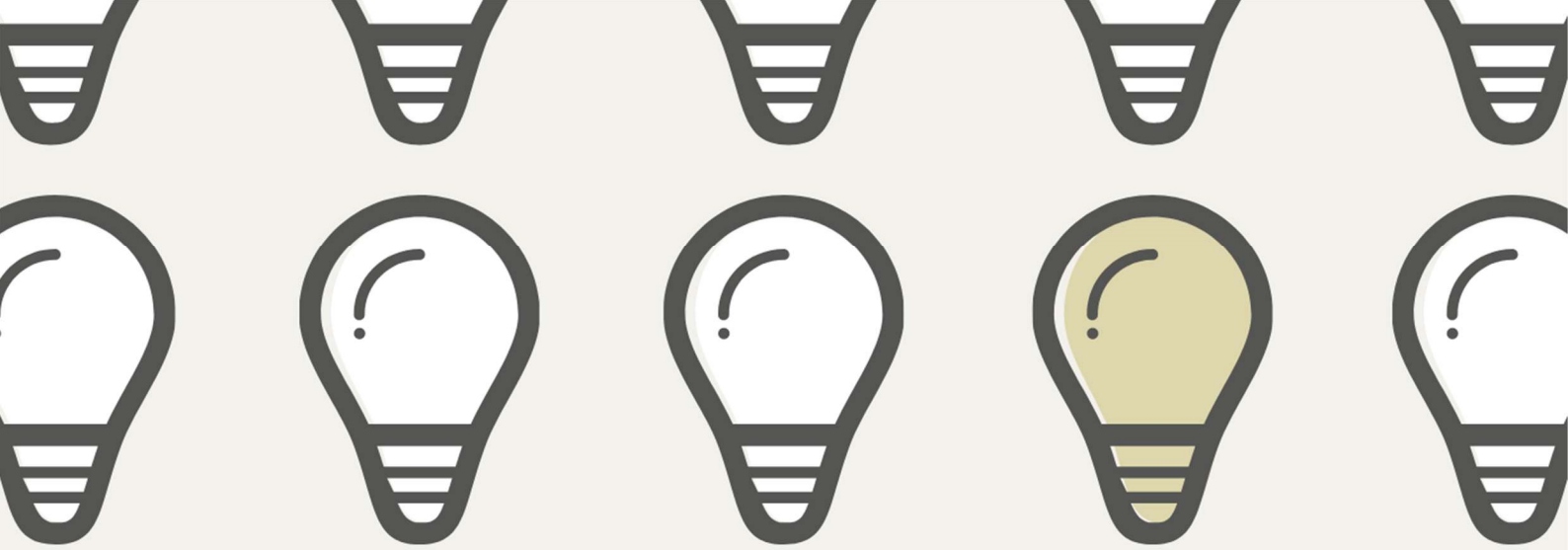

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Mateusz Pietraszek

SHOW ME YOUR EVIDENCE

A BASIC INTERDISCIPLINARY TOOLKIT FOR THE TEACHING OF CRITICAL THINKING SKILLS

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Madrid

CONTENT

PART I

THE BASICS IN THE TEACHING OF CRITICAL THINKING

Show me your evidence!

1.1. INTRODUCTION: WHY A BASIC INTERDISCIPLINARY TOOLKIT?

In the last two decades, the term *Critical Thinking* has become a very popular and consolidated concept within the field of European education. Indeed, since the Bologna Declaration in 1999[1], followed by the Vienna- Budapest Declaration[2] and the creation of EHEA- European Higher Education Area in 2010[3], critical thinking has been progressively articulated in reference documents as a *basic transferable skill*, fundamental in acquiring XXI century key competences at all educational stages.

In the particular situation of Spain, for example, critical thinking is considered one of the most crucial transversal skills from official curricula of Primary and Secondary education to teaching guides of university degrees and postgraduate courses. And what all these curricula have in common is that developing a *critical mindset* is at the core of achieving successful learning outcomes.

Being such a buzz word in the world of education, one may assume that all teachers knew what critical thinking is and how to teach it; what a basic transferable skill means and what to have a critical mindset entails, right?

Moreover, as university lecturers, we may also assume that students would have had specific training in critical thinking skills throughout primary and secondary education and when reaching university level, they would have become masters of critical mindsets, right?

However, in our more than 10 years teaching experience, the reality within the classroom portrays a very different scenario. In fact, most of our students had not acquired the competence to think in a critical manner since they often lack their own opinion, and the one they have is for the most part *not contrasted*. In addition, immersed in a generalized culture of copy and paste and invisible plagiarism, saint Google and Wikipedia seem to have become the new normal in academic works being the most popular tools students articulate their ideas with.

To back up our argument with quantitative data, we started to carry out an interdisciplinary survey during the academic course 2017-18. In this first survey, 226 students of a private university [4] in Madrid, from different fields and degrees, participated in our research (Figure 1).

[1] Source: https://www.ehea.info/cid100210/ministerial-conference-bologna-1999.html
[2] Source : http://www.ehea.info/Upload/document/ministerial_declarations/Budapest_Vienna_Declaration_598640.pdf
[3] Source: http://ehea.info/media.ehea.info/file/20050412-13_Mondorf/67/6/BFUG5_8_Draft_579676.pdf
[4] Innovation Project SIIM-UFV - *New Narratives for Europe: SSH, Critical Thinking and RRI* https://www.ucm.es/siim/new-narratives-for-europe

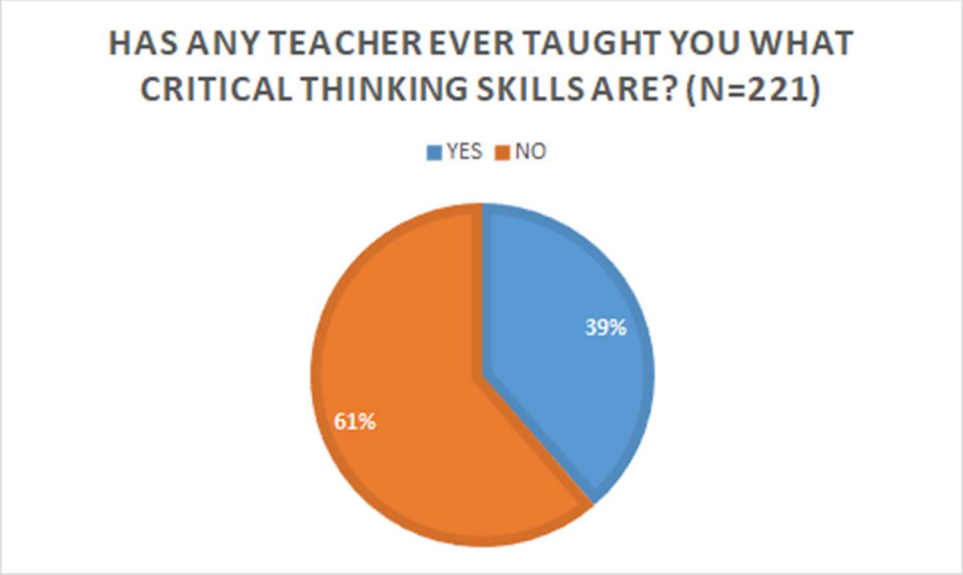


Figure 1

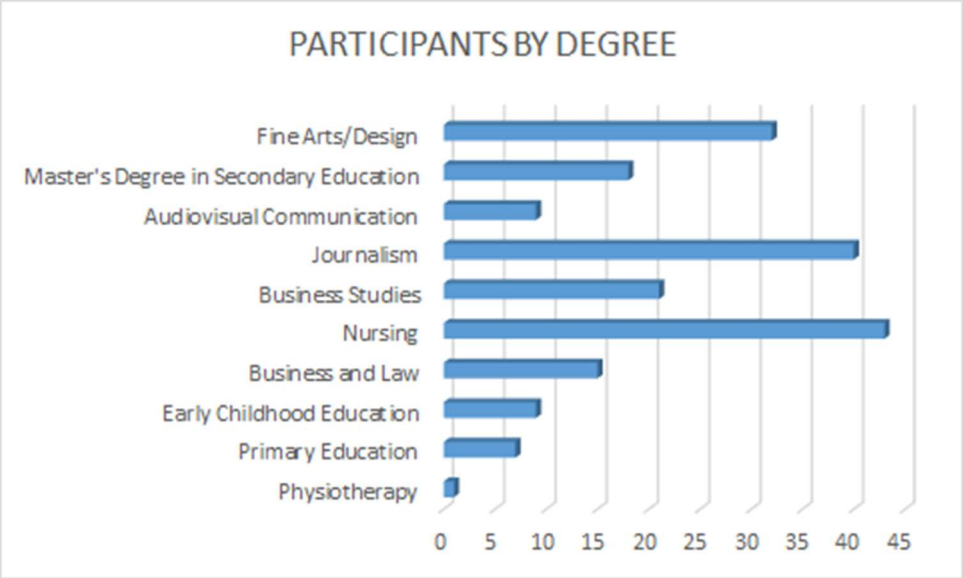


Figure 2

As we can see in Figure 1, to the question "has any other teacher taught you what critical thinking skills are?" 138 students answered that no other teacher had taught them any thinking skills content related before. What this means is that 61% of our students admitted having reached university level without being specifically trained on being critical thinkers.

We found these results really problematic and decided to conduct the same interdisciplinary survey with a different profile of students, undergraduates from public universities[5], not private. It was carried out during the academic year 2019-20 with 125 students participating from two public universities in Spain (Figure 2).

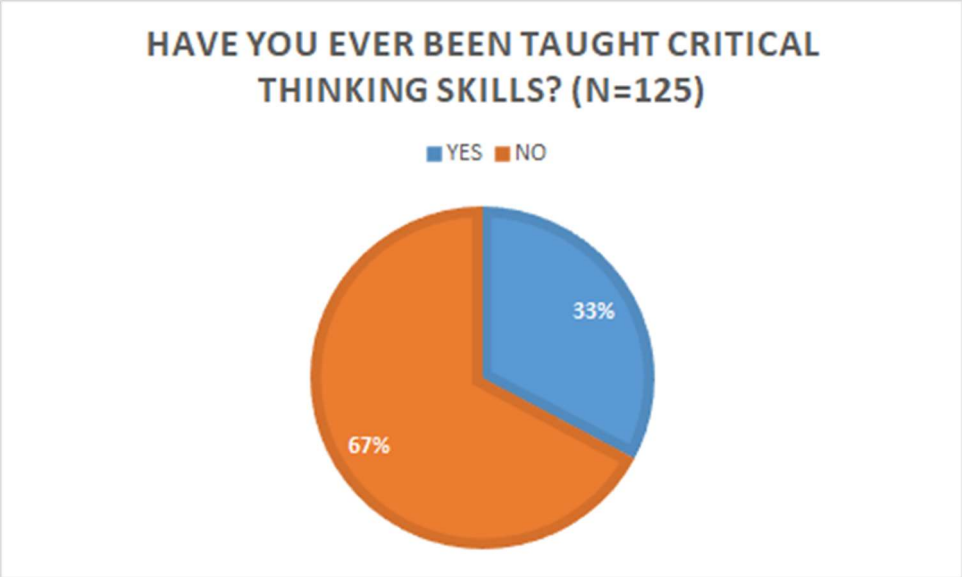


Figure 3

As we can see in Figure 2, there is a slight difference with the students from the private university, since 67, 2 % of public universities students responded affirmatively to: “have you ever been taught critical thinking skills?” (as opposed to 39% in the private university). Still, we would like to pay attention to the fact that 32.8% remains a very high percentage of university students enrolled in undergraduate programs, who have not been efficiently trained in critical thinking skills.

With the intention to collect more specific information, in this second survey[6], we introduced the question “When did you learn about critical thinking skills”?. As we can see in figure 3, when asked to specify in which stage they had received their training, it is striking to see that 43.5% of students stated that it was a university level, not before (Figure 3).

[5] Students from Complutense University– (English Studies Degree) and students from Burgos university- Eurasia Foundation course 2020.
[6] Transferable Skills for Higher Education- critical thinking SURVEY 2019-20
https://docs.google.com/forms/d/1g9aJAfHu8ixt0YiLSFyZc-C_jhS99qF12xwc3ZJ7YhA/edit

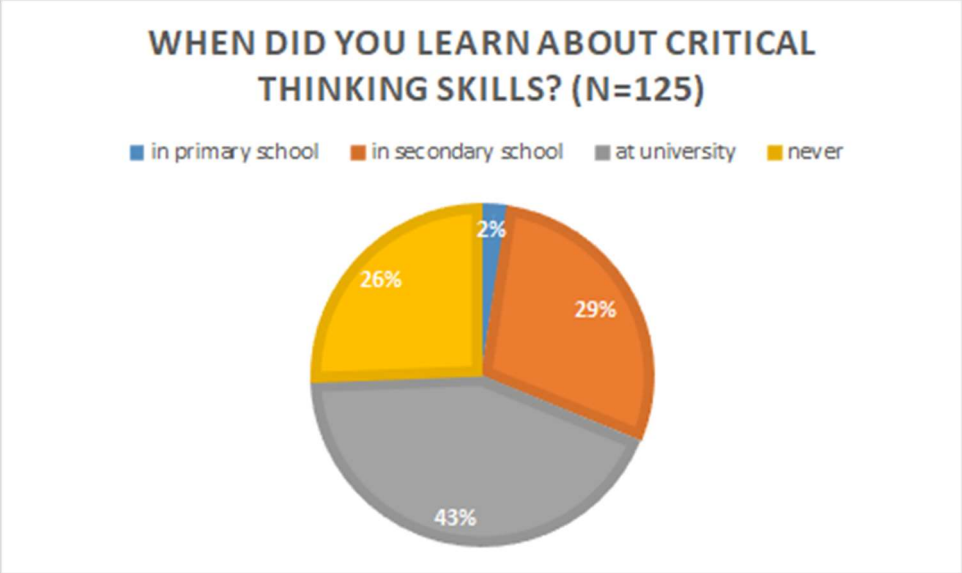


Figure 4

These are very worrisome figures if we consider critical thinking such an important basic skill in education.

When contrasted with qualitative data, there is also a consistent degree of confusion in university level students in relation to basic aspects of critical thinking such as, for instance, the difference between 'objective' and 'subjective' opinion, along with what 'contrasted opinion' and what to 'verify' information entails; key concepts in understanding what is to be a critical thinker and what implies to have a critical thinking mentality.

As an example, consider the following answers given in the 2019-20 survey to the question "what is for you to have a "contrasted opinion"?. As you can see in figure 5, responses range from acknowledging that "no idea. I don't know", with also very ambiguous ones such as "it has to make sense in an objective and subjective way" and "being open to change your opinion"; to unclear observations such as "an opinion that goes against what is considered normal".

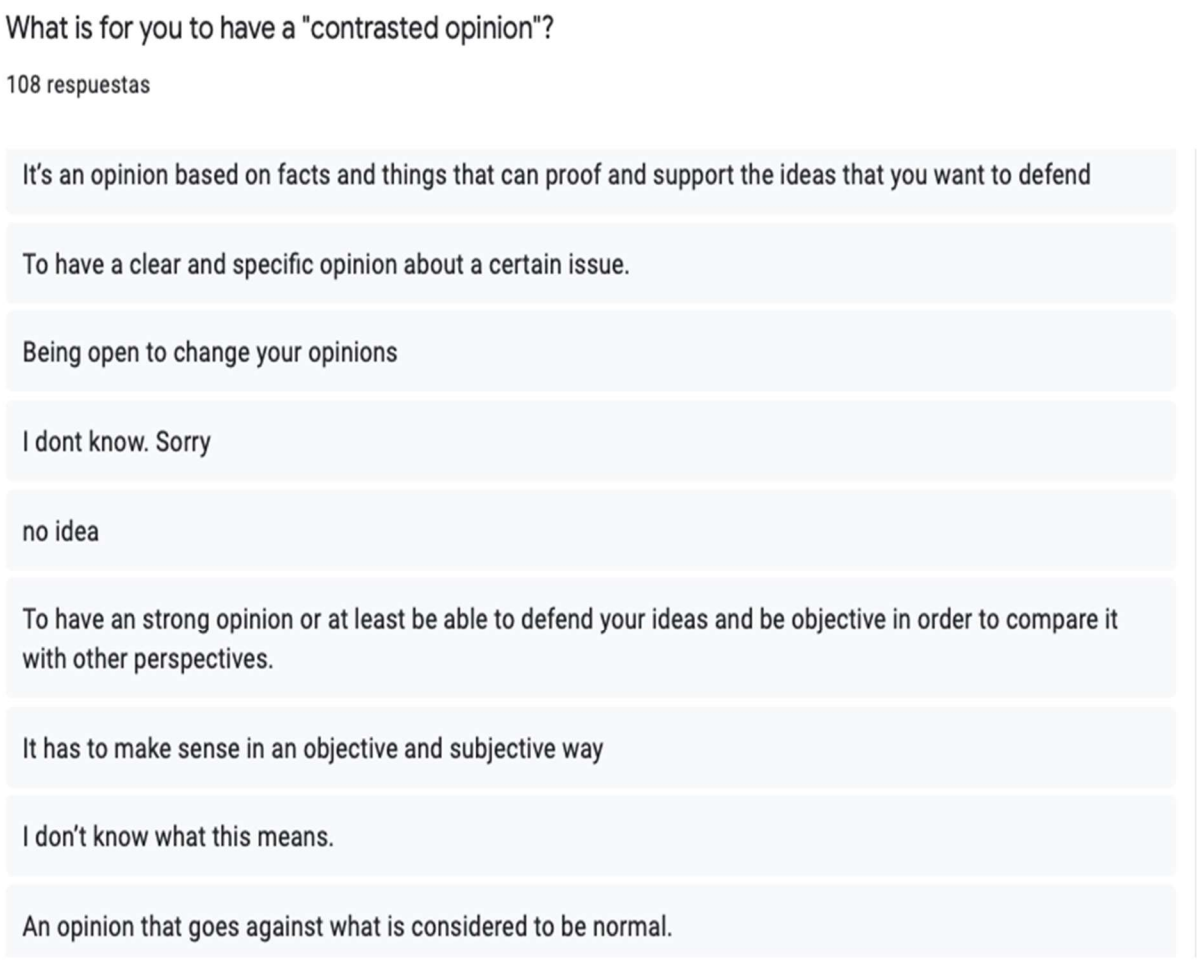


Figure 5

In contrast, to the question "what is for you to verify information?", answers seemed to be more constant when in the line with "checking information", "looking for official sources" or "checking the sources in order to analyze the veracity of the information".

Nevertheless, some inconsistencies arise such as when student's responses equate verifying information with "to listen and pay attention to different and diverse opinions, even those you don't agree with", as you can see in figure 6.

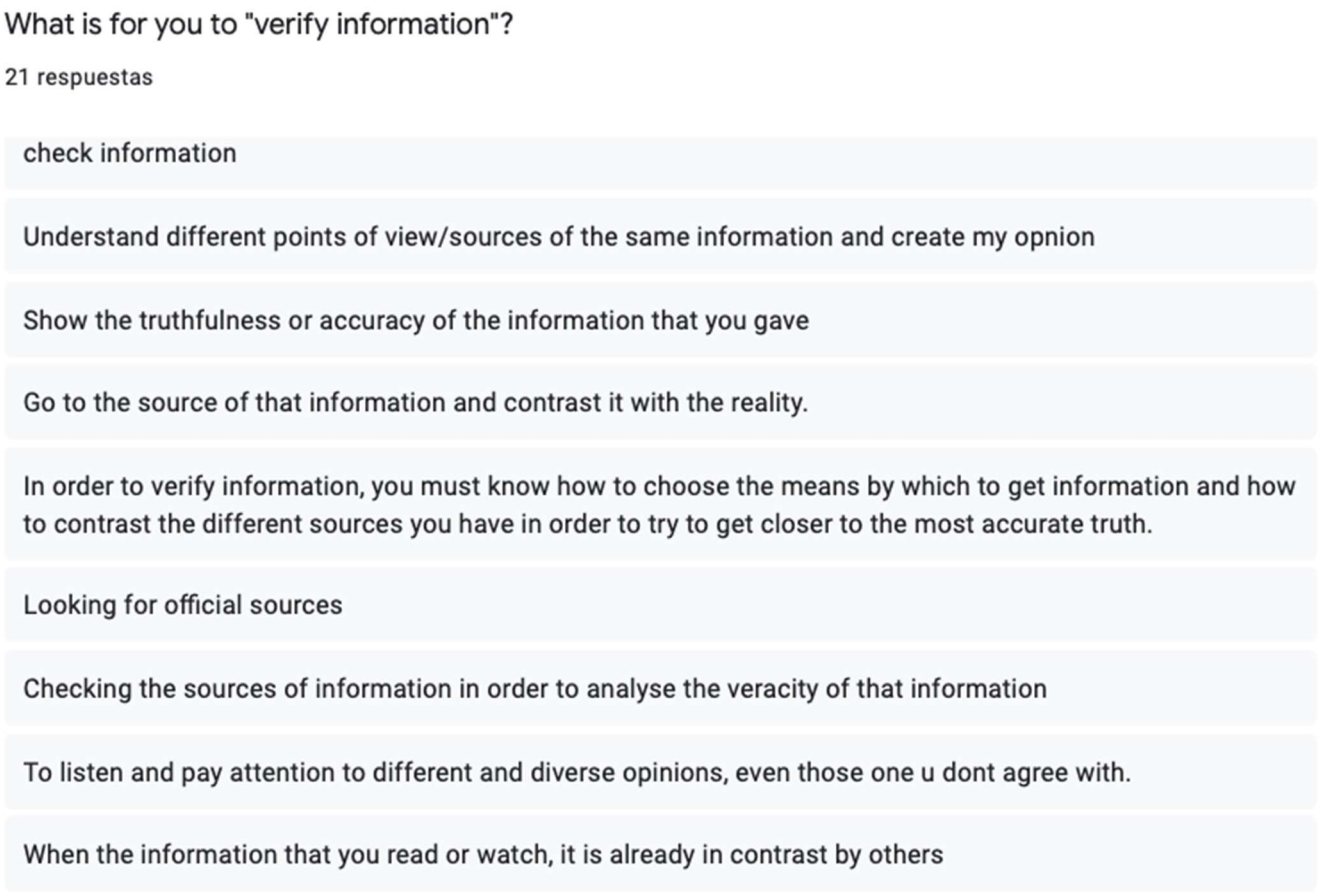


Figure 6

For us, these surveys mostly demonstrate two things: on one hand, it makes visible a problematic percentage of university students who have not had specific training on critical thinking until university level (61% of students in private university`s results- 33.2% for students in public universities` results).

On the other hand, it showcases how the lack of specific training, results in a degree of confusion in regard to the meaning of defining terms within critical thinking skills as in the case of 'contrasted opinion' and to ' verify information'.

Advocating for the creation of a truly European Education Area[7], when looking for a basic manual on how to teach and assess critical thinking skills in a clear, simple and interdisciplinary way, unfortunately, we have not been able to find a consensual European toolkit to this date.

[7] European Education Area is conceived as a space where everyone should receive the best education, training and lifelong learning. https://ec.europa.eu/education/education-in-the-eu/european-education-area_en

The European commission provides guidelines and recommendations but there is no institutional consensus on how to define critical thinking, nor how to teach it or assess it. What this means is that, neither at a European nor a Spanish level, there aren't any current regulations of basic, interdisciplinary, practical and hands-on guidelines for teachers on how to go about the business of teaching students efficiently what to think critically really is.

Fortunately, initiatives are growing in Europe. There is the European commission funded project " "El Pensamiento Crítico en los Curricula Europeos de Educación Superior – CRITHINKEDU"[8] that promotes coordination between the academic-professional world. Within this project, first European summit for critical thinking has been held in Belgium in 2019[9] and a critical thinking manifesto has been proclaimed. As the Manifesto in their petition website says[10]:

> **This manifesto claims that critical thinking is highly needed in society**. The development of critical thinking **is therefore an important aim of higher education**. The development of critical thinking needs devoted attention and specific educational interventions. This manifesto puts an educational protocol to the forefront, that can be used as a guide in fostering the development of critical thinking in higher education institutions at the course/module, programme and institutional level. **The protocol does not adhere to a single definition of critical thinking. Such a definition is essential and context specific and therefore no definition is imposed.** It is important that higher education institutions formulate and/or adapt a contextually appropriate definition of critical thinking for their own purposes. (*Emphasis added*)

To this regard, we would like to clarify that, even though we agree with its statement that "critical thinking is highly needed in society ….and is therefore an important aim of higher education", we consider it inconvenient to publicly articulate the impossibility of reaching a consensual way of defining critical thinking by saying "the protocol does not adhere to a single definition of critical thinking" and "the definition of critical thinking is context specific and therefore no definition is imposed", **without providing contrasted evidence**, coming from reliable resources, **to support such a claim**.

[8] http://crithinkedu.utad.pt/es/crithinkedu-es/
[9] http://crithinkedu.utad.pt/news/the-first-european-summit-for-critical-thinking-education-in-leuven-belgium/
[10] https://www.petitions.net/manifesto_on_critical_thinking_education

Even though we agree that no definition can ever be imposed, this statement seems to ignore that the definition of critical thinking, in order to be academic, it needs to have a scientific base and therefore, it needs to be contrasted. For this reason, the affirmation of the impossibility of a consensual definition needs to be backed up by evidence. Moreover, the affirmation of an impossibility on agreeing on a basic definition ignores that there have been many previous attempts to define critical thinking throughout history in an interdisciplinary way (as it will be explained in the following section).

In addition, it seems to us that it is taken from granted that the basics of critical thinking in an academic context are shared and comprehended at a European level, which, unfortunately, at least in Spain, is not the case.

For this reason, in this toolkit, we **advocate for the possibility for** a simple, objective and clearly articulated definition that sets the pillars of a systematized critical thinking teaching and assessment. Only if all European countries are on the same page, can we provide a solid front against manipulation, misinformation and fake news; and for that, we truly believe that we need a **basic common definition of Critical Thinking, based on scientific research** applicable within the European Education Area through a common teaching methodology.

In this line, what follows is our humble contribution to a very needed interrogation in European Education about what are the basics of teaching and assessing critical thinking in an interdisciplinary way?

1.2. CLARIFICATION ON BASIC CONCEPTS RELATED TO CRITICAL THINKING AS A *TRANSFERABLE SKILL*

Let's look at the basics

What does it mean that critical thinking is a **basic transferable skill** in a European competence-based education?

Firstly, we need to understand what **competences** are.

Throughout the Bologna process, the creation of EHEA- European Higher Education Area, until the latest recommendation, Competences are defined as:

"**knowledge**, **skills**, and **attitudes** that will help learners find personal fulfilment and, later in life, find work and take part in society"[11] . That is:

knowledge is composed of the facts and figures, concepts, ideas and theories which support the understanding of a certain area or subject;

skills are defined as the ability and capacity to carry out learning processes and use the existing knowledge to achieve results;

attitudes describe the disposition and mind-sets to act or react to ideas, persons or situations.

These competences (knowledge, skills, and attitudes) are divided in two groups: Key Competences and basic Skills.

According to the Reference Framework, [12] ratified by the Council Recommendations on Key Competences for lifelong learning on 22 May 2018, [13] the eight **key Competences** are:

[11] (4.6.2018 -Official Journal of the European Union COUNCIL RECOMMENDATION of 22 May 2018 on key competences for lifelong learning (2018/C 189/01) p. 7
https://ec.europa.eu/education/education-in-the-eu/council-recommendation-on-key-competences-for-lifelong-learning_en :
https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.C_.2018.189.01.0001.01.ENG&toc=OJ:C:2018:189:TOC
[12] https://op.europa.eu/en/publication-detail/-/publication/297a33c8-a1f3-11e9-9d01-01aa75ed71a1/language-en
Print ISBN 978-92-76-00475-2 doi:10.2766/291008 NC-02-19-150-EN-C
[13] Ibid.

- Literacy competence
- Multilingual competence
- Mathematical competence and competence in science, technology and engineering
- Digital competence
- Personal, social and learning to learn competence
- Citizenship competence
- Entrepreneurship competence
- Cultural awareness and expression competence

In addition to key competences, **Basic skills**[14] are defined as equally important in the pursuit of personal fulfilment and development, employability, social inclusion and active citizenship. In the foreword of the document Key competences for lifelong learning it is stated that:

> *In today's world, young people need a broad set of skills and competences to find fulfilling jobs and become independent, engaged citizens. This means the **basic skills** of reading, writing, maths and science but also digital skills, languages, entrepreneurship, citizenship, intercultural skills, **critical thinking**, collaboration and creativity*[15]

Secondly, we need to understand what '**transferable skill'** means.

The Council Recommendation of 22 May 2018 on key competences for lifelong explains that "Skills such as **critical thinking**, problem solving, teamwork, communication and negotiation skills, analytical skills, creativity, and intercultural skills **are embedded throughout the key competences.**" [16]

What this means is that basic skills such as critical thinking **are considered as important as the key competences** because their skills are transferred into essential aspects of these competences.

[14] Also referred to as transferable or soft skills.
[15] https://op.europa.eu/en/publication-detail/-/publication/297a33c8-a1f3-11e9-9d01-01aa75ed71a1/language-en p.7.
[16] Council Recommendation of 22 May 2018 on key competences for lifelong learning (Text with EEA relevance.)ST/9009/2018/INIT *OJ C 189, 4.6.2018,* p. 1–13 https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv%3AOJ.C_.2018.189.01.0001.01.ENG&toc=OJ%3AC%3A2018%3A189%3ATOC

In order to briefly demonstrate how critical thinking is a basic **transferable skill** embedded in the 8 key competences, let's have a look at the following highlighted examples taken from the definition of these key competences. As we will see, critical thinking is mentioned in all of them either as an essential knowledge, skill or attitude related to these competences.

.

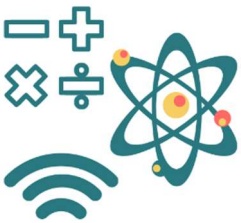
Literacy Competence

"This competence implies the ability **to communicate efficiently**… it also includes the abilities **to distinguish and use different types of sources, to search for, collect and process information,** …and to **formulate and express** one's oral and written **arguments in a convincing way** appropriate to the context. It encompasses **critical thinking** and ability to assess and work with information[17].

Multilingual competence[18]

"Essential skills for this competence consist of the **ability to understand spoken messages**, to initiate, **sustain and conclude conversations** and to read, understand and draft texts, with different levels of proficiency in different languages, according to the individual's needs."[19]

Mathematical Competence and Competence in Science, Technology, Engineering [20]



"It includes **the ability to use and handle** technological tools and machines as well as **scientific data** to achieve a goal or to **reach an evidence-based decision or_conclusion**. Individuals should also be able to recognize the essential features of **scientific inquiry** and have the **ability to communicate the conclusions and reasoning** that led to them." …Competence includes an **attitude of critical appreciation and curiosity"**

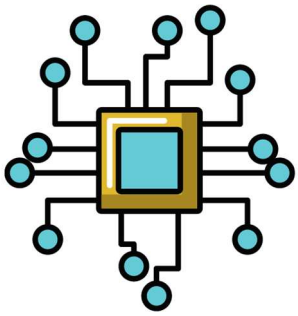
[17](4.6.2018 -Official Journal of the European Union COUNCIL RECOMMENDATION of 22 May 2018 on key competences for lifelong learning (2018/C 189/01) p.8.

[18] While the Council of Europe uses the term '*plurilingualism*' for referring to multiple language competences of individuals, European Union's official documents use '*multilingualism*' to describe both individual competences and societal situations. This is partly due to difficulties making a distinction between *plurilingual* and *multilingual* in other languages than English and French.

[19] (4.6.2018 -Official Journal of the European Union COUNCIL RECOMMENDATION of 22 May 2018 on key competences for lifelong learning (2018/C 189/01) p.8.

[20] Ibid. p. 9.

Digital Competence[21]



Digital competence involves the confident, **critical** and responsible **use** of, and engagement with, digital technologies for learning, at work, and for participation in society. It includes information and data literacy, communication and collaboration, media literacy, digital content creation (including programming), safety (including digital well-being and competences related to cybersecurity), intellectual property related questions, problem solving and **critical thinking.**

Personal, Social and Learning to Learn Competence [22]

"Skills include the **ability to identify** one's capacities, focus, **deal with complexity, critically reflect** and make decisions"

Citizenship Competence [23]

"This involves an understanding of the European common values, as expressed in Article 2 of the Treaty on European Union and the Charter of Fundamental Rights of the European Union. It includes knowledge of contemporary events, As well as a **critical understanding** of the main developments in national, European and world history."

"It also involves **critical thinking** and integrated **problem-solving skills,** as well as **skills to develop arguments** and **constructive participation** in community activities, as well as in decision-making at all levels, from local and national to the European and international level. This also involves the ability to access, **have a critical understanding of,** and interact with both traditional and **new forms of media** and understand the role and functions of media in democratic societies.

[21] Ibid.
[22] 4.6.2018 -Official Journal of the European Union COUNCIL RECOMMENDATION of 22 May 2018 on key competences for lifelong learning (2018/C 189/01) p. 10.
[23] Ibid.

Entrepreneurship Competence[24]

"Entrepreneurship competence refers to the capacity to act upon opportunities and ideas, and to transform them into values for others. It is **founded upon** creativity, **critical thinking** and **problem solving,** taking initiative and perseverance and the ability to work collaboratively in order to plan and manage projects that are of cultural, social or financial value."

"Entrepreneurial skills are founded on creativity which includes imagination, **strategic thinking** and problem-solving, and **critical and constructive reflection** within evolving creative processes and innovation. ….The ability to **effectively communicate** and negotiate with others, and to cope with **uncertainty, ambiguity and risk as part of making informed decisions** is essential."

Cultural awareness and expression competence[25]

"Competence in cultural awareness and expression involves being **engaged in understanding, developing and expressing one's own idea**s and sense of place or role in society in a variety of ways and contexts."

"Skills include the ability to express and **interpret figurative and abstract ideas**, experiences and emotions with empathy, and the ability to do so in a range of arts and other cultural forms. Skills also include the **ability to identify and realise opportunities** for personal, social or commercial value through the arts and other cultural forms and the ability to engage in creative processes, both as an individual and collectively."

[24]Ibid. p. 11

[25] (4.6.2018 -Official Journal of the European Union COUNCIL RECOMMENDATION of 22 May 2018 on key competences for lifelong learning (2018/C 189/01) p.13

Summary

As it has been demonstrated, critical thinking overlaps, supports and interlocks with essential aspects of the eight key competences. What this means is that critical thinking skills are *transferred* and therefore are present in all the key competences. It is for this reason that critical thinking is a **basic transferable skill** in the world of European Education.

Now that we have understood why critical thinking is a basic transferable skill in education , let's move on to elucidate what to have a critical thinking mentality means, by first asking ourselves:

1.3. A QUICK REVIEW OF THE ORIGINS OF CRITICAL THINKING IN EDUCATION: LOOKING FOR A BASIC DEFINITION

"Critical" comes from the ancient Greek word *kritiKos,* "meaning able to **judge**, **discern** and **decide**" (Butterworth and Thwaites 2013: 07 emphasis added[26]).

Indeed, the most ancient traces of critical thinking in education are found in the Greek philosopher **Socrates** who is believed to be one of the first voices that pointed at **the need of a systematic questioning** as a way of investigating the world around us (Zuckert 2004:190)[27]. His method is known as "Socratic questioning"[28] because it is precisely through the formulation of questions by the teacher, not through lecturing, that students are able to evaluate their beliefs in a critical manner and thus improve their reasoning skills.

[26] Butterworth and Thwaites. *Thinking Skills. Critical Thinking and Problem Solving* (2013).
[27] Zuckert, Catherine. " The Socratic Turn" in *History of Political Thought*, Vol. 25, No. 2 (Summer 2004), pp. 189-219. Imprint Academic Ltd. Stable URL: https://www.jstor.org/stable/26220160 Accessed: 23-05-2020 14:40 UTC
[28] See Overholser, James C. "Socrates in the Classroom" in *College Teaching*, Vol. 40, No. 1 (Winter, 1992). Taylor & Francis, Ltd. pp. 14-19. Stable URL: https://www.jstor.org/stable/27558505 Accessed: 23-05-2020 14:48 UTC

As Plato recalls in *Dialogues*[29], Socrates´ aim was to make visible, through questions, "student's inadequate reasoning and illustrated logical flaws in order to foster more rational and logical thought". Throughout his dialogue, Socrates enables students to acquire a more "rational and logical" argument by helping them to advance from "unsupported ideas to reasoned concepts" (Overholser 1992 :15). [30]

At the heart of this Socratic questioning, we can find a method envisioned to help students to **express their opinions**, a method that allows them to critically **evaluate their arguments** and to being capable of defending an **evidence-based decision or conclusion** ; in sum, the development of a critical manner which abandons those views which are not supported by facts (Seeskin 1987[31]- cited in James C. Overholser 1992 15)

At the basis of Socratic questioning in relation to critical thinking is therefore a formulation of **questions,** an **evaluation** of beliefs (identifying logical flaws and unsupported ideas) and **providing reasons** in rational and logical thought. And to be logical, in a critical manner, ideas must be **supported by facts and evidence** and abandon subjective perceptions.

Many centuries later, in the XVII century, Francis Bacon wrote *The Advancement of Learning* (1605) in which he constructed a theory of education that facilitates the tools to understand the world. As he points: "if man's first necessity is to understand the world around him and to contain that understanding in a coherent state, the second human necessity is to test the validity of his understanding."[32]

As it can be inferred, in the necessity to understand the world, it is through the "testing of its validity " (what Socrates would call **questioning and evaluation of beliefs**) that a coherent and logical understanding of the world can be reached. In resemblance with Socratic systematic questioning, it is indeed in the **need to critically evaluate the world around us** that traces of critical thinking can be claimed to be found in Bacon´s statement.

Three centuries later, in 1910, U.S Psychologist and educator, John Dewey, published *How We Think*, where he defends learning to think and to provide reasons as fundamental goals of education. In Dewey´s words, critical thinking is described as **reflective thinking**. When enumerating the main elements of reflective thinking, he refers to: "a) state of perplexity, hesitation, doubt; b) and an act

[29] Fine, Gail . *The Oxford handbook of Plato*. Oxford: Oxford University Press, 2011.p. 76,77. ISBN 0199769192.
[30] Overholser, James C. "Socrates in the Classroom" in *College Teaching*, Vol. 40, No. 1 (Winter, 1992). Taylor & Francis, Ltd.
[31] Seeskin, K. . *Dialogue and discovery: A study in Socratic Method*. Albany. SUNY Press, 1987.
[32] https://www.gutenberg.org/files/5500/5500-h/5500-h.htm -Cited in R. E. Hughes. "Francis Bacon, the Renaissance State, and St. Augustine: A Chapter in the History of Education" in History of Education Journal, Vol. 9, No. 2 (Winter, 1958) Cambridge University Press: p. 35.

of searching, investigation directed towards **bringing to light further facts** which serve **to corroborate or nullify** the suggested belief" (9)[33]

In the same way as Socrates does, Dewey also identifies systematic **questioning** (what he calls "state of perplexity, hesitation, doubt") and the ability to **critically evaluate** (what he calls an "act of searching, investigation") as the way to bring to light the **objective facts**, the logical thinking that will "corroborate or nullify the suggested belief". Implicitly, this also means that the investigation must expand to interrogating the validity of the sources where the facts come from.

As we will see in the following sections, interrogating the validity of the sources is an important nuance to bear in mind since it develops the process of critical thinking further by calling attention to the **need to evaluate the reliability of our sources** of information.

Thirty years later, in 1941, thanks to the work of Edward M. Glaser, it can be said that critical thinking finally began to be articulated as a growing academic concept. According to Glaser, critical thinking refers to the **search of evidence to support (or discredit**) a belief or an argument (mentioned in John Hughes 2014: 2. Note 3).

Once again, critical thinking is correlated with the ability to question and evaluate the validity of the facts and the sources that support an argument. The evidence that supports an argument is based both in the credibility of the source of information and the verification of facts.

As we can see, looking at all these critical thinking pioneers within western thought, it can be claimed that **Socratic questioning is a common thread** in the origins of the articulation of a reflective thinking, **one that questions and evaluates the world around it.**

According to James C. Overholser (1988, 1992) the importance of the Socratic method in academic teaching is that its premises represent steps to be taken into becoming an active critical thinker. As we can see in the next table, focusing on the basic aspects of critical thinking (and not on the inter-personal skills within the dynamic of the classroom) the elements that can be identified as the basic pillars of a critical thinking mindset are: systematic questioning, objective thinking that leads to critical thinking, investigation, testing of hypothesis and inductive reasoning.

[33] John Dewey. How we think. 1997. Dover Publications: Mineola N.Y. Originally published in Boston: DC Health, 1910.

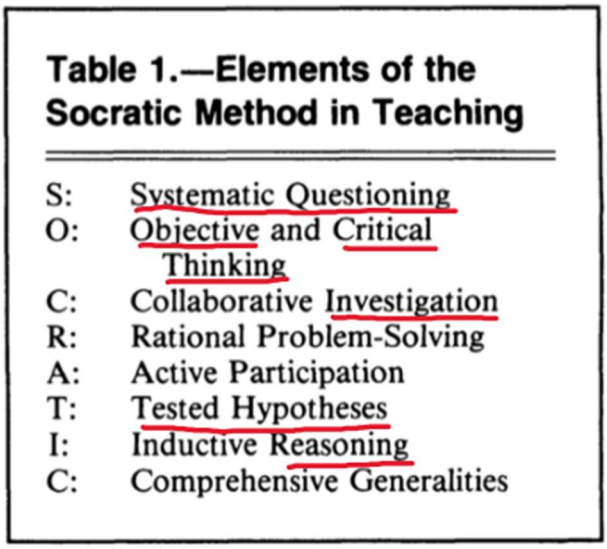


Table 1.—Elements of the Socratic Method in Teaching

S:	Systematic Questioning
O:	Objective and Critical Thinking
C:	Collaborative Investigation
R:	Rational Problem-Solving
A:	Active Participation
T:	Tested Hypotheses
I:	Inductive Reasoning
C:	Comprehensive Generalities

Figure 7 (1992: 17-emphasis added)

All these elements of the Socratic method present in Bacon, Dewey and Glaser can help us to provide a basic definition of critical thinking skills. For this reason, in this basic interdisciplinary toolkit, we believe it is possible to propose the articulation of a clear and elementary definition[34] of critical thinking in which to find a common ground on how to teach it and assess it.

Building on this tradition of thinkers and educators, we propose that critical thinking, in its most basic form could be articulated as:

The ability to express a contrasted opinion based on evidence/facts coming from reliable sources of information

[34] We acknowledge its complexity.

1.4. BLOOM'S TAXONOMY AND CRITICAL THINKING SUB-SKILLS

Now that we have established a basic definition of critical thinking skills (knowledge) the next question would be to ask ourselves how we can teach it and assess it in a clear practical way? in an active and engaging way? (Skills)

In 1956, the educational psychologist Benjamin Bloom coordinated a committee of educators with the purpose of **elaborating a clear set of sub-kills** that would help students to be critical thinkers. In particular, it was designed to delineate the abilities that students needed to acquire in order to move **from a lower level thinking** (the level of unsupported ideas, inadequate reasoning, logical flaws) **to** a more complex, **higher level of thinking** (the level in which they can express an opinion, critically evaluate it and defend it or abandon it depending if supported or justified).

Under Bloom's supervision, what these educators devised was a taxonomy divided in a series of skills that learners need to develop in order to think critically. Even though we still refer to this taxonomy as "**Bloom's taxonomy**" many different educators have contributed to its development and improvement over the years (see for example Anderson and Krathwohl 2001 referenced in Hughes, John 2014: 2-note 5).

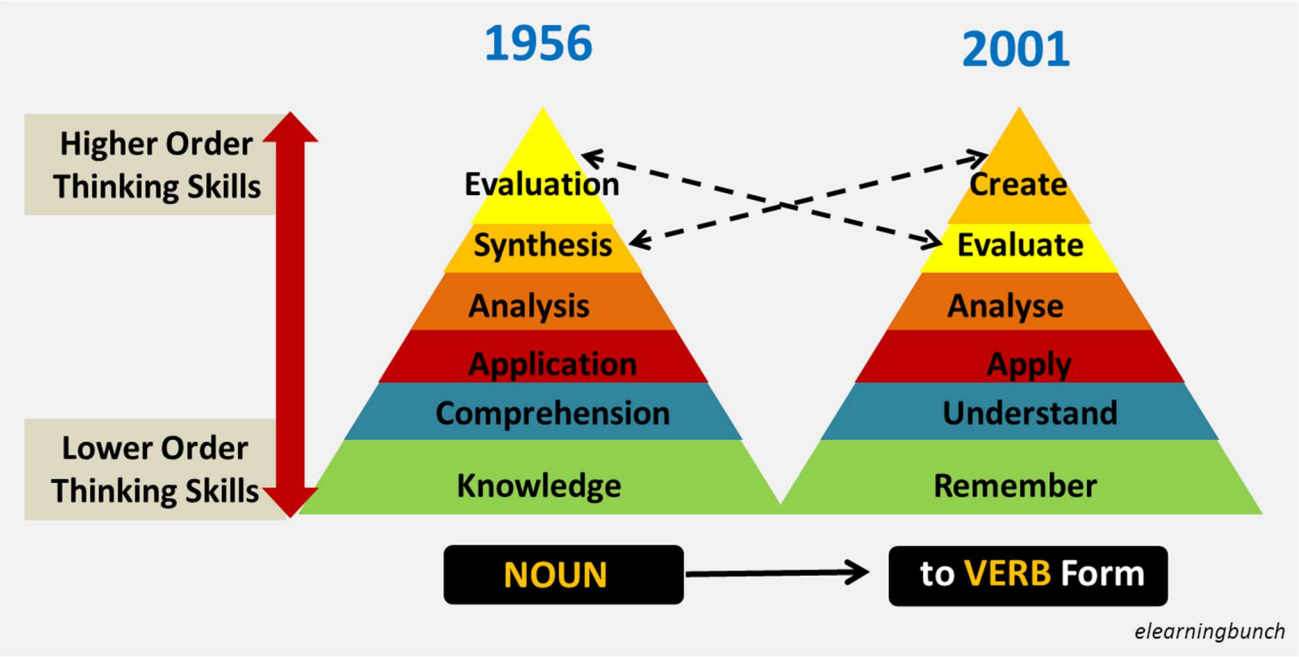
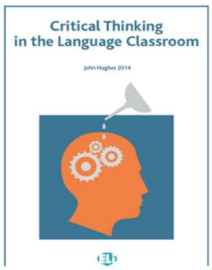


Figure 8. RETRIEVED FROM: https://tofasakademi.com/blooms-revised-taxonomy/#



An updated summary of the latest efforts to simplify Bloom's taxonomy is found in John Hughes 2014 manual called *Critical Thinking in the Language Classroom*[35] . As you can see in figure 9, through a very useful image of a staircase, students can visually understand that to become a critical thinker, one needs to take a series of steps:

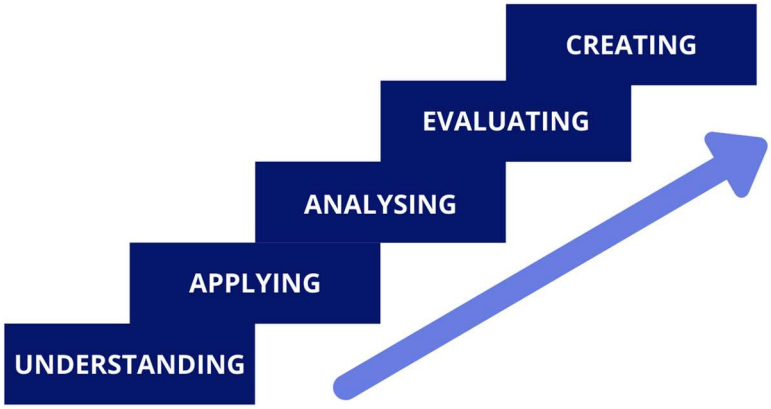


Figure 9

At the basic level of a critical thinking mind we find **understanding** as our ability to comprehend what we are reading, what we are listening to or what somebody is saying to us (Hughes 2014: 3). To understand this step in a practical way, in this basic toolkit, we propose to ask ourselves:

- What type of text is this?
- What is it saying?
- Do I understand its meaning?

The next sub-skill consists in being able to **apply** the information or knowledge that we have acquired into something practical in order to demonstrate that we have understood this knowledge and have assimilated that information. To understand this step in a practical way, we can ask ourselves:

[35] Hughes, J. (2014*) Critical Thinking in the Language Classroom*. Recanati (Italy): ELI. p.3.

- Do I know how to complete this activity based on class-content?
- Now that we have finished unit 4, I am able to prepare a class presentation with the main points of the unit?
- I am able to answer revision questions for the final exam correctly?

The next sub-skill, **analyzing,** is the first step into the direction of a high order thinking[36] because it implies the ability to start questioning, in a Socratic way, who is writing and who is saying this, how the information is presented and where the sources are. To understand this step in a practical way, we can ask ourselves:

- How are the arguments constructed?
- How are the arguments supported?
- Is it providing the source? it giving facts?

The following sub-skill, **evaluating,** requires us to pursue those questions further and seek objective answers. Thus, an evaluation of the information means our ability to critically verify and contrast that information in reliable sources and looking for the facts and evidence that supports the argument. To this means, evaluating is closely linked to the concept of reliability. To understand this step in a practical way, we can ask ourselves:

- What are the facts that support this argument?
- Has been the information contrasted in other sources?
- Are the sources reliable?

Once information has been analyzed and evaluated, we are in a disposition of **creating** a contrasted opinion based on evidence/facts. This is the last sub-skill and it is at this point when we can say that we are being critical thinkers. To understand this step in a practical way, we can ask ourselves:

[36] John Hughes affirms that high-order thinking is first found in the evaluating step. Nevertheless, as it will be further explained, we believe that starts in this step, not later.

- Am I giving reasons for my opinion?
- Is my argument based on facts and evidence?
- Is my opinion contrasted?
- Have I verified the sources that I use to justify my argument?
- Are the sources that I use to support my argument reliable?

To make it clearer for students to visually understand the steps towards achieving a contrasted opinion, we propose the following clarifications.

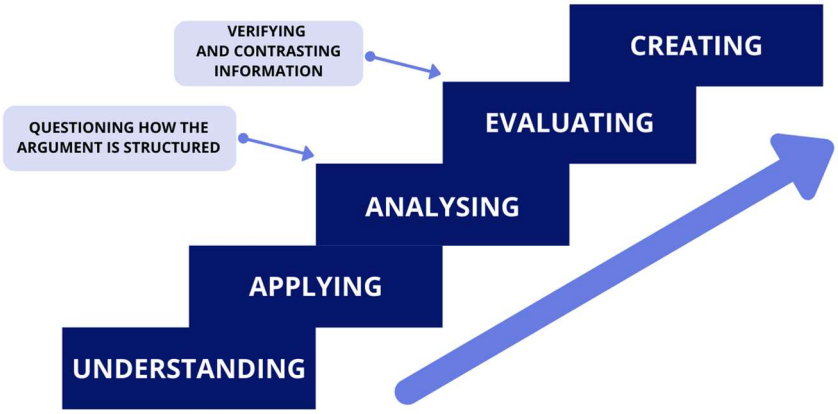


Figure 10

1.5. FIRST STEP TOWARDS DEVELOPING A CONTRASTED OPINION: DIFFERENCE BETWEEN FACTUAL STATEMENTS (OBJECTIVE) AND SUBJECTIVE OPINION

In John Butterworth and Geoff Thwaites coursebook *Thinking Skills. Critical Thinking and Problem Solving* (2013) a first distinction is made between **facts and opinion** when making a claim or an assertion[37].

As they point out, what different ways of expressing arguments[38] have in common is that they all make claims (8). In unit 2, "critical thinking: the basics", they explain that "**claims** can be divided roughly into **those that state facts** and those **that express opinions**" (16).

To understand what a contrasted opinion is, this division between facts and opinion is a very useful start. Nevertheless, we consider that this distinction could be further improved in order to avoid misunderstandings between objective and subjective opinion.

Let's consider for example the first division, **Facts.** Its definition points at the "existence of proof"[39] and therefore there is no vagueness in its meaning;

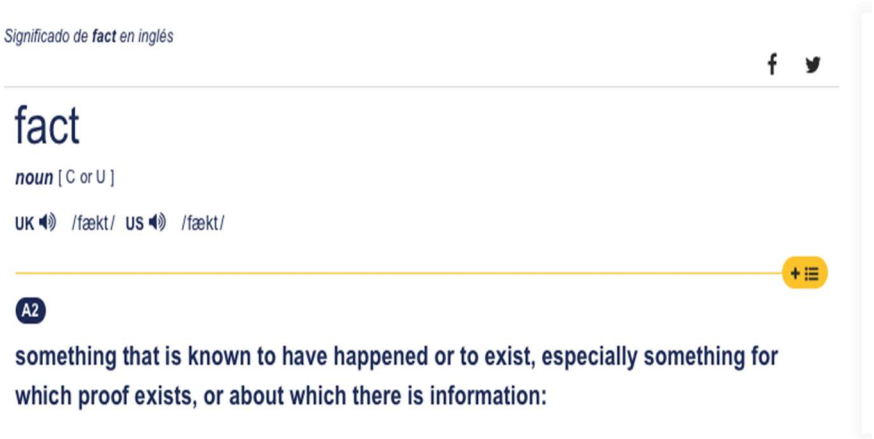


Figure 11

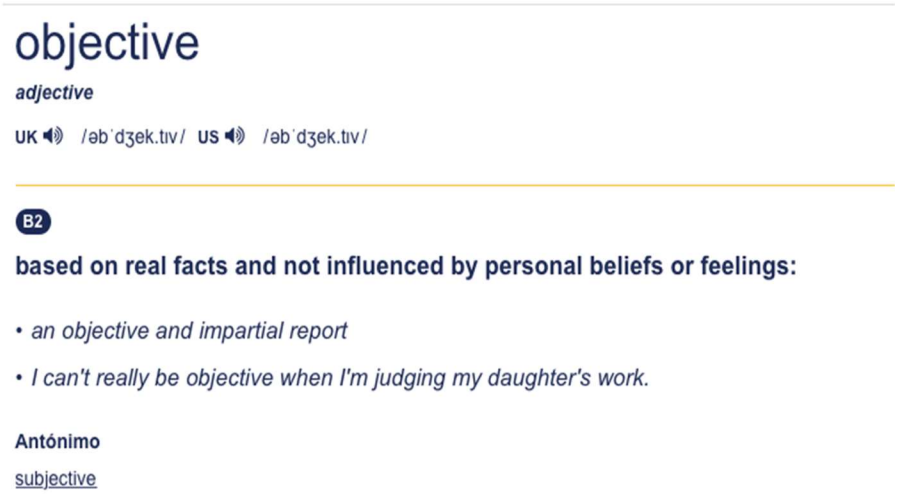
As a result, when Butterworth & Thwaites refer to "Facts" as opposed to "opinion", it can be asserted that they are accrediting a **claim or statemen**t that is based on evidence to support it.

[37] According to John Butterworth and Geoff Thwaites "a claim or assertion is an expression that is supposedly true. It may be spoken or written or sometimes just thought (2013:16).
[38] As John Butterworth and Geoff Thwaites point out, critical thinking is needed not only in arguments but when analyzing "information, items of evidence, explanations, dialogues, statics, advertisement .." (2013:8).
[39] https://dictionary.cambridge.org/es-LA/dictionary/english/fact

On the contrary, when we refer to **opinion,** articulated in general terms, the lack of clarification of what type of opinion we are referring to can lead to ambiguity and confusion since we are not clearly explaining whether this opinion is subjective or objective? Objective and Subjective do not mean the same, they are very different concepts and need to be clearly understood to develop a critical thinking mindset when distinguishing between objective and subjective.

Which one is related to *claims or statements* that are based on *facts* and which one is connected with claims *or statements* that are based on *opinion*?

When we look at the meaning of **objective,** we see that it refers to "what is based on real facts and not influenced by personal beliefs or feelings"[40]. Consequently, as we can see, "objective" is related to facts, not opinion. In such a manner, as its definition tells us, an objective statement is the one that is based on "real facts", not on personal perceptions. Therefore, it can be agreed that *objective* it is related to an **evidence-based opinion** that is rational and logical (Socrates) and is not based on personal feelings.


objective

adjective

UK /əbˈdʒek.tɪv/ US /əbˈdʒek.tɪv/

B2

based on real facts and not influenced by personal beliefs or feelings:

- *an objective and impartial report*
- *I can't really be objective when I'm judging my daughter's work.*

Antónimo

subjective

Figure 12

By contrast, **subjective** indicates what is "influenced by or **based on personal beliefs,** rather than based on facts" [41].

[40] https://dictionary.cambridge.org/es/diccionario/ingles/objective
[41] https://dictionary.cambridge.org/es/diccionario/ingles/subjective

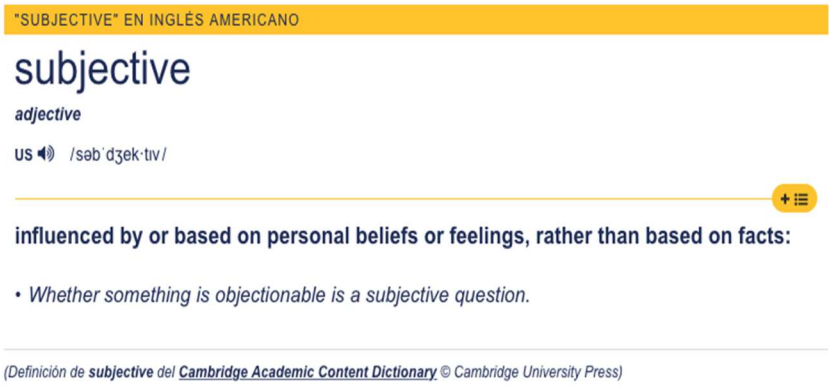


Figure 13

As we can see, **subjective opinion** indicates an argument that is not evidence-based but relies merely on personal interpretations that have not been contrasted or verified. And it is precisely **because the subjective implies that is not contrasted,** that it would be fair to say that when Butterworth & Thwaites (and Hughes) are referring to "opinion" instead of "facts", they are referring to a subjective opinion.

For this reason, in order to **explain the basis of a contrasted opinion in the simplest possible way**, in this basic Toolkit we argue that the division facts vs opinion, made in John Butterworth and Geoff Thwaites´ critical thinking coursebook (2013) and Hughes' critical thinking manual (2014), should be made more precise to avoid confusion into:

Factual statements (objective) vs subjective opinion

- objective (based on facts)
- subjective opinion (no facts)

To understand the difference between **Factual statements (objective) and subjective** opinion in a **practical way,** let's have a look at the three examples that John Butterworth and Geoff Thwaites provide in order to illustrate this point:

a) Angola shares a border with Namibia.
b) The dinosaurs were cold-blooded.
c) Top bankers earn too much money.

(2013: 16)

- A and B are Facts (objective): It is a geographical fact that Angola is a border country with Namibia, and it is a scientific fact that dinosaurs were cold-blooded creatures. For this reason, both of them are factual statements.
- C is a subjective opinion because it is not providing facts and evidence to support the claim but nonetheless, is based on own judgments and beliefs .

On this ground, Butterworth and Thwaites explain how C "**is purely an opinion**" (17). They later clarify that "…that is to say that is **purely subjective**. It remains a matter of opinion or belief...This is in contrast to the first two, which are ***objective***. They are true or false regardless of what anyone thinks or knows" (ibid).

As we can see, in order to create a contrasted opinion about the world and reduce student's naïve acceptance of ideas (Bowman 1985) the **first essential distinction is to differentiate between what is a factual statement, "**true or false regardless of what anyone thinks or knows", **and what is subjective opinion**. For this reason, always remember that:

Facts are *objective*
The *subjective* relies on personal beliefs and feelings

1.6. HOW CAN WE TEACH THE BASICS OF CRITICAL THINKING SKILLS IN A CLEAR, INTERDISCIPLINARY AND ACTIVE WAY?

Practical activity 1: How would a critical thinker answer?

Let's start with a practical activity "How a critical thinker would answer?" in which students can visually apprehend what to be a critical thinker is. Taking as a model John Hughes's "warm-up proposal", Socratic questioning is used to help students identify flaws in their logical reasoning and unsupported arguments (Seeskin 1987).

The **First step** for the teacher would be to provide a claim (as open as possible so it can be used with students from different ages and degrees). For example:

THINK! How would a critical thinker answer?
The coronavirus crisis has enhanced solidarity and cooperation among the European Union member countries.   What's your opinion?   Do you agree? Do you disagree?

The Second step would be to ask students to think if they agree or disagree with the statement and to choose from a list of responses the answer that is the closest to expressing their opinion.

Students should think about their answers individually and for that, teachers should give some time before providing the list of answers that students must choose from.

Which is the closest to your opinion?
1. I'm not interested in this topic. ***2. I agree. It's true.*** ***3. I disagree. It's false.*** ***4. I'm not sure.*** ***5. I agree up to a point but I also disagree.*** ***6. I agree/disagree because…*** ***7. I agree/disagree for the following reasons but I'd also like more evidence.***

Once students have given their answers, **the third step** would be to discuss the interpretation of each of the answers with students so they can easily understand what thinking critically implies.

	INTERPRETATION
1	You don't need to be interested but to have an opinion. Here it is important to reflect that the question posed was not: *Are you interested in this statement?* The question posed was: *What is your opinion? Do you (dis)agree?*
2/3	This is the response of a person who has a very strong opinion; and to have a strong opinion is very good. Nevertheless, it is important to reflect that, as **critical thinkers, it is not enough** to say that we agree/or disagree with a statement or claim, just plainly. As critical thinkers, **we MUST** provide the reasons that back up and justify our opinion If students have chosen this answer, they therefore need to ask themselves: *Am I able to give reasons to explain why I agree to a point but I also disagree?*
4/5	This is what is called a **"safe and diplomatic answer".** It is an answer that plays it safe by being "neutral" and not taking a particular stand in the discussion. Furthermore, it can be is said to be "diplomatic" in nature because it does not want to challenge either a position in favor or against. Nevertheless, it is important to reflect that, as **critical thinkers, it is not enough** to say that you are not sure and that you both agree and/or disagree. As critical thinkers, **we MUST** be active in the discussion, position ourselves

	and always provide reasons to back up and justify your point of view. If students have chosen this answer, they therefore need to ask themselves: *Am I able to give reasons to explain why I agree up to a point but I also disagree ?*
6	This is a very good answer! By saying "I agree/disagree" and **using** the **conjunction because,** it is implied that you are going to **give reasons to your opinion**. However, it is important to reflect that, as **critical thinkers, it is not enough to say *because*** to guarantee that you are justifying your claim. For example, if you say "I have chosen this topic for my presentation in class ***because I like it***"even though you are using "because", in reality, **you are NOT saying anything**; that is, you are not explaining nor giving reasons of why you like that topic. For this, remember that, as critical thinkers, **we MUST** always provide reasons and evidence to back up and justify our point of view. If students have chosen this answer, they therefore need to ask themselves: *Am I using facts and evidence to justify my opinion?*
7	This is the best answer! Well-done! By saying "I agree/disagree for various reasons ….", it is implied that you are going to **provide reasons to your opinion**. Furthermore, by acknowledging that "I'd also like more evidence", it points at a very important aspect of being critical thinkers and that *is **to want more evidence*** in order **to contrast information** before being sure if you agree/disagree with a statement. For this, remember that, as critical thinkers, **we MUST** • always provide reasons and evidence, • previously contrasted, • to back up and justify our point of view If students have chosen this answer, they therefore need to ask themselves: *Have I contrasted the information that I provide as evidence to justify my opinion?*

Now that we have explained to students, in a practical way, which answers point at the basics of a justified and contrasted opinion (factual statements based on evidence and facts), let's start

taking the steps towards achieving the **BASIC SUB SKILLS** of critical thinking in a practical way (based on Bloom's Taxonomy).

1.7. BASIC SUB SKILLS TOWARDS FORMING A CONTRASTED OPINION: A PRACTICAL APPROACH

The **first step** is **UNDERSTANDING**. To check if students have understood the basics of how a critical thinker would answer, the next activity is designed for students to take a **second step** and **APPLY** the basics of critical thinking in a communicative way (for both written/oral activities)

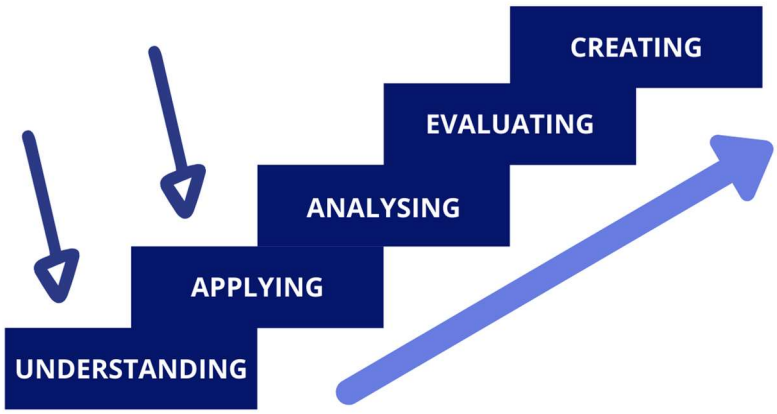


Figure 14

To apply the 'knowledge', the activity proposed is the following:

Practical activity 2: Expressing a reasoned opinion through *language structures + because*

We consider that **Language structures plus the conjunctive because** (or similar ones just as "based on", ect.) can be narrowed down to students as **the most basic linguistic articulation of a reasoned opinion**, which is the first step towards articulating a contrasted opinion; that is, the first step towards becoming a critical thinker.

To check therefore if students have understood what to express a reasoned opinion is (factual statements based on evidence and facts) we propose that students answer the following question:

Do you think Spain is a multicultural country?

Using one of the languages structures provided:

STATING YOUR OPINION	
In my opinion / if you ask me / to be honest *I believe that / I think that / I reckon (coll.)* *In my view / I hold the view that / From my point of view* *My impression is that / I am under the impression that* *To my mind* *I have no doubt that* *I am convinced that* *I supposed / assume that* *I would argue that*	+ *because*

Example:

I believe *Spain is a multicultural country* ***because*** *it recognizes four official languages: Spanish (in all national territory) Galician, Bask and Catalan.*

Evidence source 1:

Article 3 of the Spanish Constitution

https://app.congreso.es/consti/constitucion/indice/titulos/articulos.jsp?ini=3&tipo=2)

Evidence source 2:

Fernández-Carvajal, Rodrigo*. La Constitución Española*. Madrid: Editora Nacional, 1969.

The importance of language structures to express opinion (and its humanistic dimension)

From a humanistic dimension in the teaching of critical thinking skills, there are two important aspects we would like to highlight in regard to this activity:

- **Providing the Languages structures** to students, it has proven to **boost students´ confidence to express their opinion** because they are giving a linguistic structure to begin speaking with, so **they do not start expressing their opinion from zero**.

- The use of these linguistic structures such as “From my point of view”, “as far as I am concerned”, etc., **implies the recognition of diverse points of views, not such our own**. Furthermore, it brings into perspective a humanistic dimension (ethical and emotional) to critical thinking that often gets understated: the principle of a fair and reasoned discussion, never imposing your point of view and always respecting diversity of opinions.

The importance of open-ended questions for analyzing

Moving on to the **third step** of our critical thinking staircase, **ANALYSING,** let's remember that It is in this sub-skill **where students need to** take the first step into the direction of a high order thinking because it implies the ability to start questioning, in a Socratic way, how the argument is constructed and supported:

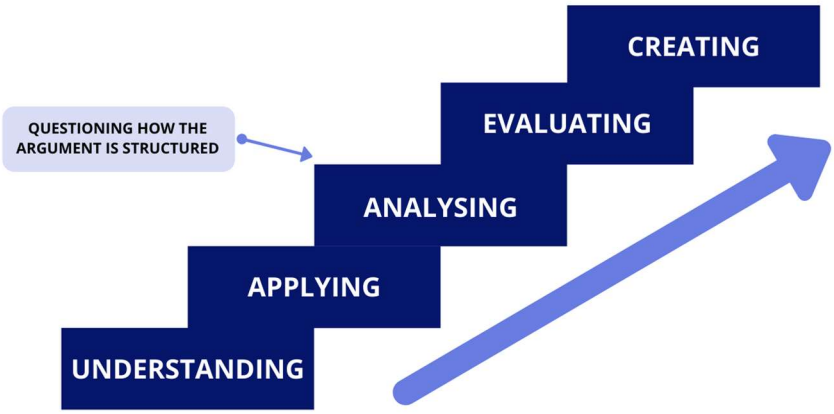


Figure 15

To understand what *start questioning* means, at a basic level, we need to distinguish between two different types of questions: Closed-ended s and open ended questions.

Practical activity 3: Closed-ended Questions vs Open-Ended Questions

CLOSED-ENDED QUESTIONS		
Is the world now, with the Coronavirus crisis, a more dangerous place than fifty years ago?	***YES***	***NO***
Is eating meat good for our health?	***YES***	***NO***
Are Ethics and human rights understood in the same waY in Europe and Asia?	***YES***	***NO***
Is it important that people recycle more than they do?	***YES***	***NO***

As we can see, t**he answer** to these questions is always **Yes or No**, without any scope for thinking or for providing a reason.

OPEN-ENDED QUESTIONS
What evidence is there that shows that *the world now, under the Coronavirus crisis, is a more dangerous place than seventy years ago?*
Where did you read that *eating meat is good for our health?*
Why do you think that *ethics and human rights are understood in the same way in Europe and Asia?*
Who says that *is it important that people recycle more than they do?*

On the contrary, as we can see in these questions, **thinking is driven by the use of interrogative pronouns (what, where, why, who, etc.)** which demand a justified answer supported by evidence; that is, by a contrasted opinion. Furthermore, as opposed to *closed-ended questions*, *open-ended questions* call for an argument to be based on factual statements (providing your source and evidence) and not subjective opinions. For example:

Question: ***What evidence is*** *there that shows that the world now, with the Coronavirus crisis, is more dangerous than seventy years ago****?***
Answer**: evidence to support your claim.**

Question**:** ***Where did you read that*** *eating meat is good for our health?*
Answer: your source of information.

Question**:** ***Why do you think that*** *ethics and human rights is understood in the same way in Europe and Asia?*
Answer**: evidence to support your claim.**

Question**:** ***Who says that*** *is it important that people recycle more than they do?*
Answer: **your source of information.**

Open-ended questions are therefore directly related to the development of the critical thinking sub skill of *analyzing* because they are framed to interrogate for our evidence and source of information. That is, open-ended questions helps us:

- to analyze **how the information is presented**

  Question: *Is the argument based on factual statements or subjective opinion?*

- to analyze **if the evidence is backed up and the point of view justified**

  Question: *Is the argument providing its sources? Is it giving facts?*

When analysing other people's arguments, we also want **to constructively challenge them**. The following language resources may be useful to do so.

DISAGREEING, MAKING CONCESSIONS AND CHALLENGING OTHERS' OPINIONS
Although … may be true,
While …, what we now know is …
Of course, many people believe that …, but …
I agree up to a point but I also disagree with you and here's why...
You are right, but recent research has shed some new light on the matter and it turns out that
That's interesting! Could you tell me where this information comes from?

EVALUATION OF RELIABILITY OF RESOURCES

Moving on to the **fourth step** of our critical thinking staircase - **EVALUATING** - let's remember that what the objective this subskill aims at is twofold:

1. **the ability to verify the reliability** of the sources on which an argument is based
2. **the ability to contrast** the information that is given as evidence in an argument in another source

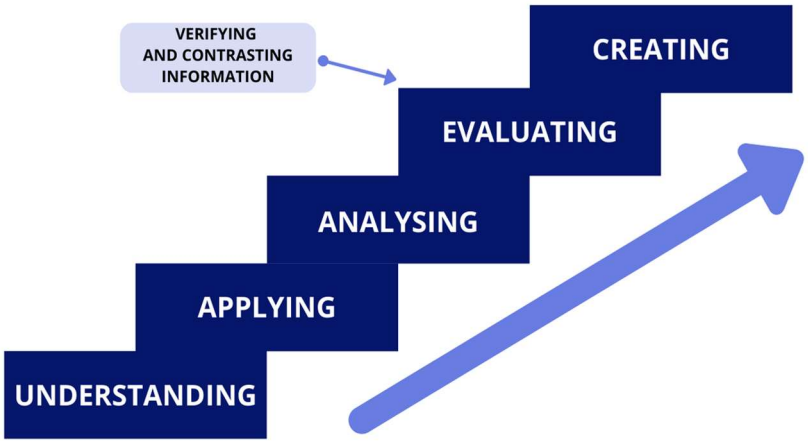


Figure 16

In order to understand the ability to **verify** and to **contrast** in a practical way, let's first reflect on the following ideas that are prompted from the last answer of our practical activity 1: *How a critical thinker would answer?*

I'D LIKE MORE EVIDENCE
Is one credible source enough evidence?
What does it mean to contrast information?
What does it mean to verify information?
Which do you do first: contrast information or verify it?

STEP 1. Verify the validity of the sources (reliability)

Even though we acknowledge the fact that the human being's natural need for certainty tends to never be fully satisfied, there are nonetheless many means of verifying information . Yet, whatever means we choose to evaluate the reliability of the information we are faced with, there are a series of questions that should be asked before we make our final judgment, which may be applied not only to spoken and written words but also to other media representations. The table below presents the four basic ones.

QUESTION	POSSIBLE ANSWERS AFFECTING THE DEGREE OF RELIABILITY
ORIGIN *Where does it come from?* *How did I get it?*	an acknowledged scientific journal, a local scientific journal a press agency, a company website, a personal blog, a YouTube video
AUTHORSHIP *Who was it written by?*	an expert in the field, an international group of experts in the field, a celebrity, a journalist, a vigilant, a lobbyist, a politician
DATE *When was it published?*	today, yesterday, a year ago, before new developments

While it might be enough to use your common sense when evaluating the origin of the information at a basic level, remember that the Internet also gives you the possibility of checking who the issuer in question is, their affiliation and level of expertise as well as previous work (i.e. a background check). You can also see what motivated the person or institution to issue the information in question. A personal opinion blog has a different target audience and an altogether different goal than a press release by a huge multinational or a scientific paper in a renowned journal.

STEP 2. Contrast reliable information

Once your information has been verified, the next important step is to contrast it against other sources to check whether the same information has been issued by others. Again, every single source must be verified following the steps above. If the ultimate source of the information is the same in all proximate sources, the contrasting process is not complete. Even in science, one scientific paper must usually be followed by others which confirm the original hypothesis before it may be considered reliable.

long the concepts of reliability, to verify and to contrast, it is imperative to reflect on the fact that digital and technological advancements have revolutionized the world of education without the teaching community, at least at a European level, having reached an agreement on what the basics of critical thinking are or how to teach it and assess it. Furthermore, they have undeniably impacted the way we communicate and express ourselves nowadays. **On these digital platforms**: Google and social media sites such as WhatsApp, Facebook, Instagram, YouTube, Tik Tok, Zoom, etc., **traditional**

academic authority and filters such a per-review and double-blind process have disappeared. Consequently, **never giving and never demanding your source has become a normalized practice nowadays**, where information is spread without knowing where it comes from.

As critical thinkers, always looking for the evidence and facts that supports an argument, **being able to evaluate the validity of the sources (reliability) is a necessary requirement to be able to contrast reliable information**.

To help students develop an understanding of what reliability means, we propose the following practical activity:

Practical activity 4: Are the following sources reliable?[42]

In this activity, the students are given a scale to evaluate a series of sources on a simple three-way reliability scale. The objective of this activity is not to conduct a thorough analysis, but rather to make them reflect on what should be taken into consideration when assessing the reliability of different types of sources. For example, when evaluating the reliability of a blog, the status of the author-ess and the references to other reliable sources should be taken into account. A personal opinion blog is slightly different from a journalistic opinion blog and very different from one written by researchers presenting their findings in a reader-friendly format.

USE THIS SCALE TO EVALUATE THE RELIABILITY OF THE SOURCES GIVEN BELOW
1 = NOT A RELIABLE SOURCE 2 = IT MIGHT BE CREDIBLE BUT I SHOULD CHECK 3 = A VERY CREDIBLE SOURCE OF INFORMATION
EXAMPLES OF SOURCES TO EVALUATE
1. A Netflix documentary about cultural differences with interviews with real people.
2. A journalist writing an article in a newspaper.
3. Members of your own family.
4. An infographic on social media (Facebook, Instagram, etc.)
5. A YouTube video
6. A book published by a qualified specialist in the field
7. A Wikipedia article
8. A blog entry
9. A survey about cultural differences in a weekly magazine
10. A paper in a journal

[42] Activity taken from Hughes Manual (2014) and adapted/expanded in a more practical and explanatory way.

While the exact reliability of each kind of source will depend on its very nature, there are some general guidelines regarding different types of sources and the pitfalls to avoid when using them. So what should you pay attention to when using different source

1. **A Netflix documentary about cultural differences with interviews with real people?**

The first question we should ask ourselves as critical thinkers is whether the documentary provides reliable references and sources? and, are the arguments and claims of the documentary backed up by contrasted facts and evidence?

People's experiences may be good qualitative data but they may also be hard to generalise. Additionally, the way questions are asked and by whom may skew the answers, not to mention the editing process and the potential manipulations to suit the writer's or commissioners' policies. Netflix is a company, and as such will always look for its own interest, be it monetary or otherwise, rather than present objective information. However, it may quote some valuable research you may consult later on. Plus, quotes by real people make your own writing lively and personal.

2. **A journalist writing an article in a newspaper?**

The first rule of journalism is objectivity and rigorous research. Nevertheless, in our capitalist societies, journalism that is not financially independent relies on subsidies, aid and donations from public/private institutions which have their own personal, corporate and political interests.

The fact that most of journalism relies on financial aid contradicts the very purpose of journalism because ...how are you going to be objective and critical with those who support you financially?

With this in mind, there are two main factors at work in this case: the journalist's natural bias and their sources. A serious article should always provide contrasted opinion and factual statements and therefore should be verifiable. As in the case of any company, the editor's interest is relevant to the content they publish. Again, the sources mentioned can be used to back up your thesis, more than the article itself.

3. **Members of your own family?**

Although your own family may be a good starting point, unless you have an expert in your field of interest (for example your mum/dad is a university professor specialized on your research topic) , the information and evidence gathered this way is at best anecdotal. It can, however, be a good starting point and can make you reflect on other possible sources.

4. **An infographic on social media (Facebook, Instagram, etc.)?**

Where does the information come from? Is the account reliable? Who is the author-ress and why are they posting this? These are just some of the questions you should ask yourself. Anyone can post anything on social media. While there is a lot of valuable information on official institutional profiles, the majority of information posted online is not contrasted so always remember to verify your information before using it.

5. **A YouTube video?**

Most youtubers are not specialists and neither are people who post random content online. However, valuable content can be found since more and more highly recognized universities and well known experts are using Youtube accounts to post their classes, lectures and conferences. For this reason, always evaluate how credible a video is.

Still, we highly advise that you don't quote it in your paper. Go to the sources and data quoted.

6. **A book published by a qualified specialist in the field?**

This is obviously a good source in an academic setting. Books are normally published with scholars with extensive experience in their field of study. They can back their theses with research published in peer-reviewed journals. Definitely a good source. However, books also have writers and humans are fallible. Make sure that you also review opposing viewpoints, should they exist.

7. A Wikipedia article?

Till this day, wikipedia is not a peer-review academic source. It may become academic in the future but is still not there yet. Wikipedia started off as a collaborative social media outlet, but has now gained enormous popularity. Over the years, the editing and reviewing process has become more and more rigorous even though not all the content goes through an academic filter to verify or contrast information. It is certain that a lot of the information that you can find there is valid. However, not all of it is so it's best to use it as a starting point. Good articles have solid reference lists at the bottom which tell you exactly where to verify the information in the entry you are reading.

8. A blog entry?

It's just a person writing on their personal blog. Obviously, there are authority figures writing blogs, but all information there is anecdotal and subjective unless backed by other data and source.

9. A survey about cultural differences in a weekly magazine?

Well, it's a weekly. Are you even sure real people were surveyed? Maybe they just made it up. Unless it's a reference to a contrasted and verified research, it is better to steer clear from it.

10. A paper in a journal?

A very good source, it **meets an academic filter and a double blind peer-review process.** Nevertheless, pay attention to the methodology used and the exact claims being made. Do not overgeneralise the findings of the paper. Also, be aware that a single paper rarely gives answers to big questions. You would need to consult a whole body of research and meta-analyses in order to form a solid viewpoint on an issue. Papers often provide seemingly contradictory findings. Make sure you understand where those differences come from.

As we have seen, e**valuating sources implies the ability to recognize whether the information** you read and the one you use to support your argument ***is contrasted and credible***.

Nowadays, there is so much information available both in print and online . However, digital formats have changed the boundaries between what has scientific and academic authority and what is not. We should never lose sight of the fact that, unfortunately, not all the information that is available to us is valid, truthful or accurate. For this reason, when looking for the basics of how to evaluate a source of information in an academic context, let's remember that **it can only be considered credible if it meets an academic filter or a double blind peer-review process.**

The language resources below might be a good starting point for students to start talking explicitly about their sources.

PROVIDING EVIDENCE
A recently published paper by … (date) shows, suggests, demonstrates, proves that
According to …
As indicated by …
As you can see in this graph/chart/table/figure which is taken from …
I looked up some interesting data on the topic (state source)
In a recent paper/book by …, the author(ess)…

UNDERSTANDING PLAGIARISM

It is also in this subskill where plagiarism should be explained since it is **directly linked to the ability to evaluate information and authorship**. At a most basic level, plagiarism could be defined as taking someone's ideas and words and, by not giving credit to your source of information, passing these ideas and words off as if they were yours, when in fact they are not. And yes, **it refers to both words and ideas.**

Forgotten citations, poor paraphrasing are some examples of the different forms in which academic dishonesty can take place. In this regard, Plagiarism and critical thinking are inextricably bound.

In the process of writing academic essays or completing other tasks (videos, podcasts, reports, presentations), students are always faced with the need for content and information. Selecting, evaluating and referencing their sources are key academic skills. It is the last one that seems to be problematic for some in an era where **information is not only easily accessible, but it is often anonymous and of dubious reliability**. While sharing information and content created by others seems to be one of today's youth favourite innocent pastimes, instructors should be well aware of the consequences those behaviours might be bringing into the classroom in the 21st century. We shall also succumb to this tendency by sharing an old meme on the topic.

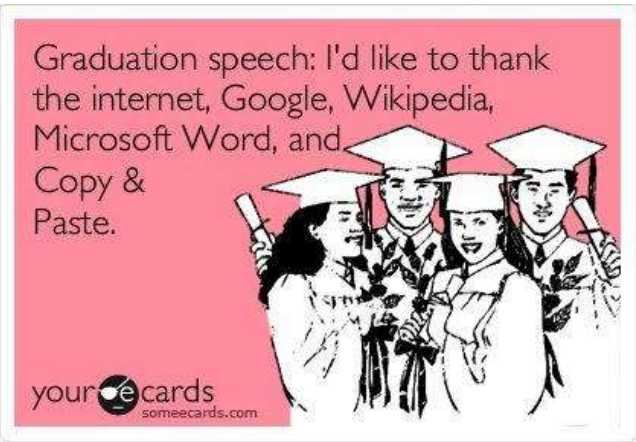


Figure 17: Retrieved from: https//:www.seomeecard.com

In our experience, plagiarism (at least of certain kinds) often stems more from ignorance than from a conscious act of carelessness or even bad will. More often than not, students are not aware

of what constitutes an act of plagiarism, or why it is ethically questionable and wrong. While sharing content, following a certain social rule, is perfectly acceptable online, **awareness should be raised of the fact that the academic and scientific filters that characterized printing information/knowledge before the digital revolution, have been complexly blurred in contemporary digital forms of communication and expression**: Facebook-Twitter-Instagram-Tik-Tok, etc. In an age of growing fake news and general misinformation, we consider it crucial to provide as many examples as possible to students of specific acts that constitute plagiarism. They should be reminded of this often, ideally, whenever a new task is set. Otherwise, lecturers may find themselves before a pile of assignments of questionable quality. And, honestly, there is nothing more disheartening that the feeling of wasted time, which marking poor essays boils down to.

Nevertheless, **we deeply believe that we cannot evaluate students from something we have not previously taught them**; regardless how basic we should consider that knowledge to be. Indeed, if there is something that we have learnt from our experience of more than 15 years of teaching, is that, as teachers we should never take anything from granted. In line with this spirit, we have created a very simple way of helping students to remember the basics of avoiding plagiarism:

Anti-plagiarism Mantra: Quote, Cite and Reference

Either in an oral or written formal, there are three magic rules that, even though they not necessarily apply at all times, we nevertheless need to comply when avoiding plagiarism. These three magic rules are:

> **Quote:** when referring to literal words, sentences or even paragraphs taken from someone else, we always have to use inverted commas (or say – quote-end quote when speaking) to give credit to our source. Also, we need to provide the page number of the quote.
>
> **Cite:** When we quote, we always have to cite; that is, we have to provide the name of our source, the year of publication or accessed and the page number where the quote has been taken from, e.g. *Sotelo and Pietraszek (2017: 26)*. When paraphrasing, even though it does not go in inverted commas, it also needs to be cited.

Reference: every source that we use, must be properly referenced in the reference section – following the writing style required (MLA, APA, Chicago, ect). In a conversation, to reference would mean to be able to explain where your source comes from (book, journal, newspaper, website, author, date of publication).

Practical activity 5: Applying the anti-plagiarism Mantra

One simple way to spark a class discussion is presenting students with real-life scenarios and encouraging them to share their opinions, which should be heard in a non-judgmental fashion. After hearing the students out, this list may obviously be expanded and customised depending on the field.

SCENARIO	PROBLEM	SOLUTION
"I used my assignment in two different subjects/courses. It is mine so there is no problem to submit the same work for two courses"	Claiming credit twice for the same piece of work during your course of study may be considered unethical, especially without the lecturer's consent.	You must: ● QUOTE AND CITE literal parts of a previous work ● REFERENCE your previous work in the bibliography
"I copied parts of a text that I found online into my own assignment. What's online belongs to everyone anyway. Besides, I don't know who the website was written by."	You should always quote and reference other people's words. There are ways of referencing anonymous web pages.	You must: ● QUOTE the parts of the text that have been copied ● CITE it (website name-year of last accessed) ● REFERENCE the website in the bibliography
"I took some text from a source and replaced two words with synonyms. I said what my source was."	Paraphrasing involves more than changing a couple of words.	You must: ● QUOTE the text you have paraphrased ● CITE it (writer-year of publication-page number) ● REFERENCE it in the bibliography
"I used an infographic I found on a website. I didn't include the source. But I didn't claim it was mine."	Referencing is key. You do not have to claim something is yours. In a signed paper, everything should be yours unless stated otherwise.	You must: ● CITE it (writer-year of publication-page number) ● REFERENCE the website in the bibliography

"In my text I said what someone else had said. I also mentioned who said it."	Great, as long as you used quotation marks and referenced it properly. Not using quotation marks is plagiarism as you are hiding the fact the wording isn't yours.	You must: ● QUOTE the text that you have used ● CITE it (writer´s last name-year of publication-page number) ● REFERENCE it in the bibliography
"My sister wrote something similar when she was at uni, so I used her assignment! It stays within the family!"	No, you are taking credit for someone else's work.	You must: ● QUOTE the text that you have used ● CITE it (year of publication-page number of the quote) ● REFERENCE your sister´s work in the bibliography
"I remembered this interesting theory a professor had so I talked about it."	It's okay as long as you mention the professor, even if there are no written sources.	You must: ● CITE it (your professor´s last name and year of the talk given) ● REFERENCE it in the bibliography
"But this is something everyone knows! Do I really have to reference it?"	Everyone knows the capital of France is Paris, but any scientific theory or data should be referenced.	You must: ● CITE it (year of publication-page number) ● REFERENCE it in the bibliography

Furthermore, we would like to highlight that, **from a humanistic point of view,** plagiarism is not only the result of poor academic skills, but It could be defined as lack of honesty, and therefore an act of dishonesty. **Stealing** does not only refer to material objects and it **also applies to ideas and thoughts** that are not ours but nonetheless we articulate them as they were without giving credit to our source.

1.8. CREATING YOUR OWN CONTRASTED OPINION

Finally, if all those previous subskills have been acquired, a contrasted opinion can be articulated in the last step of our critical thinking training process since as we have seen, the goal of acquiring critical thinking is that we **create arguments and opinions that are contrasted.**

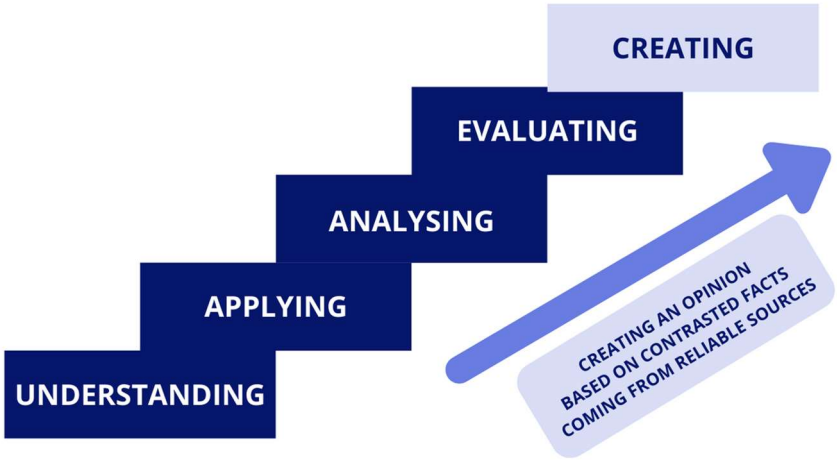


Figure 18

The following linguistic expressions may be used to prompt the students to give their final contrasted and critical opinion:

DRAWING CONCLUSIONS FROM EVIDENCE
When examining these data, I came to the conclusion that *According to this information, it looks like* *Based on all this evidence, it could be argued that* *The information I found supports the idea that* *All examined research (research) suggests/proves/demonstrates that* *It is worth more careful examination*

1.9. CRITICAL THINKING MINDSET AND SPIRIT

Thus, when referring to critical thinking skills, it points to our ability to create an objective argument based on factual statements; in doing so, in this basic interdisciplinary toolkit we propose our *basic definition of Critical Thinking* as

A contrasted opinion based on evidence/facts and coming from reliable sources of information, previously contrasted and verified.

If we do not accept information passively, if we analyze and evaluate, we will be able to discern and decide; that is, we will be capable of creating our own contrasted opinion. For that, as critical thinkers, we need to always demand objective evidence that justifies and supports every claim.

Finally, in order to guarantee an impartial and objective platform for exchange and dialogue within academic circles and beyond, with this basic toolkit we not only advocate for a basic interdisciplinary definition of critical thinking skills but it is also **fueled by a mindset** (attitudinal competence) **that demands the facts and evidence that supports every argumen**t by **always requesting:**

SHOW ME YOUR EVIDENCE!


Critical Thinking
MINDSET/SPIRIT
Show me your evidence!!
Where is the evidence that supports your argument?
Here it is mine. Can you please show me yours?
VERIFIED FACTS AND SOURCES
FACTUAL, OJECTIVE STATEMENTS
CONSTRASTED OPINION
RELIABLE PEER-REWIED SOURCES

PART II

CRITICAL THINKING ASSESSMENT

2.1. BASIC ASSESSMENT CRITERIA

In the process of evaluating critical thinking skills at the course level, **various grading devices can be used.** The ground rule for any assessment in today's world is bearing in mind that students should be familiar with the tools and criteria to be deployed prior to conducting the task; that is, students should always know, before doing any class task, what is expected from them and how they will be assessed.

In a task-oriented assessment, goals and specific outcomes should be defined at the onset before planning and setting the task and aligned with the overall instructional goals (cf. Bensley & Murtagh 2012). It is particularly important in the case of critical thinking, whose thorough assessment may prove problematic due to the multidimensional character of critical thinking skills (cf. Bensley et al., 2016). Additionally, it might be daunting to devise complicated assessment tools for every course/task, which makes the process of selecting a specific skill or subset of skills even more crucial. Thus, simplicity, practicality and cost-effectiveness are key.

One vital tip to keep in mind is that **assessment is more than summative or a mere feedback. It is** part of the **formative learning process** in which students learn from their mistakes and errors and it is our responsibility as educators **to help students identify these mistakes so they can improve and master them**. In this line, our work aims to help avoid reducing assessment to a mere numerical grade as much as avoiding perverse incentives related to teaching to the test or assessment (Weinberg & McCann, 2019: 49) while remembering the Goodhart's law, according to which *when a measure becomes a target, it ceases to be a good measure* (cf. Chrystal & Mizen 2003).

Whatever the instruments, they should be easily convertible to feedforward devices which the student can use to predict what is expected of them and adjust their task preparation accordingly. In other words, it should be embedded in the very instruction process and foster self-assessment (cf. McCarthy et al., 2011), which should be carried out by the student pre-task, on task and right before submission. For this reason, it is essential to make the instruments clear and easy to understand not only to the students but also to other instructors which might make use of them. **The assessment tool should be directly and clearly related to the task instructions given to the students**. Ideally, a simpler feedforward document with a different layout (for instance, removing the space for teacher's comments) could be provided prior to assessment, although this is not strictly necessary – especially at university, where students should be able to read and comprehend complex texts. Even so, certain

cognitive, attitudinal and temporal constraints should be taken into account as, for multiple reasons, not everyone may be ready to read through a document specifying a complicated grading procedure. Again, **instructions should be kept simple**.

The assessment methods presented below are a departure point for all those who would like to incorporate Critical Thinking skills into their evaluation.

2.2. METHODS

2.2.1. RUBRICS AND RATING SCALES

For the purposes of this section, it will be assumed that a rubric is a type of assessment which provides descriptions of the different levels of student achievement. A rating scale provides simple labels or quantifies the students' assessment on a scale without providing much of an explicit qualitative description.

Two types of rubrics or rating scales may be deployed: **holistic and analytical.** While a **holistic rubric** contains all the selected aspects to be measured under a series of descriptors, an **analytical rubric** breaks down and measures the different outcomes separately. Whichever type is chosen, the first step is to determine the number of levels on the rubric (3-5) and decide on the type of descriptors, which may range from simple labels (poor-good-excellent) to more elaborate descriptions of the student's performance. A 0 option should be formally included to avoid grade grubbing demands, although no specific descriptor is necessary. An example of a simple rubric (rating scale) is provided below. The exact values assigned to each criterion and its descriptors are at the instructor's discretion. For example:

	3	2	1	0
CRITERION 1	**excellent**	**good**	**poor**	**none**
CRITERION 2	**task fully achieved**	**task partially achieved**	**task not achieved**	**not submitted**

At times, no descriptors are provided at all, although this is not an optimal solution not only because of the highly subjective and relative values, but also because its informational load for the student. The following example of a rating scale comes from another presentation assessment rubric where 10 points out of 50 are for general CT skills.

CRITICAL THINKING	SCORE
REASONING & ARGUMENTS	**0 1 2 3 4 5**
OWN OPINION	**0 1 2 3 4 5**

Whereas it may be argued that an analytical rubric is better when dealing with such a complex phenomenon (cf. Saxton et al. 2012), a holistic rubric will often be the go-to starting point when CT skills are not the only ones being assessed, as in the examples above. Obviously, it would be naïve to think that a student has achieved the same learning outcomes on all CT skills. However, that problem can still be bypassed by limiting the actual subskills we are measuring to the bare minimum. The example below illustrates the holistic descriptor of CT skills from a presentation skill rubric, where 5 points out of a total of 30 are granted for CT. The specific subskills targeted in this rubric were opinion generating and providing reliable sources to support those.

	5	4	3	2	1	0
CRITICAL THINKING	Opinion are expressed, justified and referenced using reliable sources	Opinions are expressed, justified and referenced using mostly reliable sources	Opinions are expressed, justified and sometimes referenced using some reliable sources	Opinions are expressed and occasionally supported without quoting reliable sources	The student doesn't express or support their opinions	

A slightly more complex assessment rubric was used in an evaluated class debate for which the students had been preparing throughout the term through a series of guided activities: oral presentations, personal research, source evaluation, opinion generation, etc. In the final task, almost half the points were granted for the following three criteria, the remaining ones referring to the linguistics aspects of the assignments.

	0	1	2	3	4
1 USE OF ARGUMENTS: CRITICAL THINKING *reasons are given to support viewpoint*		Few or no relevant reasons given	Some relevant reasons given	Many reasons given: most relevant	Many reasons given in support: all spot-on
2 USE OF EXAMPLES AND FACTS: SOURCES *examples and facts are given to support reasons*		Few or no relevant supporting examples/facts	Some relevant examples/facts given	Many examples/facts given: most relevant	Many relevant supporting examples and facts given
3 USE OF REBUTTAL: REACTING *arguments made by the other teams are responded to and dealt with effectively*		No effective counter-arguments made	Few effective counter-arguments made	Some effective counter-arguments made	Many effective counter-arguments made

Similarly, Critical Thinking elements can be easily embedded in argumentative essay assessment. Below is an excerpt from a written assessment rubric. The students should have the rubric in front of them when planning the structure of their text, be it at home or in class.

	4	3	2	1	0
ARGUMENTS IN FAVOUR	I give at least three clear and justified reasons to support my claim	I give at least three reasons to support my views, some of which are unclear or unjustified	I give at least three clear reasons to support my views but they are not completely clear or justified; I give two clear and justified reasons	I give at least two clear reasons to support my views but they are not fully clear and justified	
ARGUMENTS AGAINST	I discuss possible arguments against my claim but show mine are valid anyway	I discuss possible arguments against but leave out some relevant ones	I mention arguments but don't discuss them or contrast them with my own	I don't mention arguments against my claim	

To conclude this section on rubrics, a practical tip. There exist different online tools which are of great assistance in the creation of rubrics. Not only can they automatically generate rubrics based on the desired settings, but they can also be a source of inspiration for rubric content. A simple Google search for “online rubric” will reveal how easily accessible those tools are. Moreover, most virtual campuses used by educational institutions make it possible to configure online assessment rubrics or checklists. Let’s move on to the latter now.

2.2.2. CHECK LISTS

While a check list is similar to a rubric, the main difference resides in the fact that, rather than evaluating the degree to which a specific skill was demonstrated through student performance, it **f**ocuses on the fulfilment of pre-set requirements on a binary YES or NO scale. In this particular case, all other criteria had a rubric format with five band descriptors, whereas the Critical Thinking criterion was presented and assessed in the form of a checklist.

Checklists have certain advantages over rubrics as they are easier to draw up, extremely clear to understand (provided the criteria are easy to understand and follow) for both the teacher and the student, and, most importantly, easy to mark as the number of decisions made by the grader is boiled down to two.

The first checklist presented below is part of another presentation rubric where the 5 points awarded for CT skills were broken down into 5 separate YES or NO observations.

	THE STUDENT HAS:	√
CRITICAL THINKING	expressed own opinion(s)	
	justified opinion(s) (using “because” to provide reason)	
	used at least 1 reliable source	
	used at least 2 reliable sources	
	properly answered 1 challenging question showing CT skills	

Practical Activity 6: Contrasted Opinion Infographic

Objectives of this activity:

- To practice Language Structures to express opinion
- To understand the difference between subjective-personal vs contrasted opinion (objective)
- To provide an opinion based on contrasted facts and evidence
- The information consulted must come from reliable Sources of Information
- To express their contrasted opinion through Strategic Storytelling: Infographic

INSTRUCTIONS TO COMPLETE EUROPEAN VALUES CRITICAL THINKING ACTIVITY- INFOGRAPHICS

The purpose of this activity is to find a practical application of the critical Thinking section seen in class by devising an infographic in which to visually narrate what is your own (contrasted) opinion about European identity and values. The specific objective is to differentiate between what is an opinion and what is a fact **(Subjective Opinion vs. objective Facts**) supported by data found in different sources.

In order to complete the task you have to please **follow the following steps:**

- Ask yourself if you feel European?
- Frame your specific questions about European values and identity from a personal/professional perspective.

"Do I feel European? Why? What does Europe mean to me personally and professionally? What advantages and disadvantages do I see in Europe? What is my opinion on the countries wanting to leave Europe? How do I see the future of the European Union?" **etc[43].**

- Once you have come up with questions, think of your answers AND reasons. Consult at least two reliable resources to support your opinion. Merely expressing private opinions is not the aim of this activity.
- Express your opinion and reasons writing from THREE to FIVE sentences using different Critical Thinking Language devices (ways of expressing and justifying opinions in English). You can see some examples below:
-

I believe that	**+ BECAUSE**
From my point of view	
If you ask me	
As far I am concerned	
I think that, etc.	

- Visually represent your data-supported reflection in the infographic.
- The sources consulted to see if what you think is a subjective opinion or an objective fact must be properly cited at the end of each sentence in the infographic.

[43] Additionally, students can pose your own questions on specific issues related to the general topic.

An example of a student's infographic

Infographic analysis

WRONG	RIGHT
In **sentence 1 the Fact is not completed** since it only says: "Fact: Freedom of Speech and thought is one of the European Union's fundamental values." But **it does not specify:** ● Which *specific* fundamental value does guarantee Freedom of Speech in the European Union? ● *Where does* this fundamental value of Freedom of Speech in the European Union *come from*?	In **sentence 1 the Fact will be completed** if it says: "Fact: Freedom of Speech and thought is one of the European Union's fundamental values as reflected in article 10 and article 11 of the Charter of Fundamental Rights of the European Union (2000/C 364/01) Article 10: **Freedom of thought, conscience and religion.** 1. Everyone has the right to freedom of thought, conscience and religion. This right includes freedom to change religion or belief and freedom, either alone or in community with others and in public or in private, to manifest religion or belief, in worship, teaching, practice and observance. source: https://www.europarl.europa.eu/charter/pdf/text_en.pdf Article 11: **Freedom of expression and information.** 1. Everyone has the right to freedom of expression. This right shall include freedom to hold opinions and to receive and impart information and ideas without interference by public authority and regardless of frontiers. source: https://www.europarl.europa.eu/charter/pdf/text_en.pdf
In **sentence 2 the Fact is** again **not completed** since it only says: "Fact EU citizens have the right to vote for and stand as a candidate in municipal and European elections" But **it does not specify:** ● Which *specific* fundamental value does guarantee the right to vote in the European Union? ● *Where does* this fundamental value of the right to vote in the European Union *come from*?	In **sentence 2 the Fact will be completed** if it says: "Fact EU citizens have the right to vote for and stand as a candidate in municipal and European elections as reflected in article 39 and article 40 of the Charter of Fundamental Rights of the European Union (2000/C 364/01)" **Article 39:** Right to vote and to stand as a candidate at elections to the European Parliament **1.** Every citizen of the Union has the right to vote and to stand as a candidate at elections to the European Parliament in the Member State in which he or she resides, under the same conditions as nationals of that State. C 364/18 **Article 40:** Right to vote and to stand as a candidate at municipal elections. Every citizen of the Union has the right to vote and to stand as a candidate at municipal elections in the Member State in which he or she resides under the same conditions as nationals of that State.C 364/18
In **sentence 3 the Fact is not… completed** since it only says:	In **sentence 3 the Fact will be completed** if it says…

INFOGRAPHIC ASSESSMENT CRITERIA

We would like to provide an illustration for a process of the co-creation of an **analytical checklist to assess students' infographics**. Although the initial steps were faulty, the final effect is not only easy to use for the teacher but also uncomplicated to the student. The key is to reflect the same requirements that are articulated in the instructions of the activity

The first version was a simple checklist with a generic and fairly uninformative "critical insights" criterion (in dark blue):

1 SENTENCE	2 SENTENCES	3 SENTENCES	NO SPELLING MISTAKES	VISUAL AIDS	PERSONAL EXPERIENCE	PERSONAL TOUCH	CRITICAL THINKING INSIGHTS
1	1	1	1	1	1	1	3
						TOTAL	/10

Subsequently, that simple criterion was broken down into four separate criteria related to different Critical thinking subskills (in dark blue). The students had obviously received explicit training in those skills through a series of classroom activities before (*see* Part I of this Toolkit).

SENTENCE	MORE THAN 3 SENTENCES	REASONED ARGUMENTS (*because*)	NO SPELLING MISTAKES	VISUAL AIDS	FACTS VS. OPINIONS	PERSONAL TOUCH	CRITICAL THINKING DEVICES	USE OF VARIOUS DEVICES	CONTRASTED SOURCES
1	1	1	1	1	1	1	1	1	1
								TOTAL	/10

Finally, the checklist was slightly tweaked and gained rubric-like characteristics where half-points were also awarded on some items, which had happened before but the possibility was now made explicit on the checklist**.**

INFOGRAPHIC ASSESSMENT CHECKLIST											
	AT LEAST 3 SENTENCES	GRAMMAR & VOCAB	SPELLING	VARIED LANGUAGE DEVICES	VISUAL AIDS (CHARTS)	LAYOUT	FACT VS. OPINION	GOOD REASONS "BECAUSE"	CONTRASTED SOURCES	PUBLISHABLE	PERSONAL TOUCH AND ORIGINALITY
0.0											
0.5	*										
1.0											

Yet, more importantly, **a brief explanation of the criteria was provided** to the students in the form of questions they could directly answer in the process of task completion and right before submission.

The rubric explained:

1. Do you have more than 3 full sentences?

2. Is you grammar OK? 1 mistake=0.5. 2 mistakes=0.0

3. Is you spelling OK? 1 mistake=0.5. 2 mistakes=0.0

4. Did you use different language devices to describe your data and/or express your opinion?

5. Did you use charts, pictures, visual diagrams to help the reader understand the content? Are they yours and original? Or are they downloaded? Did you quote them properly?

6. Is your infographic easy to understand and follow? Is it internally coherent?

7. Do you distinguish between facts (from your sources) and your opinion on the subject? Is it clear to the reader which is which?

8. Do you give clear reasons for your opinions?

9. Are your sources reliable? Are the sources that your sources used reliable?

11. Is your infographic original in both content and form?

Practical activity 7: Critical Thinking – Problem Solving Skills

In this activity, we have implemented a new methodology called *Design for Change Methodology:* https://www.dfcworld.com/SITE. This is a student-centered methodology based on the "I CAN" affirmation which empowers students to become the protagonists and agents of social transformation in their communities.

This methodology is structured in the following steps, closely connected to the development of critical thinking (in particular, problem solving skills):

Figure 20. Source: https://www.dfcworld.com/SITE

Objectives of this activity:

To practice Open Questions (*Wh*- questions)

To provide an opinion Based on contrasted Facts and Evidence

To propose a Social entrepreneurship proposal to promote common good in their communities providing their specific field of knowledge/Degrees

The information consulted must come from Reliable Sources of Information

To express their contrasted opinion through Strategic Storytelling: short videos of 3-5 min**.**

Short videos' Instruction for a Social entrepreneurship proposal to promote common good in their communities providing students' specific field of knowledge/Degrees.

- Firstly, students are expected to **answer the following Open Questions (Wh- questions)**. The written answer to these questions will be considered as the **short video script** of their proposal.

DESIGN4CHANGE PROJECT 3-5 minute video	
Questions	**Answers**
What area of your community bothers you most?	
What specific aspect would you like to find a better solution to?	
What is your target group?	
What are the reasons you would give to find a solution to the problem?	
What methodology would you use?	
What is your main objective?	
Viability of the project	
What is the expected "positive social impact"?	

Once students have written the script of the, **they must record their short video** (3-5 minutes maximum) in a creative way in order to get their message across efficiently. Here are some examples of students' proposals from 4th year of the Degree Fine Arts- Design[44] :

Against Gender Violence :

https://www.youtube.com/watch?v=wRMdt1yjomI&feature=emb_logo&ab_channel=M.ASUNCIONLOPEZ-VARELAAZCARATE

OverUse of Plastic:

https://www.youtube.com/watch?v=uGH_VixT32o&feature=emb_logo&ab_channel=M.ASUNCIONLOPEZ-VARELAAZCARATE

[44] These activities are framed within the research/innovation project SIIM-UFV " Transmedia Stories of Social Intervention" under the coordination of Xiana Sotelo: https://www.ucm.es/siim/transmedia-social-intervention The activities were carried out by 3rd and 4th year students of the Degree in Fine Arts- Design of Francisco de Vitoria university (2016-2017)

VIDEO SCRIPT ASSESSMENT CRITERIA

The checklist presented in this section is a specific sheet for the Design 4 Change video task. The CT component evaluates whether the students critically addressed the required questions in their written report accompanying the video.

As we can see in the section below entitled **"Question Relevance Explained"**, to assess the content of these open-ended questions does nor only imply the evaluation of critical thinking through a contrasted opinion since, **at the basis of problem solving skills**, we need to make explicit the **recognition of other key aspects of critical thinking** involved in problem solving skills such as, among others: the ability to detect a problem; reasoning and convincing, setting goals or predicting outcomes. To make these critical thinking components visible in the assessment process, we propose the following improved assessment criteria:

VIDEO SCRIPT ASSESSMENT SHEET									
QUESTION	**QUESTION RELEVANCE EXPLAINED**	**THINKING SKILLS**		**SPELLING 1.0 – errorless 0.5 – 1 error 0.0 – 2 or more errors**			**GRAMMAR 1.0 – errorless 0.5 – 1 error 0.0 – 2 or more errors**		
1. What general area of your community bothers you most? Why?	Raising awareness	1.0 reasoned argument	0.0 unreasoned or missing argument	1	0.5	0	1	0.5	0
2. What specific aspect would you like to find a better solution to?	Detecting problems	1.0 source	0.0 no source	1	0.5	0	1	0.5	0
		1.0 facts/data	0.0 no facts/data						
3. What is your target group? Why?	Determining	1.0 reasoned argument	0.0 unreasoned or missing argument	1	0.5	0	1	0.5	0
4. What are two reasons you would give to find a solution to the problem?	Reasoning and convincing	1.0 reason 1	0.0 missing reason 1	1	0.5	0	1	0.5	0
		1.0 reason 1	0.0 missing reason 2						
5. What methodology would you use? Why?	Planning the intervention	1.0 methodology justified by goal	0.0 unjustified or missing methodol.	1	0.5	0	1	0.5	0
6. What is your main specific objective to achieve? Why?	Setting specific goals	1.0 goal stated	0.0 goal unstated	1	0.5	0	1	0.5	0
		1.0 goal justified	0.0 goal unjustified						
7. How viable is your project? Assess possible obstacles.	Assessing and predicting	1.0 plausible viability	0.0 implausible or missing viability	1	0.5	0	1	0.5	0
		1.0 1 potential obstacle predicted	0.0 no potential obstacle predicted						
8. What is the expected "positive social impact"?	Predicting outcomes	1.0 justified prediction	0.0 unjustified or missing prediction	1	0.5	0	1	0.5	0
		___ out of 12		___ out of 8/2			__ out of 8/2		
TOTAL out of 20 >	_____								

2.3. CRITICAL THINKING ASSESSMENT IN FINAL DEGREE PROJECTS

The following is just an example on how to turn **open, ambiguous and subjective** evaluation criteria for a written academic analysis:

	VERY GOOD (10-9)	GOOD (7-8,9)	PASS (5-6,9)	FAIL (0-4,9)
Relevance of the topic				
Clarity in organization and structure				
Methodology				
Interpretation and conclusions				
Use and appropriateness of bibliographical research				
General use of English, formal aspects and organization				

…into a **clearer and more specific assessment** of critical thinking and academic research[45].

1.Relevance of the topic	**Relevance clear and explained in the abstract**		**Relevance clear and explained in the analysis**		**Relevance clear and explained in the conclusion**		**/3**
2.Organization and structure	**It includes abstract and keywords**		**It is structured in sections: Intro+Body+Conclusion**				**/2**
3.Methodology	**clear and explained in the abstract**		**clear and explained in the analysis**		**The analysis is consistent with the methodology**		**/3**
4.Interpretation	**It provides a reasoned interpretation - *not a summary* (it justifies a claim)**		**Uses contrasted sources to back up her/his claim**				**/2**
5.Conclusions	**Conclusion is well articulated**		**Conclusion summarizes the objectives of the analysis**				**/2**

[45] This assessment criteria is based on the Spanish version of the TFG evaluation from "Libro Blanco" of the Degree of English Studies department, Complutense University of Madrid: https://www.ucm.es/data/cont/docs/263-2020-11-27-Libro%20Blanco%20TFG%20Estudios%20Ingleses%202020-21.pdf (page 17)

6.References	**It uses contrasted sources to provide a solid argument**		**It uses at least two critics-writers to back up her/his claim**		**Evidence (quotes) is well cited**		**/3**
7. Sources	**It uses primary sources**		**All sources are reliable**				**/2**
7.Bibliography	**All writers and critics used are referenced in the bibliography**		**All writers and critics used are referenced according to MLA o APA style**				**/2**
8.Grammar	**Less than three grammar mistakes**		**Less than three spelling mistakes**		**Good sentence construction**		**/3**
9.Style	**It has followed guidelines for formal aspects (margins-space- font)**		**Use of connectors to link paragraphs and ideas and to introduce quotes**		**Quotes are well referenced and cited according to MLA o APA style**		**/3**
						TOTAL GRADE:	**/25=**

As we can see, the key to provide a **clear assessment** resides in the ability to articulate **clear instructions.** Moreover, **clear assessment** with particular examples and comments guarantees that the students receive **effective feedback.** To provide general comments or even just a numerical grade, will not provide students with the **formative process they** deserve.

POSTFACE

The apparent simplicity of some the rubrics, scales and checklists, presented in this section results from the fact they all come from English courses, where language skills must play a dominant role in assessment and only a part of the grade can be awarded for CT skills. Thus, although the presented assessment methods are definitely improvable, we encourage you to use them as inspiration and suggestion, and not to take them hard and fast rules for CT assessment. It is our firm belief that they are a good departure point in the assessment of selected HOTS (Higher Order Thinking Skills) in the classroom.

We would like to finish this basic interdisciplinary toolkit highlighting that this is our humble contribution to provide a basic scientific definition of critical thinking and as such, we would like to hear from other European teachers and students so we can keep on co-creating and improving it together.

In our digital age of fake news and disinformation, we would like to contribute to a very needed conversation in the field of European Education; that is, **what are the basics of the teaching and assessing of critical thinking skills at a European level?**

Hope you have found this toolkit helpful and inspiring in the teaching and assessment process of critical thinking skills!

With Critical Thinking and Love,
X&M

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APPENDIX 1

RUBRICS AND CHECKLISTS

BASIC CRITICAL THINKING RUBRIC

	5	4	3	2	1	0
CRITICAL THINKING	Opinion are expressed, justified and referenced using reliable sources	Opinions are expressed, justified and referenced using mostly reliable sources	Opinions are expressed, justified and sometimes referenced using some reliable sources	Opinions are expressed and occasionally supported without quoting reliable sources	The student doesn't express or support their opinions	

CLASS DEBATE RUBRIC

	0	1	2	3	4
1 USE OF ARGUMENTS: CRITICAL THINKING *reasons are given to support viewpoint*		Few or no relevant reasons given	Some relevant reasons given	Many reasons given: most relevant	Many reasons given in support: all spot-on
2 USE OF EXAMPLES AND FACTS: SOURCES *examples and facts are given to support reasons*		Few or no relevant supporting examples/facts	Some relevant examples/facts given	Many examples/facts given: most relevant	Many relevant supporting examples and facts given
3 USE OF REBUTTAL: REACTING *arguments made by the other teams are responded to and dealt with effectively*		No effective counter-arguments made	Few effective counter-arguments made	Some effective counter-arguments made	Many effective counter-arguments made

ARGUMENTATIVE ESSAY RUBRIC

	4	3	2	1	0
ARGUMENTS IN FAVOUR	I give at least three clear and justified reasons to support my claim	I give at least three reasons to support my views, some of which are unclear or unjustified	I give at least three clear reasons to support my views but they are not completely clear or justified; I give two clear and justified reasons	I give at least two clear reasons to support my views but they are not fully clear and justified	
ARGUMENTS AGAINST	I discuss possible arguments against my claim but show mine are valid anyway	I discuss possible arguments against but leave out some relevant ones	I mention arguments but don't discuss them or contrast them with my own	I don't mention arguments against my claim	

CRITICAL THINKING CHECKLIST

	THE STUDENT HAS:	√
CRITICAL THINKING	expressed own opinion(s)	
	justified opinion(s) (using "because" to provide reason)	
	used at least 1 reliable source	
	used at least 2 reliable sources	
	properly answered 1 challenging question showing CT skills	

INFOGRAPHIC ASSESSMENT CHECKLIST

INFOGRAPHIC ASSESSMENT CHECKLIST											
	AT LEAST 3 SENTENCES	GRAMMAR & VOCAB	SPELLING	VARIED LANGUAGE DEVICES	VISUAL AIDS (CHARTS)	LAYOUT	FACT VS. OPINION	GOOD REASONS "BECAUSE"	CONTRASTED SOURCES	PUBLISHABLE	PERSONAL TOUCH AND ORIGINALITY
0.0											
0.5	*										
1.0											

The rubric explained:

1. Do you have more than 3 full sentences?

2. Is you grammar OK? 1 mistake=0.5. 2 mistakes=0.0

3. Is you spelling OK? 1 mistake=0.5. 2 mistakes=0.0

4. Did you use different language devices to describe your data and/or express your opinion?

5. Did you use charts, pictures, visual diagrams to help the reader understand the content? Are they yours and original? Or are they downloaded? Did you quote them properly?

6. Is your infographic easy to understand and follow? Is it internally coherent?

7. Do you distinguish between facts (from your sources) and your opinion on the subject? Is it clear to the reader which is which?

8. Do you give clear reasons for your opinions?

9. Are your sources reliable? Are the sources that your sources used reliable?

11. Is your infographic original in both content and form?

VIDEO SCRIPT RUBRIC

VIDEO SCRIPT ASSESSMENT SHEET									
QUESTION	**QUESTION RELEVANCE EXPLAINED**	**THINKING SKILLS**		**SPELLING 1.0 – errorless 0.5 – 1 error 0.0 – 2 or more errors**			**GRAMMAR 1.0 – errorless 0.5 – 1 error 0.0 – 2 or more errors**		
1. What general area of your community bothers you most? Why?	Raising awareness	1.0 reasoned argument	0.0 unreasoned or missing argument	1	0.5	0	1	0.5	0
2. What specific aspect would you like to find a better solution to?	Detecting problems	1.0 source 1.0 facts/data	0.0 no source 0.0 no facts/data	1	0.5	0	1	0.5	0
3. What is your target group? Why?	Determining	1.0 reasoned argument	0.0 unreasoned or missing argument	1	0.5	0	1	0.5	0
4. What are two reasons you would give to find a solution to the problem?	Reasoning and convincing	1.0 reason 1 1.0 reason 1	0.0 missing reason 1 0.0 missing reason 2	1	0.5	0	1	0.5	0
5. What methodology would you use? Why?	Planning the intervention	1.0 methodology justified by goal	0.0 unjustified or missing methodol.	1	0.5	0	1	0.5	0
6. What is your main specific objective to achieve? Why?	Setting specific goals	1.0 goal stated 1.0 goal justified	0.0 goal unstated 0.0 goal unjustified	1	0.5	0	1	0.5	0
7. How viable is your project? Assess possible obstacles.	Assessing and predicting	1.0 plausible viability 1.0 1 potential obstacle predicted	0.0 implausible or missing viability 0.0 no potential obstacle predicted	1	0.5	0	1	0.5	0
8. What is the expected "positive social impact"?	Predicting outcomes	1.0 justified prediction	0.0 unjustified or missing prediction	1	0.5	0	1	0.5	0
		___ out of 12		___ out of 8/2			__ out of 8/2		
TOTAL out of 20 >	_____								

APPENDIX 2
LANGUAGE RESOURCE BANK FOR CRITICAL OPINION GIVING

STATING YOUR OPINION

In my opinion / if you ask me / to be honest
I believe that / I think that / I reckon (coll.)
In my view / I hold the view that / From my point of view
My impression is that / I am under the impression that
To my mind
I have no doubt that
I am convinced that
I supposed / assume that
I would argue that

PROVIDING EVIDENCE

A recently published paper by … (date) shows, suggests, demonstrates, proves that
According to …
As indicated by …
As you can see in this graph/chart/table/figure which is taken from …
I looked up some interesting data on the topic (state source)
In a recent paper/book by …, the author-ess …

DRAWING CONCLUSIONS FROM EVIDENCE

When examining these data, I came to the conclusion that
According to this information, it looks like
Based on all this evidence, it could be argued that
The information I found supports the idea that
All examined research (research) suggests/proves/demonstrates that
It is worth more careful examination

DISAGREEING, MAKING CONCESSIONS AND CHALLENGING OTHERS' OPINIONS

Although … may be true, …
While …, what we now know is …
Of course, many people believe that …, but …
I agree up to a point but I also disagree
You are right, but recent research has shed some new light on the matter and it turns out that
That's interesting! Could you tell me where this information comes from?