written communication.
- Guide and improve documentation techniques.
- Introduce the participants to the professional teaching reality, through various readings raised on Visual Thinking.

- Autonomous use of information and communication technologies for the location, selection and organization of information.
- Motivate participants in the learning process through the use of ICT and (audiovisual)

• Encourage the use of participatory methodologies and introduce new multimedia resources and materials in the classroom that facilitate learning.

Learning outcomes

After the lecture, the listener is expected to have achieved the following learning outcomes defined in terms of knowledge, skills and competence:

Knowledge

The student/listener:

- Importance of using different supports for the teaching-learning process
- Recognize the value of V.T in the classroom as a didactic strategy.
- Use of different online applications for the implementation of the V.T.
- Self-knowledge of their own abilities and their best performance

Skills

The student/listener:

- search for the necessary materials to carry out the learning process effectively;
- be able to create your own online resource bases;
- be able to create their own didactic paths;
- be able to use the knowledge bases discussed in their own didactic work.

General competence

It is pursued that they definitely have a comprehensive understanding (theoretical-practical) of the Visual Thinking strategy.

1.3. Addressees of the lecture

The lecture is aimed at academic teachers, primary and secondary school teachers, as well as students who wish to increase their skills in the use of Internet resources in the learning process at different educational levels. The target group of the training are people who want to gain knowledge and develop their skills in terms of enriching their teaching with valuable learning materials available on the Internet.

1.4 Topics of the lecture

✓ The complexity of the cognitive process and construction of knowledge

✓ The main cognitive theories and their parallelism with learning theories

✓ The linking of these learning theories and teaching strategies, such as visual thinking origin, evolution and development of Visual thinking as a didactic strategy

✓ The main didactic elements for its execution in the classroom

1.5 Duration of the lecture

Lecture duration: 20 minutes

1.6. References

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WEBS

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https://www.codesigningschools.com/

https://neuronilla.com/

https://thinkersco.com/community/

https://miro.com/app/board/o9J_livNF3w=/

2. EDUCATIONAL RESOURCES

2.1.Worksheets

Worksheet activity 1. Initial quiz on visual thinking

1. Visual thinking…
a) is an innate ability to process information
b) is an ability to generate ideas through images.
c) is a capacity to generate images through ideas.
d) All of the above are correct.

2. Visual thinking is associated with the cognitive style that predominates in a person
a) True
b) False

3. Can the development of visual thinking be exercised with certain learning experiences?
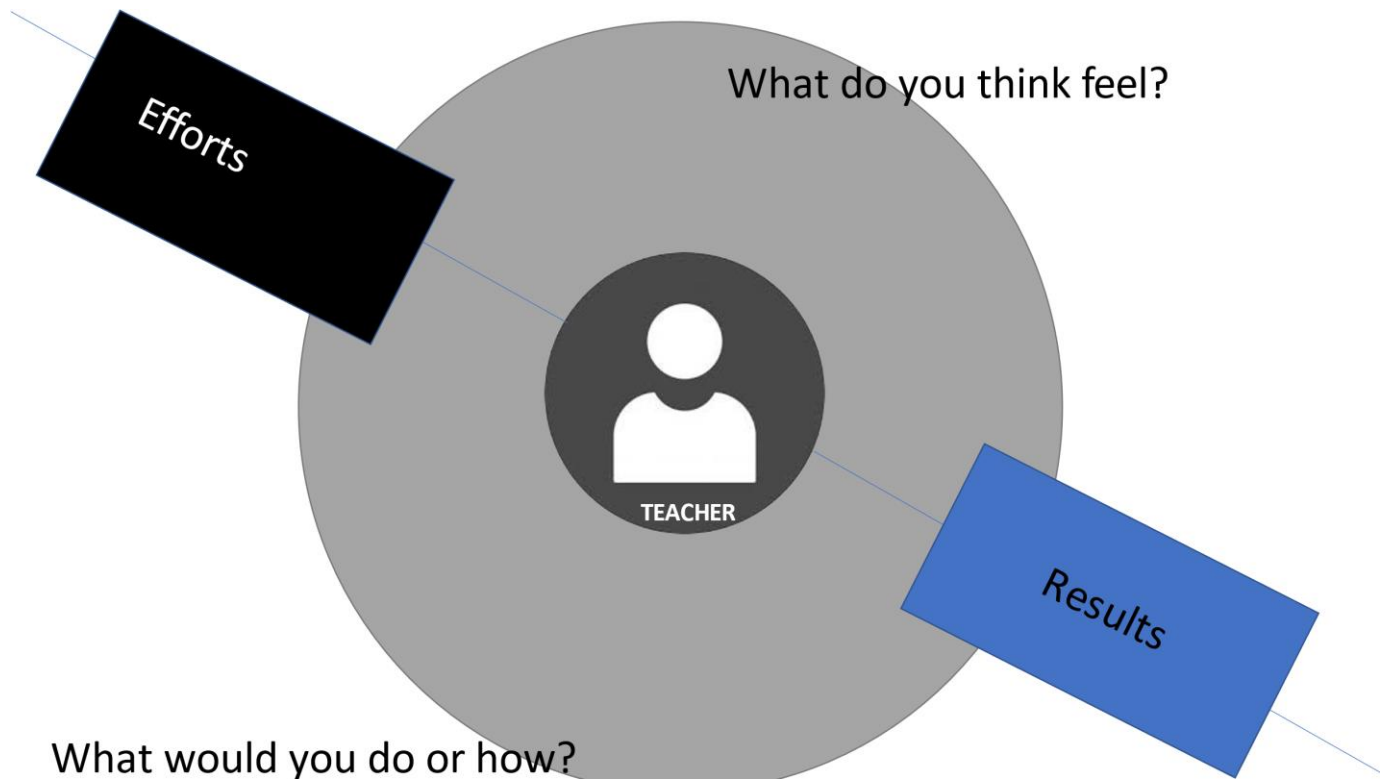a) True
b) False

4. Is visual thinking as a didactic strategy an innovative technique?
a) True
b) False

5. Do you know of any educational resources/mobile applications that encourage Visual Thinking? Give a couple of examples.

Worksheet activity 2. My vision of visual thinking

This Empathy Map must be covered by the participants, bearing in mind that the gray circle is their facet as a teacher or future teacher. What do you think and feel about visual thinking? What would you do to execute it in the classroom and how? You should reflect on your efforts and results. But also, it is necessary that you make this same reflection from your personal facet. Are there contradictory aspects?

Worksheet activity 4 or 5. Self-assessment questionnaire on Visual Thinking

1. Are visual activities more effective in information processing and knowledge construction?

    a) True

    b) False

Justify your answer

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2. Visual thinking is associated with the cognitive style that predominates in a person

    c) True

    d) False

Justify your answer

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………………………………………………………………………………………

3. Visual thinking…

    a) is an innate ability to process information

    b) it is a capacity to generate ideas through images and vice versa.

    c) All of the above are false.

    d) All of the above are correct.

Justify your answer

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4. Can the development of visual thinking be exercised with certain learning experiences?

    a) True

    b) False

Justify your answer

………………………………………………………………………………………………………
………………………………………………………………………………………

5. Is visual thinking as a didactic strategy an innovative technique?

    a) True

    b) False

Justify your answer

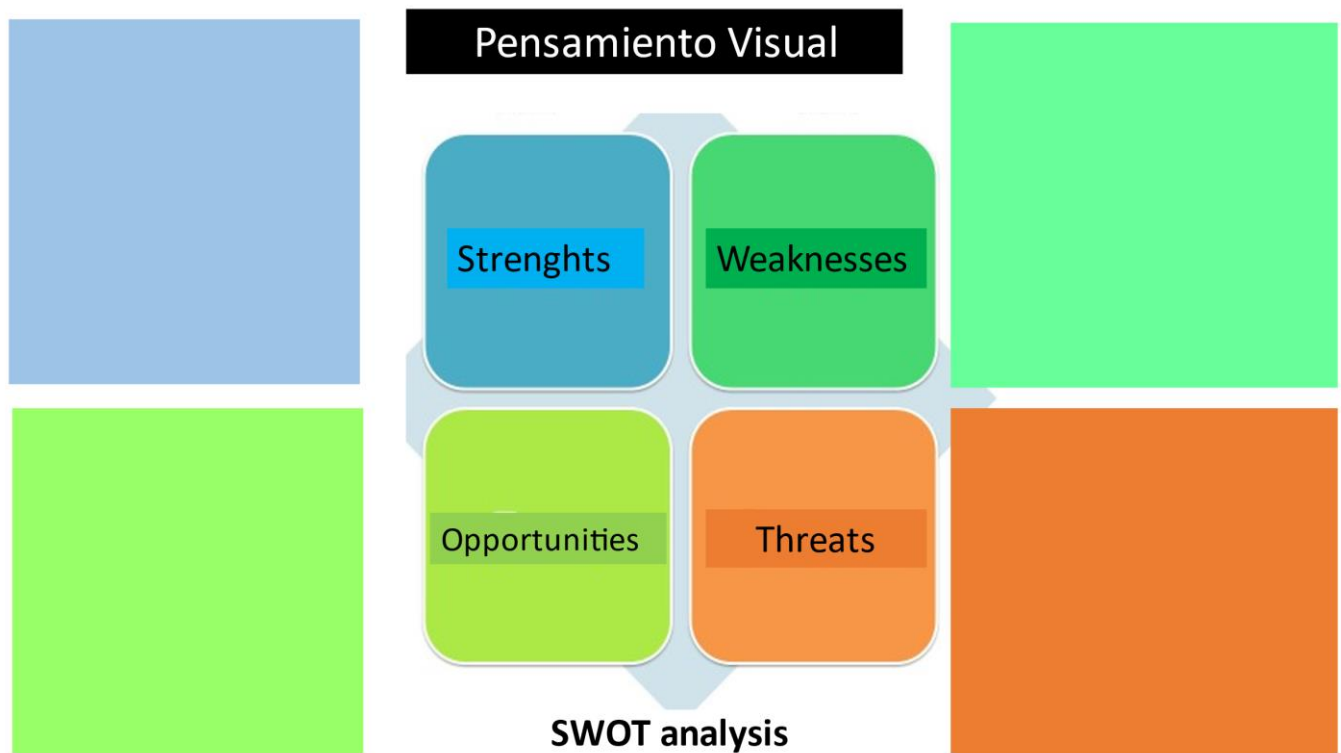………………………………………………………………………………………………………
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6. Do you know of any educational resources/mobile applications that promote Visual Thinking?Give a couple of examples.

7. Can visual thinking design be useful in teaching? Reason your answer.

Worksheet activity 5. SWOT analysis V.T.

2.2.Tasks and Exercises

The sequence of tasks and exercises are presented in successive tables below.

ACTIVITY 1. *Reflection*

Activity description	Before viewing the audiovisual, participants are asked to answer a series of questions about prior knowledge of the Visual Thinking strategy. (Worksheet 1).
Materials	Individual Computer or mobile / wifi or internet connection/Computer class/ projector
Duration	40 minutes
Development Exercises	- Respond autonomously to the questions suggested to the participants (20 minutes) - Presentation of the video by the teacher in charge (20 minutes).
Assessment	Each participant will send their answers to the teacher and will allow knowing the level of progress of each participant with respect to the knowledge acquired. As well as previous knowledge, in case it is necessary to adapt some of the following activities to the level of the participants.

These types of tasks are interesting in order to know from what prerequisites, knowledge and previous experiences the average of our students access the unit, in order to accommodate or reinforce some sequences.

ACTIVITY 2. *My vision + reflection forum*

Activity description	Participants are asked to graphically answer their position regarding the usefulness or not of the Visual Thinking strategy. (Worksheet 2). The teacher looks at the different graphic compositions and then selects 4/5 examples for them to share their homework with the rest of the group. Between 5/10 minutes before starting the common reflection, the teacher projects on the blackboard or draws by hand the same graph that the participants have worked on, since a class graph will be created with the agreed, most recurring, significant aspects, etc. … To do this, once the graph is on the blackboard, one of the assistants is selected so that, with the teacher's guidance, he acts as a moderator and writes the agreed aspects on the graph.
Materials	Sheets of paper/ colored pencils or markers/ Computer/ internet connection/ projector
Duration	45 minutes
Development Exercises	- Individual development of the graph (25 minutes) - Oral sharing (25 minutes).
Assessment	Each participant will send their graph to the teacher by means of a photo - capture- to later know the progress of each participant with respect to the knowledge acquired

It starts from an individual reflection to reach a collective agreement on a novel theme, it is a simulation proposal of collegiate work between teachers, the importance of teamwork and collaborative.

ACTIVITY 3. *Explore + inquire to find out more*

Activity description	Of the authors mentioned in the conference, they must retrieve the works written by two of them (at their interest) to know in depth the real impact in the classroom of the use of V.T The use of applications that save notes/web links etc. is recommended to know the advantages and disadvantages of the didactic use of the V. T. that they must collect in a folio (paper format / digital file). Well, these notes will be necessary for the final activity.
Materials	Individual Computer or mobile / Computer class/ internet connection / projector
Duration	50 minutes
Development Exercises	- Presentation of the teacher of different Information Databases in Education (10 minutes) - Exposure of mobile/pc applications for the use and management of online notes (10 minutes) -Independent work on the mini-report on the advantages and disadvantages of V.T. (+30 minutes = work for house)
Assessment	Each participant will send their mini-report to the teacher by means of a photo - capture- that will allow at the end of the sequence of activities to evaluate the progress of each participant with respect to the knowledge acquired.

If you are not going to continue with Lecture 2. the sequence of activities would end with activity 4.

ACTIVITY 4. *Didactic infographic*

Activity description	Participants are asked to prepare a didactic infographic, a brief graphic and informative composition on a specific topic that they would adopt in their classroom.
Materials	Individual Computer or mobile / Computer class/ internet connection / projector
Duration	50 minutes
Development Exercises	- Exhibition of types and characteristics of didactic infographics (15/20 minutes). - Exhibition of different applications for the elaboration of infographics (10/15 minutes). - Autonomous work in class and at home (+50 minutes).
Assessment	Each participant will send their infographic to the teacher through a photo - capture- or digital file. This learning product will be graded using a specific rubric. (ideas to elaborate it viewing of didactic video - OIR Spain- tips to evaluate the V.T.) + + Self-assessment questionnaire, knowing the learning and progress achieved (Worksheet 3).

Final activity if you do not continue with the viewing of lecture 2. *VISUAL THINKING AS A HINGE BETWEEN DISCIPLINARY KNOWLEDGE AND PEDAGOGICAL KNOWLEDGE.*

ACTIVITY 5. *SWOT- V.T.*

Activity description	Participants are asked to prepare a SWOT analysis of these players reveals their strengths, weaknesses, opportunities, and threats of the V.T. as a didactic strategy. This time the exercise will be group. (Template -worksheet 4).
Materials	Individual Computer or mobile / Computer class/ internet connection / projector
Duration	+ 50 minutes (two sessions)
Development Exercises	**One session** - Theoretical exposition of the SWOT + a list of complementary readings is offered (15 minutes) - Class group work (35 minutes) + work at home **Second sesion** - Sharing (30 minutes) - Visualize Lecture 2.
Assessment	Each group will send their SWOT to the teacher through a photo -capture- or digital file. This learning product will be compared with the products of activity 1 and 2 to analyze the progress of each participant. + Participants will be able to self-assess themselves with the SWOT presented in Lecture 2. + Self-assessment questionnaire, knowing the learning and progress achieved (Worksheet 3).

Next activity visualizes Lecture 2. *Visual thinking as a hinge between disciplinary knowledge and pedagogical knowledge.*

2.3. Access data for the online version

This resource is available in the YouTube channel of OIR Spain: https://youtu.be/RgjQ6-8qHoI