

# sky4.0



## Soft skills in Industry4.0

*TOWARDS SUCCESS - ANALYTICAL THINKING*

INDUSTRY 4.0 Soft Skills Work & Text Book



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## Analytical Thinking

BAD news! THIS THOUGHT MAY BE INNATE AND THAT THERE ARE PEOPLE WHO BRING IT AS STANDARD

No fear though, because...

IT CAN BE TAUGHT AND NURTURED!

So, fasten your seatbelt because we will speed with **WONDER** towards **WISDOM**

### 1 Let's start!

Here goes a few interesting facts about analytical thinking:

- **It breaks down the parts of a problem** to understand its structure and the relationships between the parts, helping to discern what is important and what is not.
- **It is functional for solving problems**, as it allows the vision from different angles and perspectives, reflection and learning of new strategies.
- **It is based on evidence** and not on emotions.

Do you agree with the above?

What about your **Factbook**? Write below 3 facts about your own, individual analytical thinking, and no worries, there is no correct or wrong answer in this entire handbook!


#### 1.1 Ice breakers

Getting interested?

Let's see... Analytical thinking, a lot of times, starts with problems we can't solve. Thus is of utmost important that we **do not hesitate to try to solve them**.

Time for a small exercise: write 3 problems that you want to clear up, and explore each of them for 5' on the net.


What were the feelings that you experienced when searching for these? Write 5 words below:

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## 1.2 Harry, Ron and Hermione

Are you a fan of Harry, Hermione and Ron? At “*Harry Potter and the Philosopher’s stone*”, the first book of the saga, our three friends tried to get to the philosopher’s stone chamber and they have to pass through different challenges.

Then it will be presented an extract of the book to illustrate the valour of the analytical thinking. This is a simple but good example of how our heroes applied analytical thinking through their adventures.

**Extract from “Harry Potter and the Philosopher’s stone” Chapter 16 “Trough the Trapdoor”, By J.K Rowling’s.**

*“...They reached the end of the passageway and saw before them a brilliantly lit chamber, its ceiling arching high above them. It was full of small, jewel-bright birds, fluttering and tumbling all around the room. On the opposite side of the chamber was a heavy, wooden door.*

*-‘Do you think they’ll attack us if we cross the room?’ said Ron.*

*-‘Probably,’ said Harry. ‘They don’t look very vicious, but I suppose if they all swooped down at once ... Well, there’s nothing for it ... I’ll run.’*

*He took a deep breath, covered his face with his arms and sprinted across the room. He expected to feel sharp beaks and claws tearing at him any second, but nothing happened. He reached the door untouched. He pulled the handle, but it was locked. The other two followed him. They tugged and heaved at the door, but it wouldn’t budge, not even when Hermione tried her Alohomora Charm.*

*-‘Now what?’ said Ron.*

*-‘These birds ... they can’t be here just for decoration,’ said Hermione.*

*They watched the birds soaring overhead, glittering – glittering?*

*-‘They’re not birds!’ Harry said suddenly, ‘they’re keys! Winged keys – look carefully. So that must mean ...’ he looked around the chamber while the other two squinted up at the flock of keys. ‘... Yes – look! Broomsticks! We’ve got to catch the key to the door!’.*

*-‘But there are hundreds of them!’ Ron examined the lock on the door.*

*-‘We’re looking for a big, old-fashioned one – probably silver, like the handle.’*

*They seized a broomstick each and kicked off into the air, soaring into the midst of the cloud of keys. They grabbed and snatched but the bewitched keys darted and dived so quickly it was almost impossible to catch one. Not for nothing, though, was Harry the youngest Seeker in a century. He had a knack for spotting things other people didn’t. After a minute’s weaving about through the whirl of rainbow feathers, he noticed a large silver key that had a bent wing, as if it had already been caught and stuffed roughly into the keyhole.*

*-‘That one!’ he called to the others. ‘That big one – there – no, there – with bright blue wings – the feathers are all crumpled on one side.’*

*Ron went speeding in the direction that Harry was pointing, crashed into the ceiling and nearly fell off his broom.*

*- ‘We’ve got to close in on it!’ Harry called, not taking his eyes off the key with the damaged wing. ‘Ron, you come at it from above – Hermione, stays below and stops it going down – and I’ll try and catch it. Right, NOW!’*

*Ron dived, Hermione rocketed upwards, the key dodged them both and Harry streaked after it; it sped towards the wall, Harry leant forward and with a nasty crunching noise, pinned it against the stone*

*with one hand. Ron and Hermione's cheers echoed around the high chamber. They landed quickly and Harry ran to the door, the key struggling in his hand. He rammed it into the lock and turned – it worked. The moment the lock had clicked open, the key took flight again, looking very battered now that it had been caught twice.*

*-'Ready?' Harry asked the other two, his hand on the door handle. They nodded. He pulled the door open.*

How analytical thinking helps Harry, Hermione and Ron to solve the situation?

Try to build a definition and characteristics of analytical thinking:

## 1.3 Time for some reading!

First of all, **WHAT IS ANALYTICAL THINKING?**

In the context of Aviation Industry and the future Industry 4.0, analytical thinking is defined as *“the ability to understand a situation, disaggregating it into small parts or identifying its implications step by step. It includes the ability to systematically organize the parts of a problem or situation, make comparisons between different elements or aspects and establish rational priorities. It also includes the understanding of temporal sequences and the cause-effect relationships of actions”*.

The results of a survey develop by the Sky 4.0 project say that it can help to coordinate and plan tasks and thus, by understanding a process, the trainee can gain more independence and responsibilities. It is important to optimize solutions and keep high the expertise levels within the employees. It stands out the expertise level recommended for engineers, above any other group. It is also important how technicians are recommended by more participants to be the next, following engineers, on level of expertise in this matter, even though it is at a basic level.

**But which are the characteristics of the analytical thinking process?**

- Analytical thinking is based on evidences and not emotions. By default, it is questioning. The question *“Why?”* is always present in the analysis.
- It is detailed and methodical. It develops the ability to investigate and allows organizing thoughts with precision and clarity.
- It implies being able to decompose the parts of a problem to understand its structure and how they interrelate, being able to identify the relevant and irrelevant.
- As the name implies, it is analytical, since it disintegrates the parts of a whole to analyse the meaning of each one, being more interested in the elements than in the relationships
- It is sequential: since it follows steps in sequence for the analysis, studying linearly, without jumps or alterations each of the parts and increases them until reaching or approaching the solution.
- It is resolute: because at all times it is focused on the search for a solution. Analytical thinking is little given to go through the branches or to investigate alternative scenarios.

Good analytical thinking seldom comes naturally. It involves both cognitive resources and personal motivation. Analytical thinking is a controlled and purposeful reflective process. Employees who remember a lot of factual

knowledge are not necessarily good analytical thinkers. Several authors have identified characteristics, skills or abilities that are common to those exhibiting analytical thinking. The most important are:

- **Observation and self-observation.** Observation is one of the earliest analytical thinking skills we learn as children -- it's our ability to perceive and understand the world around us. Careful observation includes our ability to document details, and to collect data through our senses. Our observations will eventually lead to insight and a deeper understanding of the world.
- **Identifying biases.** They thinkers challenge themselves to identify the evidence that forms their beliefs and assess whether or not those sources are credible. Doing this helps you understand your own biases and question your preconceived notions. This is an important step in becoming aware of how biases intrude on your thinking and recognizing when information may be skewed. When looking at information, ask yourself who the information benefits. Does the source of this information have an agenda? Does the source overlook or leave out information that doesn't support its claims or beliefs?
- **Determining relevance.** One of the most difficult parts of thinking analytically is figuring out what information is the most relevant, meaningful and important for your consideration. In many scenarios, you'll be presented with information that may seem valuable, but it may turn out to be only a minor data point to consider. Consider if a source of information is logically relevant to the issue being discussed. Is it truly useful and unbiased, or is it merely distracting from a more pertinent point?
- **Inference.** Information doesn't always come with a summary that spells out exactly what it means. Critical thinkers need to assess the information and draw conclusions based on raw data. Inference is the ability to extrapolate meaning from data and discover potential outcomes when assessing a scenario. It is also important to understand the difference between inference and assumptions. For example, if you see data that someone weighs 260 pounds, you might assume they are overweight or unhealthy. However, other data points like height and body composition may alter that conclusion.
- **Aware of common thinking errors.** Analytical thinkers don't allow their logic and reasoning to become clouded by illusions and misconceptions. They are aware of common logical fallacies, which are errors in reasoning that often creep into arguments and debates. Some common errors in thinking include:
  - Circular reasoning, in which the premise of an argument or a conclusion is used as support for the argument itself.
  - Cognitive shortcut bias, in which you stubbornly stick to a favoured view or argument when other more effective possibilities or explanations exist.
  - Confusing correlation with causation. In other words, asserting that when two things happen together, one causes the other. Without direct evidence, this assumption isn't justified.
- **Active listeners.** Analytical thinkers don't just want to get their point across to others; they are also careful to engage in active listening and really hear others' points of view. Instead of being a passive listener during a conversation or discussion, they actively try to participate. They ask questions to help them distinguish facts from assumptions. They gather information and seek to gain insight by asking open-ended questions that probe deeper into the issue.

BUT DON'T WORRY! We are going to work on all these skills in this course so that you can enhance your analytical thinking. So let's continue!

## 1.4 Identify the type of analytical thinking of our protagonists

There are different types of analytical thinking, which are present in people; these depend on the behaviours and characteristics they present in front of problems or their daily life.

High Analytical Thinking	Medium Analytical Thought	Low Analytical Thinking
<ul style="list-style-type: none"> <li>• Understands the situation and problems perfectly.</li> <li>• It anticipates possible obstacles and plans steps to follow according to all the elements analysed.</li> <li>• Is able to develop alternative solutions for quick action in the face of the possible results of the problems that occur in a company.</li> </ul>	<ul style="list-style-type: none"> <li>• Analyse situations and problems of medium complexity.</li> <li>• Recognizes the relationships between the different elements in a problem of medium complexity.</li> <li>• Identify the advantages and disadvantages of decisions prioritizing according to their importance.</li> </ul>	<ul style="list-style-type: none"> <li>• It is not able to recognize any problem and when it does it is not able to identify its causes or generate solutions.</li> <li>• It does not identify the components of a situation to establish its cause and effect relationship.</li> <li>• Does not analyse all the possible consequences that the problem would produce.</li> </ul>

Now identify which type presents the characters of the next 3 stories, notice the behaviours, emotions or thoughts that are behind of them.

### Mini-case 1:

Ricardo is an aeronautical engineering student and during the last course of the degree he has to do an internship. After a long admission process, he got a position at Omega Airlines, a well-known company in the aeronautical sector.

From the first day, Ricardo, shows very committed and communicative person. He quickly understands the processes related to his work and the other areas with which, sometimes, he makes reports together. This is because he has always been a very applied and thorough person, worrying about every detail related to his duties. In every activity he performs, he demonstrates passion, precision, clarity and accuracy. He can cope very well with his studies and his internship in parallel. He is also a very tidy person.

Ricardo, generally, finds himself with a lot of work and with cases that he has never seen before. The first days he asked his colleagues, older in the company, for advice, but little by little he becomes more autonomous. He analyses problems by disaggregating them into parts, using a rational approach to the situation and contrasting information. He can resolve these cases successfully at the time requested. He progressively is developing tasks of greater complexity and is taken part in some decisions. In addition, being a proactive person, he collaborates with his colleagues in their tasks.

He is a very careful practitioner and always likes to be ahead of the facts. One day in the company there was a problem about the financing of a new aircraft acquisition, which made them lose some service bids with existing aircraft. Moved by its own curiosity Ricardo decides to verify the status of the tenders in question. After his analysis, concentration and focus on the problem, he was able to reach a final solution. For that, he applied a cause-effect analysis to determine the main root that causes this situation, using available databases, information from similar past projects, and recognizing trends.



The conclusions obtained, he comments to his manager from which he receives congratulations for his commitment and commitment to his work. Ricardo's bosses, observing his performance and initiative, decide to offer them a permanent position at Omega Airlines.

High		Medium		Low	
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## Mini-case 2:

Hernán has been working for more than ten years in the well-known International Holding Elite Airlines Group; this covers the best airlines in the world. He is the Vice President of Operations of the Holding. Along with his team of technicians perform the monthly report of the analysis of the result of the air group.

As part of his work, he sometimes visits the companies that integrates the Holding to monitor the indicators, advise them and improve the system if need it. He is confident in his working routines.

During his monthly visit to Alfa Airlines, a member of the group located in Madrid, he finds out about several local problems that are not common, and need an urgent action.

Among the main problems is the pilots' strike that began the day before their visit, which forced the airline to cancel more than 1300 flights until further notice. This worsens an already complicated situation for the companies as a consequence of the rise in fuel rates, a common problem for all the world's airlines. Hernán had already faced this increase before taking measures with new commercial strategies culminating satisfactorily, but the pilot strike is something new for him.

He believes that dialogue can help to solve the problem in the coming days. However, after the analysis carried out together with his team, it was determined that it is impossible to satisfy the request for a 60% increase in pilot salaries. After studying the causes and factors of this problem, he cannot reach an agreement with the pilots' union.

Despite having observed numerous strikes by unions of other companies in the sector, Hernán did not anticipate that this situation could happen to him, and did not prepared contingency plans for these cases that would include: priority attention to passengers, reimbursements and exemption from the payment of penalties, neither a shock plan to mitigate the effects of the pilot's strike.

In view of this scenario, Hernán begins to worry about the costs and expenses generated by the reorganization of flights and the compensation to passengers, since until now he has not found the solution through mediation. The situation has become a very complex problem for Hernán and his team, which creates frustration and impatience for not achieving a satisfactory result.

In the aforementioned, the board of directors decided to make labour regulations more flexible and reorganize crew schedules to solve the problem. To not dismiss Hernán, they decided to move him to a smaller company in the group.

High		Medium		Low	
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## Mini-case 3:

Pedro is a new worker in the customer service department of Federico Fellini International Airport, in San Marino. He is currently in a trial period, is new to the aeronautical sector and feels insecure about how to relate with their peers.

During the training he was informed that the last week of each month he must present a report to Rosa, his supervisor, collecting the airport customer satisfaction measurement from the previous month.

The report consists of positive, negative values and the variation of these, from one month to another, taking into consideration the search for maximum efficiency of quality, punctuality, facilitation and accessibility to passengers.

The first Pedro report is very basic, lacking depth and difficult understanding. His supervisor asked him to improve his analysis and re-write the report.

After a few days, Pedro cannot recognize what the error is or the cause for which he has been asked to redo it, this causes him to feel doubtful and think that he does not match with the operation of the company. He begins to question the tasks he performs; however, he does it again with the suggestions given by a fellow, recently admitted, like him. Despite the recommendation of his colleague, Pedro again makes the same mistake with his report feeling more frustrated and distressed, but he does not ask his supervisor for fear of being fired. In addition, he thinks he should not ask a woman, because she cannot know more than him.

Days go by and since Pedro does not deliver his report, his supervisor goes to him to find out the causes of his delay. During the conversation Rosa could see that Pedro is not qualified for the job, because his report does not demonstrate the evaluation and extrapolation of data to discover potential results of the scenario in question. That is why Pedro decides to quit his job due to the intellectual obstacles or difficulties he considers to have.

High		Medium		Low	
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## 1.5 Self-evaluation

In this point, you are starting to be more self-aware about your analytical thinking, so let's take it to the next level! We will use two questionnaires to evaluate what is your starting point in terms of analytical thinking characteristics and behaviours and get deeper into analysing you! Complete the self-evaluations below.

Use the scale below to indicate the degree to which these statements accurately describe you. There are no rights or wrong answers.

1 – Never | 2 – Sometimes | 3 – Always

Behaviours:		1	2	3
1.	I am able to break down a problem into smaller parts to fix it better.			
2.	I am able to relate the various components of complex problems or situations, and establish complex causal links between them.			
3.	I am able to develop alternative action plans to solve a problem.			
4.	I am able to recognize problems quickly.			
5.	I fully understand the processes related to my work and with other areas of the organization.			
6.	I am able to identify complex cause-effect relationships.			
7.	I handle superficial and simple information and provide answers learned to solve problems.			
8.	When I take an action, I analyse the consequences carefully before implementing them.			
9.	When I prepare reports, they are easy for others to understand.			
10.	I am able to find a new solution method.			

TOTAL

Characteristics:		1	2	3
1.	Do you listen open-mindedly to opposing point of view and welcome criticisms of beliefs and assumptions?			
2.	Are you honest to yourself (or others) when you are wrong?			
3.	Are you intellectually honest with yourself, acknowledging what you don't know and recognising your limitations?			
4.	Do you have the courage and passion to take initiative and confront problems and meet challenges?			
5.	Are you passionate drive for clarity, precision, accuracy, relevance, consistency, logicalness, completeness and fairness?			
6.	Are you aware of your own biases and preconceptions that shape the way people perceive the world?			
7.	Do you welcome criticism from other people?			
8.	Do you have independent opinions and are not afraid to disagree?			
9.	Are you able to get to the heart of an issue or problem, without being distracted by details			
10.	Do you have the intellectual courage to face and assess fairly ideas that challenge even your most basic beliefs?			
11.	Do you love truth and are you curious about a wide range of issues?			
TOTAL				

Great! That was a good reflection, the more questions you answer always or sometimes the higher your level of analytical thinking is.

But if your level is low, don't bewilder you! With this course you will improve your analytical thinking, understanding its process, developing its main characteristics and breaking the obstacles that avoid you to get it.

## 2 What I need to develop my Analytical thinking?

### 2.1 How many piano tuners are in New York City?

A few years ago, I was looking for a professional change and job improvement. After analysing several job advertisements, I focussed on one that seems perfect for me. A big and important company was looking for a young professional with *“strong reasoning, analytical and problem solving skills”*. During the interview with the human resources department, a woman showed interest about my ability for reflection and analytical thinking, and suddenly she asks me: *“Could you please tell me: how many piano tuners are in New York City?”*

I’m sure most of you have been asked similar quirky interview questions that left you scratching your head. *“How much would you charge to wash all the windows in Chicago?”*, *“How much money does your local cinema make in a week?”* or *“How many cups of coffee does Starbucks serve in London each year?”*

Of course the truth is that you *“aren’t”* supposed to know the answer — the interviewer often just wants to see how you react to the question and how you handle the pressure of being put on the spot. The interviewer wants to see your reflection abilities in real time when you are faced with a problem and given no data or tools you analyse it.

These types of questions are called *“Fermi Problems”* — after the famous engineer Enrico Fermi, who used them to estimate the strength of atomic blasts, deduce the circumference of the Earth and determine the likelihood of aliens existing in our universe. Fermi was known for his ability to make good approximate calculations with little or no actual data. Fermi problems typically involve making justified guesses about quantities and their variance or lower and upper bounds. Surprisingly Fermi’s method was remarkably accurate.

These questions determine two important characteristics for analytical thinking: **relevance** and **inference**, particularly in situation in which you do not have access to sources of information or in which you are under pressure to provide a solution.

Determining relevance	Inference
It’s important to <i>“identify the key problem”</i> to be tackle and also to <i>“not become overwhelming”</i> by the tremendous amount of data and information that might be available to us even if it is not key for our problem. In many occasion you have to solve situation that present problems of different nature and level, and sometimes is not easy to identify which one really requires our attention. We might risk losing focus and diver our attention to irrelevant issues. In many scenarios, you’ll be presented with information that may seem valuable, but it may turn out to be only a minor data point to consider. Is it truly useful and unbiased, or it is it merely distracting from a more pertinent point?	Information doesn’t always come with a summary that spells out exactly what it means. Analytical thinkers need to assess the information and draw conclusions based on raw data. Inference is the ability to extrapolate meaning from data and discover potential outcomes when assessing a scenario. It is also important to understand the difference between inference and assumptions. For example, if you see data that someone weighs 260 pounds, you might assume they are overweight or unhealthy. However, other data points like height and body composition may alter that conclusion.

Are you able to answer the question?

It might seem like magic, but it's actually relatively simple. Take a deep breath and try to answer these questions using the following method:

- A. Break it down into a series of smaller questions.
- B. Use common-sense and make educated guesses.
- C. Use your assumptions to calculate the answer.

Don't use Internet, DON'T BE A CHEATER!

How many piano tuners are in New York City?	
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Can you describe in detail the process you have followed to reach that conclusion?

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There is no correct solution! Here is an example of a reasoning based on analytical thinking. Does it look like your deduction?

1. Roughly how many people live in New York City? —**8.000.000**
2. Does every person own a piano? —**No**
3. Can we assume that families own pianos, not individuals? —**Yes**
4. How large is the average family? —**5 people**
5. So how many families are there in NYC? —**1.600.000**
6. Does every family own a piano? —**No... perhaps one in ten does**
7. So how many pianos are there in NYC? —**160.000**
8. How often per year do pianos need to be tuned? —**Once per year**
9. How many piano tunings can one piano tuner do? — **Let's say 4 per day, so if there's 200 working days in a year, that's 800 per year**
10. So how many piano tuners could NYC support?—  **$160.000/800 = 200$  piano tuners**

## 2.2 Analytical thinking under time pressure

Many jobs, particularly in aviation, come with demanding deadlines and high stakes. Recruiters prize candidates who show a decisive attitude, an unfaltering ability to think clearly, and a capacity to compartmentalise and set stress aside. Being able to perform analytical thinking in a critical situation, particularly under time constraints and other type of pressures is of paramount relevance for aviation, no matter if it is during the design or aircraft or aerospace vehicle or during its operation.

To learn how to succeed in these situations let's look in the past and learn some lessons from ancient samurais. One of the clearest intellectual precedents of the coach, the new gurus of the immediate success society, is the samurai. The mental techniques they used to keep calm under the pressure of war, as well as the strategies aimed at obtaining maximum performance and winning victory, are still exploited today. According to samurais two human traits are relevant to think analytically in this type of situation: **serenity and decisiveness**.

The main objective that all of them seek is none other than to remain calm. Serenity is a quality that in the maelstrom of contemporary life, as in war, hides the key to success and victory. That is, having enough serenity

to be able to read the context in which we move and set the objectives in the long term. Clarity of ideas to make the right decisions, without improvising and looking at the horizon.

#### KEEP CALM AND CARRY ON

The second key factor for samurais is **decisiveness**, or the ability to decide. However, knowing the distinction between decisiveness and recklessness implies a soft skill in itself. Decisiveness combines a number of different abilities: the ability to put things into perspective, to weigh up the options, to assess all relevant information and, crucially, to anticipate the consequences, good and bad. When you're decisive, you:

- Can make decisions even in ambiguous and time-pressed situations.
- Are able to select a course of action despite lack of full information.
- Understand that making no decision still has consequences.

Let's an example! Next case illustrates the process of analytical thinking, by an aviation professional, in a very demanding situation. We might consider the pilot in the next video as a modern samurai. Visualization of the scene of the movie *"The flight"*, where the pilot performs the inverted flight to save the lives of passengers. This scene is used in order to visually show the analysis and behaviour that the captain follows at a critical moment.

<https://www.youtube.com/watch?v=nhxm5QEbYI>

How he exhibits serenity and decisiveness?

How external pressures affect that process and what are the traits of the pilot that make his decision making process reliable even under pressure?

## 2.3 "Use the Penseive"

We follow with Harry Potter! In their explanation of reflection, Watton, Collings and Moon (2001) use this wonderful bit from the Harry Potter novel *"The Goblet of Fire"* to describe reflection.

**Reflection** is a complex set of processes which can empower an individual to recognise their learning opportunities and make the most of them. In its simplest form, reflection is the ability to look back over one's experiences and identify significant aspects, such as reasons for success and failure. The important thing, of course, is to then learn from these reflections, by using them to inform practice and future learning.

*"Reflection is a process of recalling an event with a view to analysing and evaluating that experience".*

In the following extract Dumbledore the chief wizard and head teacher is talking to Harry about having excess thoughts!

Extract from "Harry Potter and the Globet of Fire" Chapter 30 "The Penseive", By J.K Rowling's.

*"Harry stared at the stone basin. The contents had returned to their original, silvery white state, swirling and rippling beneath his gaze.*

*- 'What is it?' Harry asked shakily.*

-‘This? It is called a Pensieve’ said Dumbledore. ‘I sometimes find, and I am sure you know the feeling, that I simply have too many thoughts and memories crammed into my mind. ’

-‘Err,’ said Harry who couldn’t truthfully say that he had ever felt anything of the sort.

-‘At these times’ said Dumbledore, indicating the stone basin, ‘I use the Pensieve. One simply siphons the excess thoughts from one’s mind, pours them into a basin, and examines them at one’s leisure. It becomes easier to spot patterns and links, you understand, when they are in this form. ’”

What do you interpret from the text you just read?

How do you think reflection can help you in the process of analytical thinking?

## 2.4 Develop your self-observation!

**Self-observation** is the ability to know ourselves from the inside-out. In each of us, we have an “*Inner Observer*,” that part of our self that observes what is happening inside of us – our thoughts, feelings, bodily sensations – at any given moment. While the Inner Observer is always noticing, we often are not tuned in and miss the inner cues and signals that can make or break an interaction with another, our response to a situation, or an outcome that we want. The Oxford Dictionary defines self-observation thus: “*the objective observation of one’s own attitudes, reactions or thought process*”.

But, why is self-observation important for analytical thinking?

For two main reasons. First reason is because “*Observing yourself is the necessary starting point for any real change.*” James Flaherty, author of “*Coaching: Evoking Excellence in Others*” (Routledge) describes self-observation as this, “*To self-observe means to not become attached to or to identify with any content of our experience, but to watch alertly, openly, passively.*” You need to be able to watch or be aware alertly and openly of your thoughts, emotions and moods in order to see them for what they are.

The second reason is because although we like to think we're rational human beings, we are prone to hundreds of proven biases that cause us to think and act irrationally, and self-observation is the key ability to identify and combat these irrational biases.

Developing self-observation skills is like developing a muscle. When you want to build a muscle, what do you do? You work out with some level of frequency with the goal of increasing the weight – the poundage – as your muscles get stronger. Well, it’s very similar with self-observation. You need to build the “*muscle*” of self-observation to identify your cognitive biases and how they affect you in your analytical thinking and decision making processes. LET’S GO TO TRAIN YOUR SELF-OBSERVATION!

Answer the next questions, and repeat it several days:

**Stop. Observe and record, without filter, what you perceive:**

**1. Thoughts I have right now:**

**2. Feelings I have right now:**

**3. Concerns I have right now:**

**4. Wishes I have right now:**

**5. Sensations that I have at the moment (smells, flavours, hot / cold, textures, etc):**

During the day, make a habit of watching your emotions, impulses, thoughts and reactions move energetically. Just watch. You will soon be able to see clearly the repeating patterns, the changing emotional dynamics and our internal resistances and impulses.

Then, see if you are able to act differently after you have been able to self-observe yourself more closely.



## 3 What keeps me back?

### 3.1 Time for some reading!

When people hear the word bias, many if not most will think of either racial prejudice or news organizations that slant their coverage to favour one political position over another. However cognitive biases are a collection of faulty ways of thinking that are apparently hardwired into the human brain.

The collection is large. Wikipedia's *"List of cognitive biases"* contains 185 entries, from **actor-observer bias** (*"the tendency for explanations of other individuals' behaviours to overemphasize the influence of their personality and underemphasize the influence of their situation ... and for explanations of one's own behaviours to do the opposite"*) to the **Zeigarnik effect** (*"uncompleted or interrupted tasks are remembered better than completed ones"*).

A cognitive bias refers to a *"systematic error"* in the thinking process. Such biases are often connected to a heuristic, which is essentially a mental shortcut – heuristics allow one to make an inference without extensive deliberation and/or reflective judgment, given that they are essentially schemas for such solutions (West, Toplak, & Stanovich, 2008).

If I had to single out a particular bias as **the most pervasive** and damaging, it would probably be **confirmation bias**. That's the effect that leads us to look for evidence confirming what we already think or suspect, to view facts and ideas we encounter as further confirmation, and to discount or ignore any piece of evidence that seems to support an alternate view. We all favour ideas that confirm our existing beliefs and what we think we know. Likewise, when we conduct research, we all suffer from trying to find sources that justify what we believe about the subject. This bias brings to light **the importance of playing "Devil's Advocate"**. That is, we must overcome confirmation bias and consider all sides of the story. Remember, **we are cognitively lazy** – we don't like changing our knowledge (schema) structures and how we think about things.

If you want to know more biases go to the following link: <https://yourbias.is>

And remember, we make thousands of decisions every day, some more important than others. Make sure that the ones that do matter are not made based on bias, but rather on reflective judgment and analytical thinking!

In the other hand, there are the fallacies. A fallacy is a logical error: something went wrong, or is missing from, a chain of reasoning. It's important for improving your analytical thinking to learn to recognize them in one's own and other's arguments. To be able to infer and argument effectively, in write and debate, we need to know what a fallacy is. Analytical thinking skills are therefore improved in the ability to take apart an argument and look for the fallacies. The best defensive strategy against fallacies is to get to know them and being able to identify them.

### 3.2 Father and Son

Unconscious or implicit bias refers to beliefs or attitudes that are activated automatically and without an individual's awareness. These hidden biases are different from beliefs and attitudes that individuals are aware they hold but choose to conceal for the purposes of complying with social or legal norms.

Our unconscious social biases form involuntarily from our experiences. For example, as we are repeatedly exposed to actual incidences or media portrayals of females as collaborative, nurturing and homemakers, and men as assertive, competitive, and bread-winners, those associations become automated in our long-term memory. These biases are reinforced on a daily basis without us knowing, or thinking consciously about it.

Stereotypes reflect what we see and hear every day, not what we consciously believe about what we see and hear. It is possible for us to hold unconscious stereotypes that we consciously oppose.

**Effective unconscious bias training activities “show” rather than “tell”.** Incorporating “a-ha” activities that allow individuals to discover their biases in a non-confrontational manner is more powerful than presenting evidence of bias in employment or laboratory studies. We all see bias vested in others but rarely see or admit our own biases. A-ha activities help participants to see how their subconscious preferences and beliefs drive their responses.

An useful awareness activity for unconscious bias training taken from the social psychological literature is the Father/Son activity, adapted from Pendry, Driscoll, & Field (2007). Try to solve the following problem:

*“A father and son were involved in a car accident in which the father was killed and the son was seriously injured. The father was pronounced dead at the scene of the accident and his body was taken to a local morgue. The son was taken by ambulance to a nearby hospital and was immediately wheeled into an emergency operating room. A surgeon was called. Upon arrival and seeing the patient, the attending surgeon exclaimed ‘oh my God, it’s my son!’”*

Can you explain this?

Have you been able to find out? Around 40% of participants who are faced with this challenge do not think of the most plausible answer—being the surgeon is the boy’s mother. Rather, readers invent elaborate stories such as the boy was adopted and the surgeon was his natural father or the father in the car was a priest. As such, the exercise illustrates the powerful pull of automatic, stereotyped associations. For some individuals, the association between surgeon and men is so strong that it interferes with problem-solving and making accurate judgments.

### 3.3 What is your circle of trust?

The Circle of Trust is a powerful exercise for demonstrating the effect of **affinity bias**. Write down in the left column the initials of six people whom you trust the most who are not family members. Place a tick beside those members of your trusted circle who are similar in the dimensions included on the right.

INITIALS	Gender	Nationality	Native language	Accent	Age	Ethnicity	Religion

Probably you have discovered that your trusted six often displays minimal diversity, your inner circle include people with backgrounds similar to your own.

This tendency or preference for people like ourselves is called affinity or in-group bias and is well-researched. Studies show that, in general, people extend not only greater trust, but also greater positive regard, cooperation, and empathy to in-group members compared with out-group members. This preference for people like us is largely instinctive and unconscious.

In some groups, there may be certain individuals with a diverse inner circle. Think about how an individual's experiences could disrupt affinity bias with the ensuing discussion drawing on intergroup research supporting intergroup friendship as a prejudice reduction technique.

### 3.4 Which are the most common fallacies?

It's very important to know the most common fallacies to combat them. Let's gonna check the **14 types of logical fallacies you are most likely to encounter in discussion and debate.**

1. **Ad Hominem Fallacy.** When people think of "arguments," often their first thought is of shouting matches riddled with personal attacks. Ironically, personal attacks run contrary to rational arguments. In logic and rhetoric, a personal attack is called an ad hominem. Instead of advancing good sound reasoning, an ad hominem replaces logical argumentation with attack-language unrelated to the truth of the matter. More specifically, the ad hominem is a fallacy of relevance where someone rejects or criticizes another person's view on the basis of personal characteristics, background, physical appearance, or other features irrelevant to the argument at issue. An ad hominem is more than just an insult. It's an insult used as if it were an argument or evidence in support of a conclusion. Verbally attacking people proves nothing about the truth or falsity of their claims. **Example 1:** "MacDougal roots for a British football team. Clearly he's unfit to be a police chief in Ireland." **Example 2:** "All people from Crete are liars".
2. **Straw man Argument.** In the straw man argument, someone attacks a position the opponent doesn't really hold. Instead of contending with the actual argument, he or she attacks the equivalent of a lifeless bundle of straw, an easily defeated effigy, which the opponent never intended upon defending anyway. **Example 1:** "The Senator thinks we can solve all our ecological problems by driving a Prius." **Example 2:** "Quite the contrary, the Senator thinks the environment is such a wreck that no one's car choice or driving habits would make the slightest difference."
3. **Appeal to Ignorance (argumentum ad ignorantiam).** Any time ignorance is used as a major premise in support of an argument, it's liable to be a fallacious appeal to ignorance. Naturally, we are all ignorant of many things, but it is cheap and manipulative to allow this unfortunate aspect of the human condition to do most of our heavy lifting in an argument. An appeal to ignorance isn't proof of anything except that you don't know something. **Example 1:** "No one has ever been able to prove definitively that extra-terrestrials exist, so they must not be real." **Example 2:** "No one has ever been able to prove definitively that extra-terrestrials do not exist, so they must be real." **Example 3:** "We have no evidence that the Illuminati ever existed. They must have been so clever they destroyed all the evidence."
4. **False Dilemma/False Dichotomy.** This line of reasoning fails by limiting the options to two when there are in fact more options to choose from. Sometimes the choices are between one thing, the other thing, or both things together (they don't exclude each other). Sometimes there is a whole range of options, three, four, five, or a hundred and forty-five. However it may happen, the false dichotomy fallacy errs by oversimplifying the range of options. Dilemma-based arguments are only fallacious when, in fact, there are more than the stated options. It's not a fallacy however if there really are only two options. **Example 1:** "There are only two kinds of people in the world: people who love Led Zeppelin, and people who hate music." Some people are indifferent about that music. Some sort of like it, or sort

of dislike it, but don't have strong feelings either way. **Example 2:** "Either we go to war, or we appear weak." **Example 3:** "Either you love me, or you hate me."

5. **Slippery Slope Fallacy.** The slippery slope fallacy works by moving from a seemingly benign premise or starting point and working through a number of small steps to an improbable extreme. This fallacy is not just a long series of causes. Some causal chains are perfectly reasonable. There could be a complicated series of causes that are all related, and we have good reason for expecting the first cause to generate the last outcome. The slippery slope fallacy, however, suggests that unlikely or ridiculous outcomes are likely when there is just not enough evidence to think so. **Example 1:** "But, you have to let me go to the party! If I don't go to the party, I'll be a loser with no friends. Next thing you know I'll end up alone and jobless living in your basement when I'm 30!" **Example 2:** "If America doesn't send weapons to the Syrian rebels, they won't be able to defend themselves against their warring dictator. They'll lose their civil war, and that dictator will oppress them, and the Soviets will consequently carve out a sphere of influence that spreads across the entire Middle East."
6. **Circular Argument (petitio principii).** When a person's argument is just repeating what they already assumed beforehand, it's not arriving at any new conclusion. This fallacy is a kind of presumptuous argument where it only appears to be an argument. It's really just restating one's assumptions in a way that looks like an argument. You can recognize a circular argument when the conclusion also appears as one of the premises in the argument. Another way to explain circular arguments is that they start where they finish, and finish where they started. **Example 1:** "The Bible is true; it says so in the Bible"—It is a claim using its own conclusion as its premise, and vice versa, in the form of "If A is true because B is true; B is true because A is true". **Example 2:** "According to my brain, my brain is reliable." **Example 3:** "Smoking pot is against the law because it's wrong; I know it's wrong because it is against the law."
7. **Hasty Generalization.** A hasty generalization is a general statement without sufficient evidence to support it. A hasty generalization is made out of a rush to have a conclusion, leading the arguer to commit some sort of illicit assumption, stereotyping, unwarranted conclusion, overstatement, or exaggeration. Hasty generalization may be the most common logical fallacy because there's no single agreed-upon measure for "sufficient" evidence. A simple way to avoid hasty generalizations is to add qualifiers like "sometimes," "maybe," "often," or "it seems to be the case that . . .". When we don't guard against hasty generalization, we risk stereotyping, sexism, racism, or simple incorrectness. But with the right qualifiers, we can often make a hasty generalization into a responsible and credible claim. **Example 1:** "Apple computers are the most expensive computer brand?" What about 12 examples? What about if 37 out of 50 apple computers were more expensive than comparable models from other brands? **Example 2:** "People nowadays only vote with their emotions instead of their brains."
8. **Red Herring Fallacy (ignoratio elenchi).** A "red herring fallacy" is a distraction from the argument typically with some sentiment that seems to be relevant but isn't really on-topic. This tactic is common when someone doesn't like the current topic and wants to detour into something else instead, something easier or safer to address. A red herring fallacy is typically related to the issue in question but isn't quite relevant enough to be helpful. Instead of clarifying and focusing, it confuses and distracts. We can guard against the red herring fallacy by clarifying how our part of the conversation is relevant to the core topic. **Example 1:** "My wife wants to talk about cleaning out the garage, so I asked her what she wants to do with the patio furniture, because it's just sitting in the garage taking up space."
9. **Tu Quoque Fallacy.** It distracts from the argument by pointing out hypocrisy in the opponent. This tactic doesn't solve the problem, or prove one's point, because even hypocrites can tell the truth. Focusing on the other person's hypocrisy is a diversionary tactic. In this way, using the tu quoque typically deflects criticism away from you by accusing the other person of the same problem or something

comparable. The tu quoque fallacy is an attempt to divert blame, but it really only distracts from the initial problem. **Example 1:** *"Maybe I committed a little adultery, but so did you Jason!"* **Example 2:** *"But, Dad, I know you smoked when you were my age, so how can you tell me not to do it?"*

10. **Causal Fallacy.** One causal fallacy is the false cause or non causa pro causa ("not the-cause for a cause") fallacy, which is when you conclude about a cause without enough evidence to do so. **Example 1:** *"Since your parents named you 'Harvest,' they must be farmers."* Another causal fallacy is the post hoc fallacy. Post hoc is short for post hoc ergo propter hoc ("after this, therefore because of this"). This fallacy happens when you mistake something for the cause just because it came first. **Example 2:** *"Yesterday, I walked under a ladder with an open umbrella indoors while spilling salt in front of a black cat. And I forgot to knock on wood with my lucky dice. That must be why I'm having such a bad day today. It's bad luck."* **Example 3:** *"Every time Joe goes swimming he is wearing his Speedos. Something about wearing that Speedo must make him want to go swimming."*
11. **Appeal to Authority (argumentum ad verecundiam).** This fallacy happens when we misuse an authority. We can cite only authorities — steering conveniently away from other testable and concrete evidence as if expert opinion is always correct. Or we can cite irrelevant authorities, poor authorities, or false authorities. **Example 1:** *"Four out of five dentists agree that brushing your teeth makes your life meaningful."* **Example 2:** *"I'm the most handsome man in the world because my mommy says so."* **Example 3:** *"This internet news site said that the candidate punches babies. We know that's true because it's on the internet."*
12. **Equivocation (ambiguity).** Equivocation happens when a word, phrase, or sentence is used deliberately to confuse, deceive, or mislead by sounding like it's saying one thing but actually saying something else. Equivocation comes from the roots "equal" and "voice" and refers to two-voices; a single word can "say" two different things. Another word for this is ambiguity. When it's poetic or comical, we call it a "play on words." But when it's done in a political speech, an ethics debate, or in an economics report, for example, and it's done to make the audience think you're saying something you're not, that's when it becomes a fallacy. Sometimes, this is not a "fallacy" per se, but just a miscommunication. **Example 1:** *"I don't understand why you're saying I broke a promise. I said I'd never speak again to my ex-girlfriend. And I didn't. I just sent her some pictures and text messages."*
13. **Appeal to Pity (argumentum ad misericordiam).** The fallacy appeals to the compassion and emotional sensitivity of others when these factors are not strictly relevant to the argument. Appeals to pity often appear as emotional manipulation. **Example 1:** *"How can you eat that innocent little carrot? He was plucked from his home in the ground at a young age and violently skinned, chemically treated, and packaged, and shipped to your local grocer, and now you are going to eat him into oblivion when he did nothing to you. You really should reconsider what you put into your body."* **Example 2:** *"Professor, you have to give me an A on this paper. I know I only turned in a sentence and some clip art, but you have to understand, my grandmother suddenly died while travelling in the Northern Yukon, and her funeral was there so I had to travel, and my parents got divorced in the middle of the ceremony, and all the stress caused me to become catatonic for two weeks. Have some pity; my grandmother's last wish was that I'd get an A in this class."*
14. **Bandwagon Fallacy.** The bandwagon fallacy assumes something is true (or right, or good) because other people agree with it. A couple different fallacies can be included under this label, since they are often indistinguishable in practice. The ad populum fallacy (Lat., "to the populous/popularity") is when something is accepted because it's popular. The consensus gentium (Lat., "consensus of the people") is when something is accepted because the relevant authorities or people all agree on it. **Example 1:** *"If you want to be like Mike (Jordan), you'd better eat your Wheaties."* **Example 2:** *"Drink Gatorade because that's what all the professional athletes do to stay hydrated."* **Example 3:** *"McDonald's has*

served over 99 billion, so you should let them serve you too.” **Example 4:** “Almost everyone at my school will be at the party Friday night. It must be the right thing to do.”

### 3.5 Are you able to identify fallacies in a conversation?

Have you understood all the fallacies from before? Below are three different conversations between two people talking about several topics. Identify the fallacies they use from the ones you have just read.

**Mark with an X if the character has said a fallacy and identify it:**

SMOKING IS HARMFUL FOR HEALTH	Fallacy?	Which fallacy is?
<b>Harry:</b> Hey Peter! Are you coming out to smoke?		
<b>Peter:</b> No, and I think you should stop smoking.		
<b>Harry:</b> Says the one who was smoking at his sister's wedding last week, didn't you say you weren't going to smoke anymore?		
<b>Peter:</b> I promised not to smoke any more cigarettes, and what I smoked was a cigar so I didn't break my promise.		
<b>Harry:</b> So you can and I can't? I eat a balanced diet, I do sports every day and I don't drink alcohol, so I can smoke whenever I want.		
<b>Peter:</b> I only tell you that my doctor told me that smoking kills, and he is an expert, so I am going to quit little by little, and I only smoke on special occasions and soon I will not smoke anything.		
<b>Harry:</b> Pfff doctors.... My grandfather smoked a pack a day all his life and died at 100 years old, so if you want to reach that age you had better do what he did.		
<b>Peter:</b> Well I'm leaving, I have to keep working but please think about what I told you.		
<b>Harry:</b> Yes, yes, but let me smoke now, bye.		
<b>Peter:</b> Bye.		

IMMIGRATION AND CRIMINALITY	Fallacy?	Which fallacy is?
<b>Gwen:</b> Hello Mary! How long! How are you?		
<b>Mary:</b> So bad, Gwen. The other day a Colombian stole from me who entered my house at gunpoint, because all immigrants are criminals.		
<b>Gwen:</b> But are you okay? You should put an alarm on your house, is what everyone does now.		
<b>Mary:</b> Yes, yes, he took some money and left, but the other day a friend was walking around the Latin Quarter and her wallet was stolen, I won't go there again. The government should do something about immigration now.		
<b>Gwen:</b> I think you are exaggerating, there is no evidence that legal or illegal immigration increases the crime rate in the country. Most studies have found lower crime rates among		



immigrants than non-immigrants, and that higher concentrations of immigrants are associated with lower crime rates. It was a coincidence, don't generalize.		
<b>Mary:</b> I only say that first you let them enter the country, you give them a home and a job, they come more and more and little by little they conquer us, in the end we are one more province of their country and they kick us out.		
<b>Gwen:</b> Really, there's no way to convince you, you can't talk to you about these things.		
<b>Mary:</b> With you if you cannot speak that you are a hippie, I'm leaving since you pissed me off.		

POLLUTION	Fallacy?	Which fallacy is?
<b>Mike:</b> Emma, do I drive you to your house?		
<b>Emma:</b> No, I prefer to go by bike, you should do the same.		
<b>Mike:</b> I've been standing all day, I deserve to be comfortable when I come home.		
<b>Emma:</b> Well, I tell you that you either go by bike or you take over the planet, we have to be more aware of climate change.		
<b>Mike:</b> It has not been possible to definitively verify that there is a climatic change, so it will be a lie, I read it in an article on the Internet so it will be true.		
<b>Emma:</b> You should pay more attention to the experts than to what you read on the Internet, climate change is a reality. Look at the celebrities, everyone is going green, everyone should do the same.		
<b>Mike:</b> I do not care about the others, I am going to continue taking the car, and also the last one that I rode on a bike I broke my collarbone so I do not ride more.		
<b>Emma:</b> You are a retrograde, I am going by bike, until tomorrow.		

They have used a lot of fallacies! Have you identified all of them? Go to the ANNEX I to check it.

## 4 Hands on, its change time!

Real change can come only through detailed activity plans that will intervene with scheduled aspects in the daily life. This chapter focuses solely on exercises that will establish a “healthy” plan for you, to ignite a fruitful and committed behaviour change plan.

### 4.1 What were Harry, Ron and Hermione afraid of?

Now Harry Potter teaches us how overcome our fears and irrational beliefs. Do you remember the Boggart? The professor of Defence against the Dark Arts in “*Harry Potter and the Prisoner of Azkaban*”, Remus Lupine, taught his students a very valuable lesson: overcoming one's fears is essential to grow. A teaching valid for magicians and Muggles, although we never have to face a Boggart as did the students of Hogwarts: a magical creature that takes the form of what the person closest to you fears most. Ron also knew how to face one of his greatest terrors to save his friends: spiders.

**Extract from “Harry Potter and the Prisoner of Azkaban” Chapter 7 “The Boggart in the wardrobe”, By J.K Rowling’s.**

“-‘What scares you the most in the world?’

*Neville moved his lips, but said nothing. Neville looked around, his eyes terrified, as if pleading for help, then he said in a whisper:*

*-‘Professor Snape.’*

Imagine you are in the classroom of Defence against the Dark Arts, what would the Boggart take form?

If we focus on Hermione character:

- Hermione ambition and drive is to be admired, but it would be a mistake to think Hermione’s desire for perfection is completely healthy—there is such a thing as pushing yourself too far, and this is one area in which Hermione hardly budes. She is unapologetic in the face of her flaws, but striving for perfection can be harmful (as we see in Prisoner of Azkaban when she has a panic attack when faced with her Boggart—Professor McGonagall, telling her she’d failed everything): fail.
- There is so much good in Hermione that has nothing to do with being perfect. The whole point of Hermione is that it’s okay not to be flawless, but rather we should embrace our flaws in order to better understand ourselves, and then we can make those flaws work for us (in Hermione’s case, she might bristle when unprovoked, but she can also bring out the big guns when Rufus Scrimgeour gets under her skin in Deathly Hallows): improvement.

So let’s gonna know more about these irrational beliefs!



## 4.2 Time for some reading!

Cognitive biases and people related thinking errors there is other barrier to analytical thinking even more important. The BIG PROBLEM in thinking is:

*“We don’t want to think.”*

I’m not talking about motivation. Certainly, we need motivation when we’re tired or lazy. Nor am I talking about preferences. Rather, I’m talking about not wanting to think. And, when we don't want to think about certain things, we act against them, and inhibit the emergence of questions in our mind. To avoid thinking we avoid the questions. That is, there are certain questions we simply will not let surface. They regard the areas in all our lives where we feel some fear or confusion deep down, and we won’t take a look. We can be puzzled by certain experiences, but we won’t let ourselves think about them. We are biased against these questions.

A major effect of not wanting to think is an intellectual blind spot. When we don’t ask questions that are relevant, confusing situations continue to confuse us and we don’t ask why. Problems remain unsolved even when everyone agrees that the problems exist.

Here are 4 typical prejudices or biases we have against thinking, each named according to excessive attention in a concern

**Obsession.** Now and then we all get highly focused on this or that, but for some of us there is some this to which we always return. It could be an abiding worry, grief, or fear. Or it could be an abiding ambition, hope, or desire. It could be a scene from the past we compulsively mull over, or a scene from the future we repeatedly rehearse. Moreover, when our attention is biased toward paying undue attention to the object of our fixation and if our attention is directed there spontaneously, not by our free choice, then we have a problem. We sit down to a task we want to finish immediately and find ourselves doing something else, with no recollection of when we changed our minds. This tendency to get fixated on certain memories or projects or fears is usually accompanied by a lack of attention to the fact that we're fixated. That is, we are biased toward thinking about the object of our fixation but against thinking whether being fixated is a problem. Moreover, our subconscious typically masks our fear of the problem with a pride about it: An argumentative man may admit he can be defensive, but prefer not to ask himself what it is that he so compulsively defends. He may go to his grave consoled by having always steadfastly held his ground and being respected for his consistency, but oblivious of an abiding fear of his father's criticisms.

This is named obsession—a compulsive attention to a specific matter. It is a habit of letting our subconscious directs our attention instead of taking charge of our attention. They powerfully inhibit the questions that could liberate us from this psychic prison, and think analytically. The bias of obsession can subconsciously drive out of mind important questions like, *“Is something more important for my life right now?”*

**Egotism.** Egotism shows when we ignore anything that might benefit others at our expense. We aren’t stupid. We have the intelligence to make things better all around, but we dedicate our minds to getting whatever we can for ourselves. We suppress any thoughts about the well-being of others. Egotism is a tendency to avoid thinking about what benefits other individuals and about one's personal shortcomings. We don't listen much to others because we assume our preoccupations are more important. We set boundaries to what we’ll think about: *“I'm not the sort of person who enjoys reading about handicapped people.”* We avoid thinking that our job perks may be excessive. We connive to make comments only when it will advance our reputations, and we suppress questions that would reveal our ignorance or give others a chance to look smarter. We really don’t want to get involved with others, lest their needs overshadow our own. So we keep to ourselves. We are particularly careful to avoid conflict with other egotists, who are as ready to battle for supremacy as we are. We work hard at our jobs; we even cooperate with others, but mainly for our own benefit. We have no genuine commitment to the goals of our company or agency or institution or religion or even family. We won't

dwelling on harm we have done to others. The more frequently we obey these impulses, the more habitual our egotism becomes.

Sometimes it can be difficult to tell whether a person's dominant bias is an obsession or a deliberate egotism. They both feel need-driven impulses. But one clue about the difference lies in their perceptions of how others respond to them. Obsessive people are puzzled at people's reactions because all the clues lie in impulses they won't consider problematic. But egotists grow more confident to the extent they successfully manipulate others for personal gain. In this regard, the obsessed seem unsure of themselves, while the egotists seem quite sure.

**Groupism.** Groupism is a refusal to think of what benefits other groups and what may be irrational in one's own. People in whom groupism is dominant can appear quite selfless. Indeed, the stronger the groupism, the weaker the egotism. They set aside personal interests for the sake of others, but only to a point—the point where another group's interests are at odds with their own group's interests. Their field of moral vision is wider than personal advantage, but it is still limited by a curtain that divides us from them.

A bias favouring the wellbeing of one's own group to the exclusion of all other groups thrives on cultural myths. We speak of these myths as *“what we all know”*: What White People Do. How Muslims Act. What the Real Problem is with Homosexuals. The simpler the picture, the stronger the myth and the more unrelated to actual lives. Plain experience doesn't undermine the myth for those with unquestioning group allegiance because they already rely on the myth to filter their plain experiences of foreigners, misfits, and eccentrics, letting in only the data that proves the myth to be true.

**Commonsensism.** Commonsensism regards common sense as capable of meeting any problem and disregards the value of anything theoretical or historical. It typically manifests itself in the assumption that it's always better to take some action than no action at all. No doubt, tackling immediate problems is often better than sitting around worrying. Common sense looks to the practical, the interpersonal, the immediate, and the palpable. However, common sense is chronically vulnerable to the Myth of the Simple—the assumption that progress must be based on simple strategies, simple principles. But dysfunctional situations among groups of any size cannot be understood without some deeper analysis based on scientific theory and deeper understanding based on learning the history of situations. When we tackle these situations without some knowledge of their complexity and their history, we raise the odds of making things worse. See some examples of how commonsensism appears in various people's worlds.

- Automobile Salesperson: *“Our Company will simply go out of business if we don't sell more cars!”* The purchase of an automobile is essentially an exchange agreement: The buyer gives the seller money in exchange for a safe and reliable car. What ensures a company's long-term viability is that it effectively and consistently meets the terms of this agreement.
- Taxpayer: *“Honey, we got a big tax refund!”* The IRS collected interest on their overpayments—money lost to the taxpayer.
- Smoker: *“Not everyone who smokes gets cancer.”* Common sense assumes that statistical odds are abstract. In fact they are concrete and reliable predictors of events which, in this case, will likely bring on a host of avoidable problems, including death.
- Anybody: I can predict how well I would perform in any situation. Most people overestimate their own competence and underestimate the difficulty of complex tasks they face.

A more immediate example is your experience of following this course. You've made it this far but it's been an uphill climb. You've had to rest to get your bearings. You may be impatient to reach the end. All this is your direct experience of the bias of common sense against deep thinking. It infects everyone. It accounts for all kinds of disagreements about what to do, even among people deeply committed to doing what's really better.

### 4.3 Which are your irrational beliefs?

If you would like to discover your unnoticed assumptions, then do not think about what you think. These assumptions have already diverted your thinking to other concerns. Instead, watch how you behave. Monitor your everyday actions as if you were someone else watching you day and night. So think critically about this one issue:

*“Does my behaviour seem to be habitually influenced by an irrational assumption about living well?”*

First, read over all 12 assumptions.

Then see which of these statements comes closest to describing your behaviours that may be evidence of one spontaneous assumption you have about life.

Notice that each of these assumptions is expressed as an assumption about life itself. It is not a conscious conviction about how you should behave but rather an unnoticed assumption about life that subconsciously affects how you behave.

Then, in light of how you behave, express your main irrational assumption about life along the lines of those shown in the first column below.

Next, to grow beyond these unnoticed but irrational assumptions, express a more deliberate and rational conviction about life that is opposed to the irrational assumption you identified.

Irrational Assumptions	Rational Convictions
1. For adults, it is a dire necessity to be loved by significant others for almost everything they do.	To be loved by others is not as important as ____.
2. Certain acts are awful or wicked; people who perform such acts should be condemned; they deserve punishment, not help.	Certain repulsive acts and behaviours are ____ They deserve ____.
3. It is horrible when things are not the way we like them to be.	Being disappointed is _____. A mature response to being disappointed is _____.
4. Feeling miserable is always caused by external conditions, forced on us by outside people and events.	The feeling of being miserable is essentially _____. A rational response to it requires _____.
5. If something is dangerous or fearsome we should be terribly upset and worry about it continuously.	Rational responses to dangers and fears almost always involve _____.
6. It is easier to avoid life's difficulties and self-responsibilities than to face them.	The most reasonable responses to life's difficulties, including responsibilities that belong to us, involve _____.
7. Everyone absolutely needs something other or stronger or greater than themselves on which to rely.	In the face of threats, a reasonable adult will rely on his/her inner power to _____.

8. Normal adults should be thoroughly competent, intelligent, and achieving in all possible respects.	The effort to be perfect is nowhere near as important as an effort to be _____.
9. Because something once strongly affected our life, it should always affect it.	The wisest way to think about deeply influential experiences is to _____.
10. It is essential to have certain and perfect control over things.	Life is .... To meet life's challenges, it is highly important to have the habit of _____.
11. Happiness can be achieved by just relaxing and doing nothing.	Genuine happiness always has a dimension of _____.
12. We have virtually no control over our emotions, and we cannot help feeling disturbed about things.	With difficult emotions, it is healthy and helpful to _____.

Consider how your new rational conviction would affect what you do and say.

***What behaviours do you need to stop? What behaviours should you learn?***

This last step will not be final. It is meant to be open-ended as you develop the habit of noticing your behaviours, identifying any irrational assumptions they demonstrate, and then adapting and strengthening your rational convictions regarding life.

## 4.4 Irrational belief behind deficient analytical thinking behaviours

The path to change is to identify irrational views about life itself. From that self-revelation, a patient can discover and avoid all sorts of dysfunctional feelings and behaviours rooted in that irrational view about life.

Most people would find that at least one of the above 12 ideas represents their own irrational thinking. These are “assumptions” behind everyday spontaneous impulses that often get ordinary people into messes they could have avoided but didn't know how. Come back to our mini-case studies and figure out which of these 12 assumptions are driven our protagonist behaviours.

### Mini-case 1:

Ricardo receives a special responsibility to guide a new fellow who will join his department, Juan, the son of one of the owners of Omega Airlines, in its adaptation to the company. Juan is a distracted boy; and he doesn't want to learn nor strive, as he is used to easy money and easy life. He is not willing to work at this father's company, but he needs this internship to finish his studies.

First Monday of the month, Ricardo meet Juan, take him for a tour of the company's facilities, and realizes the little interest Juan has in the operation of the company. Ricardo feels it is a new challenge of which he has to be victorious. Ricardo assigns Juan its first activity and gives him all the tools to perform it successfully. Juan must develop a chart showing the routes of the company, sorted in ascending order according to its profitability. Ricardo realizes that Juan feels insecure when he receives the instructions. During the follow-up process, Juan states that he has not yet completed it, to which Ricardo decides to collaborate in the task so as not to delay the delivery of the report. Thanks to team working, they successfully deliver it.

After the presentation of the report, Juan thanks Ricardo for his help, and comments that he will do his best in the next assignment. Likewise, he receives from Ricardo the feedback of what happened and suggests a change of attitude towards the responsibilities granted, since it can affect the work of the entire department. With the commitment to change demonstrated by Juan, they develop a friendship that positively influences teamwork positively. That is why Ricardo believes that Juan needed an opportunity and confidence to demonstrate his skills.

**Which assumptions you identify?**

### Mini-case 2:

After accepting the change of position, due to the mistakes made during the pilot strike, Hermán meets with its new staff and all those responsible for the areas that make up the company, in order to receive reports on the current situation of the company and plan the working plan.

At this meeting, he proposes to restructure functions, since he observes deficiencies in some key areas within the organization, overlapping activities, differences and disagreements that affect effective decision making.

Herman, does not want to make the mistakes of the past, is afraid to repeat them to a greater or lesser extent and that this leads him to lose his job, that is why he decides to obtain all the information that is possible from the company, methodologies used, rumours , among others.

After having at hand all the data that he considers elementary for the excellent performance of his management, he considers that nothing out of the planned will happen because he has covered all areas and all issues without the possibility of experiencing negative events, with the firm conviction that any inconvenience will be caused by factors beyond its responsibility.

**Which assumptions you identify?**

### Mini-case 3:

Rosa upon learning of Pedro's resignation request, decides to meet with him to discuss how he felt during the time he was working in the company. When the meeting takes place, she informs him that she has decided not to accept his resignation, since she considers that he is a very capable and intelligent person and that it is understandable that when he is on probation he has difficulties, but with time and experience he will improve. Pedro acknowledges that he believed not to be up to his obligations and responsibilities in the company because he couldn't perform the job correctly. In addition, he also adds that he feels very bad about what his colleagues might think when he makes mistakes.

Rosa listens carefully to Pedro's motives, sensitizing her pessimism to what she responds with denial of his resignation. Subsequently, she reminds him of his strengths and skills, informing him that we all have weaknesses and that in them we must work with perseverance, dedication and effort to improve daily the activities to be carried out personally and personally. For this, it is necessary to learn to identify the internal and external factors that influence each of the tasks to be performed.

Finally Rosa informs him that the team is satisfied with him, since he is a great help and support for the team, they understand that you are in the learning process and are willing to provide all the support you need.

Given this, Pedro understood that he must make an introspection and self-reflection in order to recognize his deficiencies and positive attributes.

Which assumptions you identify?

## 4.5 Be the best version of you!

If the beliefs are wrong, limiting or irrational, the cognitions and feelings they will generate will cause situations of blockage and suffering.

Therefore, also emotions play an important role. When the emotion is intense there is no reasoning that is worth at that precise moment; no matter how well argued it is. In turn, the different feelings that are created for us are based on our way of thinking.

Everything we interpret from reality and what we feel depends on what we will think next, and finally we will decide to do.

Self-regulation refers to the ability to manage or channel emotions properly. The real challenge for self-regulation arises from unwanted situations and emotions, as in cases of stress; we usually reject or block it.

SELF REGULATION DOES NOT CONSIST IN CONTAINING OR REPRESSING THE EMOTION, BUT IT IMPLIES TO GET WHAT WE FEEL, AND EXPRESS IT IN THE RIGHT MODE

Thanks to the Self-regulation, when the emotions we want to reject arise, in addition to making room for them, we will be able to decide what we will do with that situation.

Self-regulation implies:

1. Realize and recognize the emotion.
2. Allow us to feel that way; it's for something; give us permission.
3. Look at what we think and how we understand the situation.
4. Decide what we are going to do, as needed in that situation.

Our inexhaustible capacity to imagine and visualize, allows us the possibility of regulating the intensity of the experiences and the feelings that they generate; remember that:

THE SITUATIONS / REALITY ARE NOT MODIFICABLE, BUT YES, THE VISION WE CREATE ABOUT HER

You have to exercise your self-regulation as a muscle, so let's go!

### Follow the steps to do the exercise of self-regulation:

1. This time you are asked to select from your experiences two situations, one pleasant and the other not pleasant or as unpleasant as you prefer. Once selected, disconnect from them, counting down, from 15 to 1, and naming only odd numbers.

2. Now remember and visualize the nice image, being in it. How do you visualize yourself, how if you lived it live, while you were inside your body, or as if you were seeing it from outside, from the cinema seats and seeing your own body from the outside? Tune in to the pleasant feeling that image and that moment produce (From 1 to 10).
3. While still in connection with the pleasant sensation, if you saw the image while you were inside - that is, in a way that you saw the contour of your nose, your chest or abdomen -, we will assume that by an effect of magic you are able to cross the screen and leave the scene. Now, once in the armchair you see the scenes where you are represented by "another you", and you see yourself from outside. How is your pleasant feeling now? (Rate it from 1 to 10)
4. Now let's get out of that situation. What is the capital of Switzerland? And that of Sweden?
5. Now we are going to reconstruct the unpleasant scene in the imagination. Rebuild who you are with, how are you, what happens, what do you feel ... How did you create it, being inside or being outside? (That is, being inside the screen, or seeing it from the armchair). Rate from 1 to 10 the level of unpleasant sensation you feel.
6. If you looked inside the image, now turn it in reverse; that is, get out of the screen, or if you were out of the picture, and you saw "another you" in the scene, enter the live scene. Focus now on the level of unpleasant feeling you have once the change is made. Has anything changed?

**What conclusion can we draw from this experiment? What alternatives are presented to you?**

## 4.6 It's time to change your behaviours!

Concentrate in the three musts of Irrational Thinking. The beliefs that end up in negative emotions are, according to Albert Ellis, a variation of three common irrational beliefs. Coined as the "*Three Basic Musts*," these three common irrational beliefs are based on a demand – about ourselves, others, or the environment. They are:

1. I must do well and win others' approval or else I am no good.
2. Others must treat me fairly and kindly and in the same way I want them to treat me. If they do not treat me this way, they are not good people and deserve to be punished.
3. I must always get what I want, when I want it. Likewise, I must never get what I don't want. If I don't get what I want, I'm miserable.

If we don't realize "*Must 1*," we likely feel anxious, depressed, shameful, or guilty. If we are not treated fairly, as per "*Must 2*," we usually feel angry and may act violently. If we don't get what we want, per "*Must 3*," we may feel self-pity and procrastinate.

### The Diagnostic Step:

Based on Ellis' theory that individuals are blaming outward events on their negative emotions instead of their "*interpretation*" of the events, the ABC Model was proposed as:

A – Activating Event: an event that happens in the environment

B – Beliefs: the belief you have about the event that happened

C – Consequence: the emotional response to your belief



This model was developed to educate others of how beliefs are the cause of emotional and behavioural responses, and not that events cause our emotional reactions. Here's an example that will help you understand better:

A – Your spouse falsely accuses you of cheating on him/her.

B – You believe *“What a jerk! S/he has no right to accuse me of that!”*

C – You feel angry/upset.

If you had a different belief (B), the emotional response (C) would be different:

A – Your spouse falsely accuses you of cheating on him/her.

B – You believe, *“This cannot end our relationship – that would be too much to bear if we got a divorce.”*

C – You feel anxious that your relationship might end.

Here again, the ABC model is illustrating that it is not the event (A) that causes the emotional response, rather, it's the belief (B) about the event that causes the emotional response (C). Because people interpret and respond differently to events, we don't always have the same emotional response (C) to a given event.

## Disputing or Challenging the Irrational Beliefs and Changing our Behaviours:

The second phase of REBT's healing process is the dispute or challenge phase. That is, in order to act and feel differently, we must dispute or challenge the irrational beliefs we experience. Essentially, what we are questioning is our irrational beliefs:

- Who says if I don't win someone's approval I'm no good?
- Where is it written in the rule books that a boss always acts professionally and treats others fairly?
- Why do I have to be absolutely miserable if I don't get something I want? Why shouldn't I just feel slightly annoyed instead of downright miserable?

Once individuals undergoing REBT can work through the dispute or challenge of their irrational thoughts, they can move toward how to engage in more effective thoughts, feelings, and behaviours. Termed as an effective new philosophy on life, individuals in this phase start to recognize that there are no absolute *“musts”* – there is no evidence that suggests these *“three musts”* are the only way to think.

If you are undergoing this phase of REBT, you might start to re-evaluate your responses:

*“I don't like how my boss acted, but I can stand it.”*

*“Instead of feeling enraged that my spouse accused me of cheating, I will feel annoyed and determined to make my marriage work.”*

*“I think I'll go to my exercise class after work – I think more clearly after engaging in physical exercise.”*

## Three Major Insights of REBT:

According to Albert Ellis, the following are the three major insights of Rational Emotive Behaviour Therapy:

1. When individuals understand and accept that the main cause of emotional reactions are their beliefs about an event instead of the event itself. That is, we don't just get upset from an event. We upset ourselves because of our irrational beliefs.
2. When people acquire irrational beliefs, if they do not deal with them, they *“hold”* onto the beliefs and it's what continues to upset them in the present. That is, these individuals still wholeheartedly believe in the *“three musts.”*



- Ellis made it clear that understanding these insights does not make us inherently *"better."* That is, understanding these beliefs and having insights into how they affect our emotional responses is not enough to *"cure"* us. In reality, the best way to get better and stay better through REBT is to continually work on recognizing our irrational beliefs, disputing them, changing our irrational *"musts,"* and transforming negative emotions into more positive ones. Simply put, the only way to get better is through the hard work of changing our beliefs. It takes time and practice.

Have a look to yourself and how do you feel, your sentiments, when you are a victim of some else irrational assumptions. Yes, you have heard correctly: you are a victim of other irrational assumptions, but at the same time they are also victims of their own irrational assumptions.

Check how our mini case protagonist feels because of their analytical thinking difficulties at work, with their bosses and colleagues.

Do you feel offended, upset, pressed, afraid or insulted in similar situations? These offenses may be challenges, insults, threats, or heavy demands. They may be the subtle rebuffs that push you away or belittle your contribution. They may be in-your-face pressure to say something or do something. Our reactions to offenses like these can differ. Some people get offensive right back: *"Since when do you tell me what to do?"* Some get defensive: *"I was just doing what I was asked to do!"* Some try to please: *"I'm terribly sorry. What can I do to make it up to you?"* Some withdraw: *"I apologize. It won't happen again."*

You may be able to change the irrational assumption of other people. But we have just learned that we can change our own irrational behaviours. The more clearly you see how irrational assumptions work in yourself, the more likely you can deal with people who offend you.

Moreover, we can change the negative feeling that other irrational behaviours cause us.

- Who's the Victim?

All of these are *"reactions"*—the spontaneous way we deal with offenses. What is needed is a *"response"*—a thoughtful, imaginative and responsible action. Moreover, if at all possible, a response should aim at *"healing"* what thinking reveals about your offender.

Consider, then, this thought:

Your offender is being offended.

Offended by what?

By his or her own bias or irrational assumptions.

A boss neurotically obsessed with cleanliness and order will bail you out for your messy desk. A self-absorbed woman will mock you for your ideas and accomplishments. People with unquestioning loyalty to their group will trash the *"other"* department, company, political party, gender, age group, faith, nationality, sexual orientation, or race. People who assume common sense is all we need will pressure you to act without thinking. If you mention anything about faith, secular-minded people will mockingly dismiss your concern as sheer myth—and then change the subject.

Likewise, people with irrational assumptions will offend you despite the fact that they are driven by an assumption about life that really has nothing to do with you personally.

In return, you can go on the offense, or the defence, or withdraw to the sidelines. But life isn't a football game. We can *"reframe"* the event altogether. We can say to ourselves, *"This is not a battle between people; I'm witnessing a battle inside a person. My offender is the victim!"* In other words, think of life as a sharing in the struggle against bias and irrationality. You are vulnerable, and so is your offender. But you are companions in the struggle.

- Healing Responding See the difference?

You don't need to react at all. You can *"respond."* A good first response is to really listen. Hang in there with the person. Change your stance from over-against to side-by-side. Let yourself love your offender. To charge in to people's vulnerability against their will only convinces them to build stronger defences. *"Seek first to understand"* is a habit of highly effective people. If you don't understand right away what's offending your offender, give yourself the time to wonder.

Move on, but *"bookmark"* the event for further reflection later, when you're somewhat removed from the immediate situation.

Consider what bias or irrational assumption may be victimizing your offender. Ask yourself, *"Where is my offender's heart right now?"* In most cases your insight into your offender will be provisional; sometimes it will be entirely wrong. A *"response"* here will mean simply continuing to keep company. This delivers the strong, but nonverbal message, *"I don't take your sarcasm/attacks/mockery seriously. I'm not afraid of you. I like being/working with you."* I say *"strong"* because it plants a relevant question in the mind of your offender: *"Why am I always making such nasty comments to people who care for me?"* When a question like this takes root, then healing begins from within.

- Exercise

It takes some *"exercise"* to learn this aspect of critical healing. The best exercise is quite simple. Any time you feel offended, instead of reacting, you can respond by *"reframing"* the experience.

- A response is thoughtful, so think to you, *"This isn't football. I'm not playing offense. I won't play defence. And I will not slink off to the sidelines."*
- A response is imaginative, so picture the images I've provided above. Brainstorm many options.
- A response is responsible, so be prepared to care for this person if the opportunity presents itself. To be genuinely responsible is to take responsibility for healing, as far as you can.
- A response is healing, so be prepared to help heal whatever bias or irrational assumptions about life may lie behind your offenders behaviour.

Later, reflect on the event with this question: *"What particular bias or irrational assumption has narrowed his/her outlook?"* The more attuned you are to these inner events in others, the better companion you will be on this journey of the vulnerable.

**Are you ready to change your behaviours and improve your analytical thinking?**

## 5 Closure – Stop making excuses!!

Analytical thinking is so important for both your work and everyday life. INDUSTRY 4.0 IS HERE! You need to commit to change so stop making excuses and go ahead!

Write in the left column the 10 negative behaviours that you have and that have been damaging you in your life. With the knowledge acquired about analytical thinking, self-regulation, brakes (fears), etc.

In the right column you should write a Decalogue, a commitment for each of the behaviours you wrote in the left column, it will be recommended not to make commitments that you cannot fulfil.

At the end, cross out the left column where you wrote your 10 negative behaviours, and compromise to fulfil your commitments.

NEGATIVE BEHAVIOURS	COMMITMENTS

## ANNEX I

Solutions of the exercise **3.5 Are you able to identify fallacies in a conversation?**

SMOKING IS HARMFUL FOR HEALTH	Fallacy?	Which fallacy is?
<b>Harry:</b> Hey Peter! Are you coming out to smoke?		
<b>Peter:</b> No, and I think you should stop smoking.		
<b>Harry:</b> Says the one who was smoking at his sister's wedding last week, didn't you say you weren't going to smoke anymore?	X	Tu Quoque Fallacy
<b>Peter:</b> I promised not to smoke any more cigarettes, and what I smoked was a cigar so I didn't break my promise.	X	Ambiguity
<b>Harry:</b> So you can and I can't? I eat a balanced diet, I do sports every day and I don't drink alcohol, so I can smoke whenever I want.	X	Red Herring Fallacy
<b>Peter:</b> I only tell you that my doctor told me that smoking kills, and he is an expert, so I am going to quit little by little, and I only smoke on special occasions and soon I will not smoke anything.	X	Argument ad verecundiam
<b>Harry:</b> Pfff doctors.... My grandfather smoked a pack a day all his life and died at 100 years old, so if you want to reach that age you had better do what he did.	X	Circular argument
<b>Peter:</b> Well I'm leaving, I have to keep working but please think about what I told you.		
<b>Harry:</b> Yes, yes, but let me smoke now, bye.		
<b>Peter:</b> Bye.		

IMMIGRATION AND CRIMINALITY	Fallacy?	Which fallacy is?
<b>Gwen:</b> Hello Mary! How long! How are you?		
<b>Mary:</b> So bad, Gwen. The other day a Colombian stole from me who entered my house at gunpoint, because all immigrants are criminals.	X	Hasty generalization
<b>Gwen:</b> But are you okay? You should put an alarm on your house, is what everyone does now.	X	Bandwagon Fallacy
<b>Mary:</b> Yes, yes, he took some money and left, but the other day a friend was walking around the Latin Quarter and her wallet was stolen, I won't go there again. The government should do something about immigration now.	X	Casual Fallacy
<b>Gwen:</b> I think you are exaggerating, there is no evidence that legal or illegal immigration increases the crime rate in the country. Most studies have found lower crime rates among immigrants than non-immigrants, and that higher concentrations of immigrants are associated with lower crime rates. It was a coincidence, don't generalize.		
<b>Mary:</b> I only say that first you let them enter the country, you give them a home and a job, they come more and more and little by little they conquer us, in the end we are one more province of their country and they kick us out.	X	Slippery Slope Fallacy

<b>Gwen:</b> Really, there's no way to convince you, you can't talk to you about these things.		
<b>Mary:</b> With you if you cannot speak that you are a hippie, I'm leaving since you pissed me off.	X	Ad hominem Fallacy

POLLUTION	Fallacy?	Which fallacy is?
<b>Mike:</b> Emma, do I drive you to your house?		
<b>Emma:</b> No, I prefer to go by bike, you should do the same.		
<b>Mike:</b> I've been standing all day, I deserve to be comfortable when I come home.	X	Argumentum ad misericordiam
<b>Emma:</b> Well, I tell you that you either go by bike or you take over the planet, we have to be more aware of climate change.	X	False Dichotomy
<b>Mike:</b> It has not been possible to definitively verify that there is a climatic change, so it will be a lie, I read it in an article on the Internet so it will be true.	X	Ad ignoratiam and ad verercundiam
<b>Emma:</b> You should pay more attention to the experts than to what you read on the Internet, climate change is a reality. Look at the celebrities, everyone is going green, everyone should do the same.	X	Bandwagon Fallacy
<b>Mike:</b> I do not care about the others, I am going to continue taking the car, and also the last one that I rode on a bike I broke my collarbone so I do not ride more.	X	Casual Fallacy
<b>Emma:</b> You are a retrograde, I am going by bike, until tomorrow.	X	Ad hominem Fallacy