The worker of the future: a permanent student

How to learn and transmit in a world of constant innovation?

Rémy Dumas
Design and Managment of Interactive Innovation - 2021

Resume

We live in a world that is changing so rapidly that we can never be sure what the job will mean for us tomorrow, especially for us in the tech-centric fields where new trends fly left and right.

Of course, many of us take the initiative to learn outside the context of our businesses. Partly because we're curious humans and it's fun, and also in part because conventional learning strategies just can't keep up.

So it's only by changing our roles and taking control of our learning that we can truly be prepared to respond to and adapt to changes.

Résumé

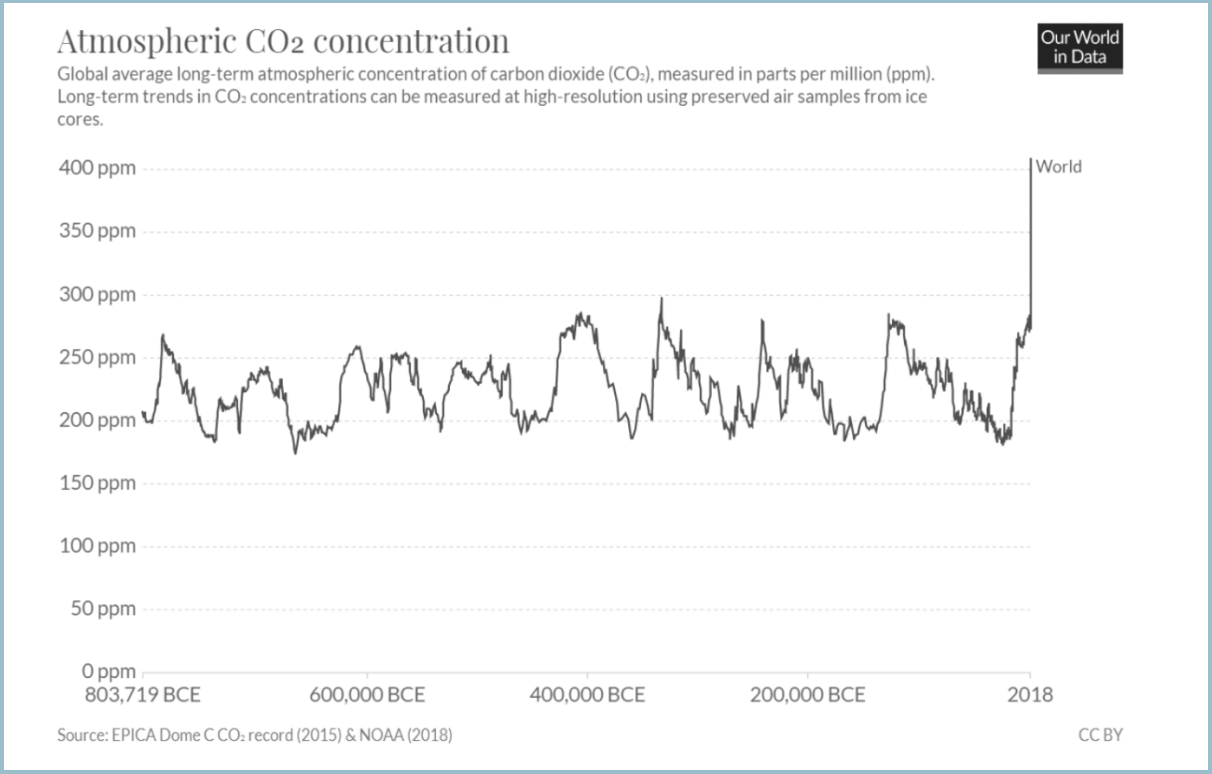
Nous vivons dans une monde qui évolue avec une telle rapidité que nous ne pouvons jamais être sûrs de ce que le travail signifiera pour nous demain, en particulier pour nous dans les domaines centrés sur la technologie où les nouvelles tendances volent à gauche et à droite.

Bien sur beaucoup d'entre nous prennent l'initiative d'apprendre en dehors du contexte de nos entreprises. En partie parce que nous sommes des humains curieux et c'est amusant, et aussi en partie parce que les stratégies d'apprentissage conventionnelles ne peuvent plus suivre le rythme.

Alors c'est seulement en faisant évoluer nos rôles et prenant le contrôle de notre apprentissage que nous pouvons vraiment être préparés pour répondre aux changements et savoir s'y adapter.

Summary

Introduction



This graph showing our CO2 emissions in the world for 800,000 years allows us to better understand the exponential logic in which we find ourselves. Today, nothing is linear, everything is exponential. We live in a hyper-world. This logic does not only apply to our CO2 emissions but to the vast majority of subjects. Indeed today everything can become exponential and this in a completely unpredictable way. And so it's hard to predict what our future will look like. This is why it seems necessary to me to become aware of the world around us, of the speed at which it evolves and of the speed at which normality changes.

« What was the norm yesterday no longer exists. »

BY DARIO SPINI, DOCTOR OF PSYCHOLOGY AT THE UNIVERSITY OF GENEVA

In this world of constant innovation, what was the norm yesterday no longer exists. And it is very difficult to know what the future will hold. Our way of living, of realizing our dreams, our way of working, everything can be totally upset. Faced with this uncertain future, how can a student and a developer best prepare for it? Indeed since I started my studies in the design and management of interactive innovation, I have been able to discover the environment exponentially. In barely 5 years, the skills that defined my profession have completely evolved. It's hard to be reassured about the future when I am told that in just a few years what I have been taught will surely be obsolete. I quickly understood that I would have to be able to train myself continuously after my studies. In addition, I had the opportunity to be able to exercise my job as a work-study developer throughout my studies. From these years of experience, I have seen that there is a fairly large gap between the reality of what it is « to be a developer » and what is « to be a developer in business » . To be more precise, I will quote:

« We are called to be students all of our lives. Anyone who doesn't want to continually learn can't be a good developer. It will be too quickly overtaken by technology. »

BY AURÉLIEN PELLETIER, CTO AT PRESTASHOP

From my observation, developers in the eyes of companies are often people with the technical skills to program a product that meets their needs. Indeed a developer responds to this definition and at the same time this definition looks like blinders and only seems to focus on one point, production. As Aurélien Pelletier says, a developer is a good developer only if he learns throughout his career. Except today, this is still too little taken into account by employers. What I observed is that it was quite complicated to set up a continuous learning process in companies and to use learning time as well as production time, thus forcing developers to take on their personal time to keep up to date and develop new knowledge for their profession. This system seems normal because being a developer is often considered a profession of passion and it is «normal» for developers to use their personal time for professional purposes. So I understood that I would have to learn by myself if I wanted to remain a good developer.From my observation, developers in the eyes of companies are often people with the technical skills to program a product that meets their needs. Indeed a developer responds to this definition and at the same time this definition looks like blinders

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From these observations, I had to understand if what I observed was also observed by others. So I reached out to other developers to get their opinions on the subject. From our exchanges results a common observation for a large majority. A developer is a student all his life, he must keep up with the evolution of new technologies and must generally self-train accordingly. What I see in my industry could very well happen in any trade. Not knowing the direction in which the world will evolve, it is essential to know how to adapt accordingly. In my case, adapting means training and updating your knowledge so as not to be overwhelmed by innovation.

This reflection led me to ask myself the following question: How to learn and transmit in a world of constant innovation?

I therefore started with an analysis of learning in order to understand the different levers of action that would allow me to act in order to learn continuously. From this resulted the appearance of three levers on which it was possible for me to work. The first is a work on oneself and the way to become more coachable through self-knowledge, motivation and the belief system. The second is working with others through collective intelligence, through interactions, transmission and listening. The third and the last is a work on its environment with immersion, the attraction to novelty and to setting up habits.

Understanding of learning

Part 01

Understanding of learning

Before starting on a documentary research process and exchanges with professionals in the field, I had to understand my main concept, learning. What is learning? By definition, learning is a set of mechanisms leading to the acquisition of know-how, knowledge or knowledge. Although very clear, unfortunately remains very wavy on how to learn and the mechanisms thereof. After several searches, I realized that this question was far too complex to be answered by a simple answer. To my great regret, I would not find a magic answer that would guide me to solve my problem. So I tried to change my perspective and approach my memory in another way.

A. Discovery of the systemic and constructivism

After research, I discovered the systemic approach. It boils down to something simple: seeing the world as a system. Indeed, if we associate the notion of learning with a system, we understand its complexity and at the same time its functioning. To see the world as a system is to see the world as a complex set of elements which interact with each other, which exchange and which self-regulate in order to ensure their balance, their development and survival. It is seeing the world as something living and constantly changing. The systemic model helps in understanding how it works and therefore in the possibilities of evolution and change because it asks the question of «Towards what and how?» «. Goal-oriented, it looks to the present and the future, postulating that the possibilities for resolution are all present in the here and now. This choice of model is therefore justified by its resolutely result-oriented approach, the resulting saving of time and energy and its «practical», strategic, flexible, adaptable and innovative side.

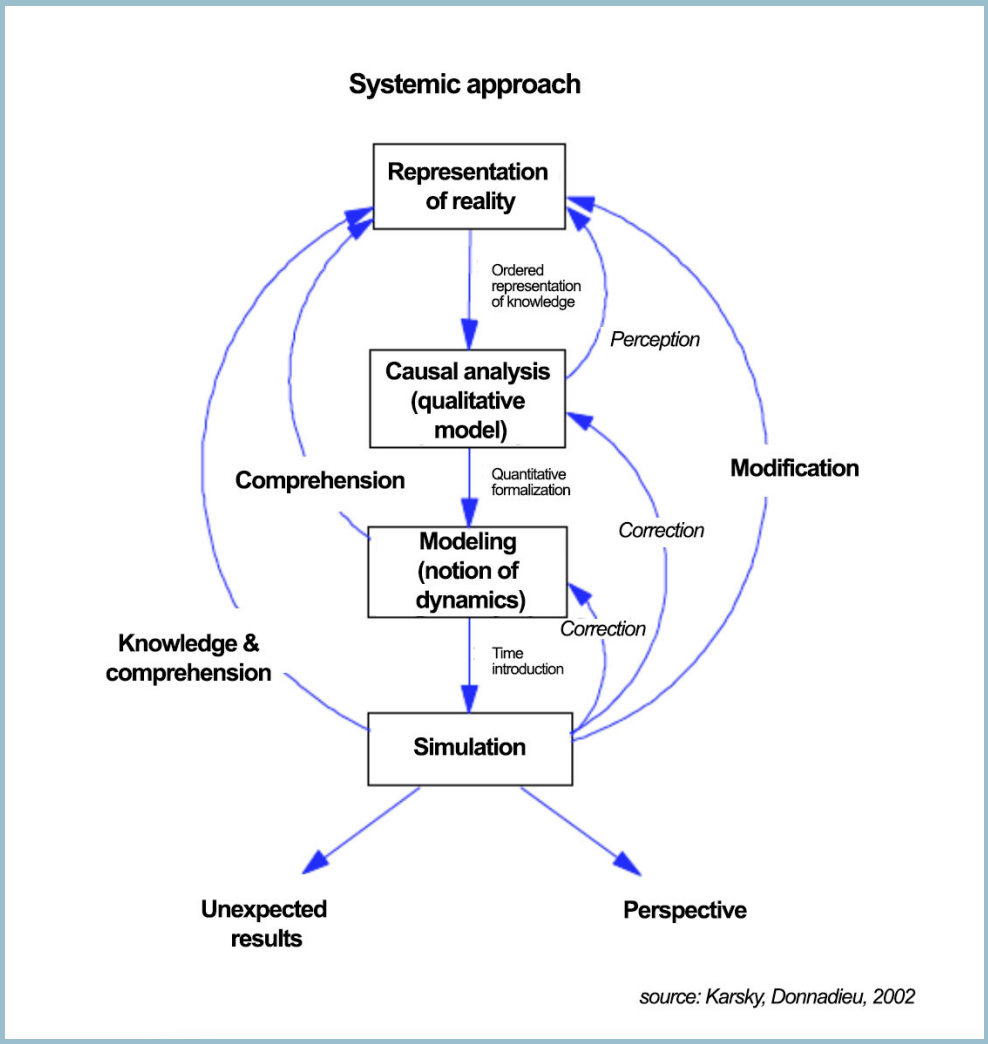
Constructivism is inextricably linked to this. Constructivist thinking is undoubtedly one of the major challenges of interpersonal communication. Indeed, throughout our life, we will have many experiences and these experiences will participate in building our representation of ourselves, of others and of the world around us. These experiences will all

be lived in interaction with an environment that will influence us, with other people and finally with ourselves. When we interact with ourselves, with our thoughts, with our own inner language, it is interesting to note that we always do so in relation to our past, present and future experiences and therefore in the interaction with our environment. Thinking of yourself therefore comes down to seeing yourself, imagining yourself, projecting yourself into the bath of our mental constructions that feed on our interactions of yesterday, today and tomorrow. "Thinking constructivist" then implies integrating into our thoughts that what we live in terms of experiences is a mental construction of that experience, a representation that we have forged for ourselves and, therefore, each human being constructs unique representations that are specific to him.

The systemic approach, coupled with the constructivist perspective, offers the possibility of acting effectively on the systems and the desired changes while preserving their balance, their ecology and with respect for people. Systemics and constructivism together lead me to look at the interactions and the relational game existing between the different elements of a system or between the systems themselves, while also looking at the interactions that we have. with ourselves through our representations and thoughts. Choosing a systemic and constructivist reading grid for situations means tackling the complexity of learning without being overwhelmed by it, by focusing on and observing certain specific elements that will enlighten me on system operation. I will find out «how» the learning system is organized and leave aside the question of «why» it is organized in this way. The question of «how» will indeed allow me to find at what level to act to make the system evolve in a direction previously defined and named objective, either within the framework of the resolution of problem that within the framework of the development of the potentials. Approaching human questions with systemic and constructivism is therefore:

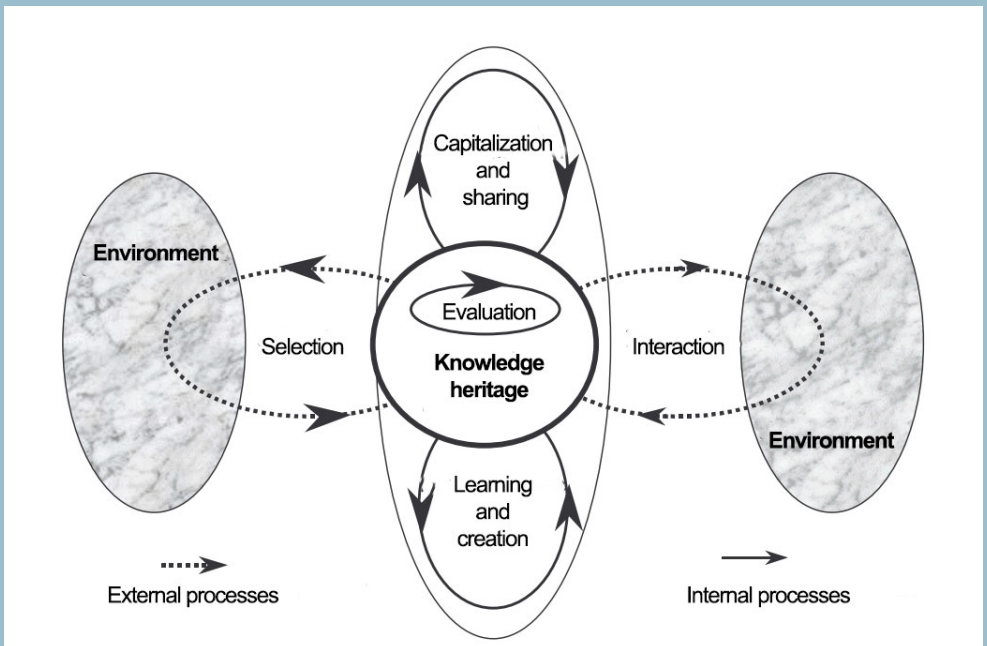
- Define a direction, a goal
- Observe how the system is organized
- Find the level at which to act
- Define the way to act, build an intervention
- Put the intervention into action
- Observe the reaction of the system
- Regulate the intervention according to the reaction and until the goal is reached

Learning to work with the systemic comes down to integrating another way of thinking and observing which will gradually make it possible to act on oneself and on others in the direction of one's objectives, whatever one's profession, activities, environment, whether for professional or personal purposes. Systems science now finds applications in everything related to complex systems and provides effective and sustainable solutions in the growing complexity of our environment.



A. Understanding the learning system

With this approach, it seems more relevant to see learning as a complex system. This will make it possible to find pressure levers on which it is possible to work and thus find possible solutions to our problem. According to Jean-Louis Le Moigne, a French specialist in systemic and constructivist epistemology, who led the reflection on knowledge management modeled learning as below:



source: Les systèmes de connaissances, Jean-Louis Le Moigne, 2013

The learning system is the management of processes and the consideration of their interactions with the different subsystems, both highlighted in the model above. They can be described in three main classes. The first corresponds to the heart of this model, the internal management of knowledge assets. In other words, on oneself as an individual. This is the evaluation process. The evaluation, more than a tool is seen here as a real process which requires a sophisticated implementation, a follow-up and generates transformations within the system. It is first of all oriented on the capitalization of the past evolution of the knowledge heritage, which could be summarized in the following quote:

« Knowing where you come from to better know where you are going »

BY OTTO VON BISMARCK, GERMAN POLITICIAN

Then on the organization of the future evolution of the knowledge base and the develop ment of objectives. The second class corresponds to the external management of assets and interactions with individuals. This is the process of collective intelligence. It is brought about by the capitalization and sharing of knowledge which carries out the virtuous cycle of knowledge and which ensures the sharing and recycling of internal knowledge. As well as by learning and creating knowledge which is the basis for the development and evolution of internal knowledge. The last class is related to two processes. The process of interaction with the environment. A system isolated from its environment is a dead system. This is particularly true for knowledge which feeds on the increasingly considerable information flows that emanate from the environment of new technologies. The process that transforms these information flows into knowledge capital is complex. It is among other things the process of economic and strategic intelligence or intelligence. The environmental selection process. It is an evolutionary process par excellence, of selection of knowledge created by criteria of market, acceptability, etc., both economic and socio-technical. Each of these classes is subject to different processes but is also subject to one and the same principle of recursion. Or in other words how each process nourishes and modifies the knowledge and knowledge of the other processes in a recursive way and of this fact and of itself. This principle thus emphasizes the balance and the exponential way in which the heritage of knowledge can develop, but it is also its weakness. In fact, without a feedback loop, the system finds itself in a situation of survival and no longer of development.

We can thus define three levers on which we can work: an internal lever on oneself, an external lever through other individuals and an external lever in relation to the environment.

A work on oneself

Part 02

A work on oneself

A. Self-knowledge

Self-knowledge allows us to adapt our way of learning and thus facilitate the learning process. There are times when we all find it easier to understand or memorize some subjects more than others. According to a survey carried out by Apel / Opinionway and La Croix, 92% of parents of children from kindergarten to high school believe that the school system must above all involve better consideration of the personality and talents of each young person.

Self-knowledge allows us to understand ourselves and thus understand our way of functioning. By knowing our way of functioning, it is easier for us to set up processes that are more in line with ourselves. Tasha Eurich, an organizational psychologist, spoke at a TED conference in 2017 about the importance of self-knowledge and the benefits that can be derived from it. Self-knowledge gives us power. His team has surveyed hundreds of people, analyzed more than 8,000 texts and conducted dozens of interviews with people who have dramatically increased their self-knowledge. The Tasha Eurich team has indeed shown that 95% of people say they know each other, when in fact only 10-15% of people actually know each other. Her studies have also shown that people who know each other well have a greater sense of wholeness, have stronger relationships with others, and are more confident and creative. They are less likely to lie, cheat and steal and perform better.

Tasha Eurich and her team found that people with a good knowledge of themselves do not ask 'why' but rather 'what' / 'how'. The «whys» lock us in the past, while the «what» / «hows» take us into the future, invite us to better understand ourselves and find solutions to move forward. This leads one to ask how do we act when faced with a problem?

According to Howard Gardner (1983), intelligence is not unique but can be broken down into several types of intelligences. He listed them eight in number: interpersonal intel-

ligence, intrapersonal intelligence, visio-spatial intelligence, musico-rhythmic intelligence, naturo-ecological intelligence, kinesthetic intelligence, verbo-linguistics intelligence and logico-mathematical intelligence. Indeed, according to him, there are different capacities or a set of aptitudes which allow a person to solve problems or to design a product in a certain cultural context.

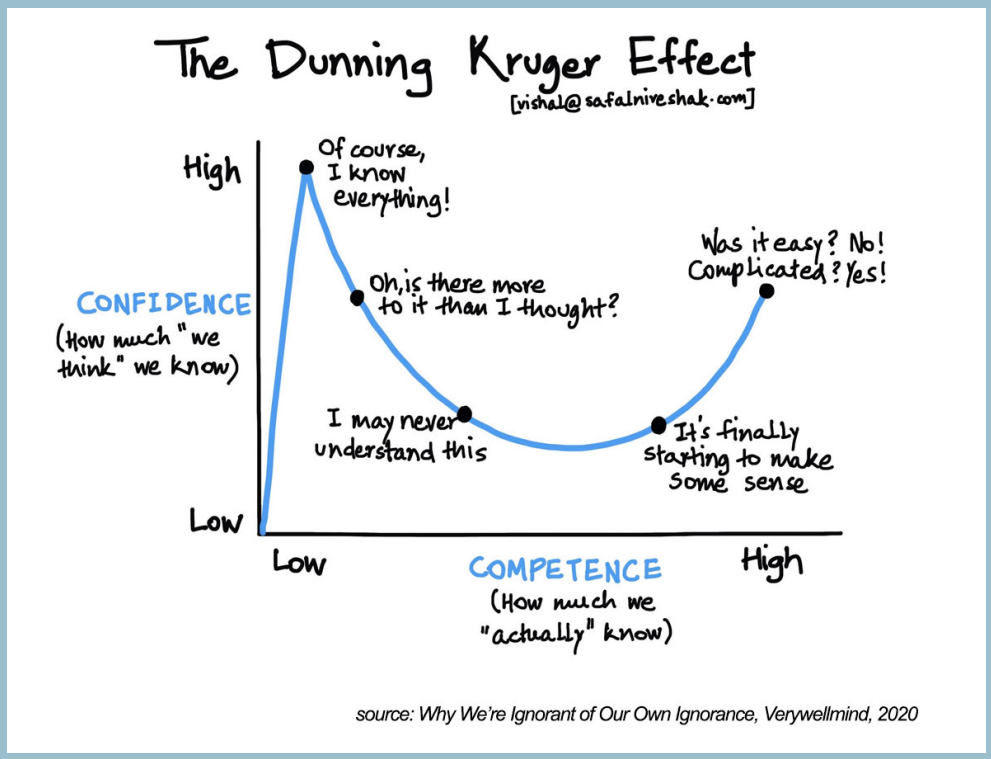
For several years now, researchers, including Robert Dilts, have indeed noticed that we all differ in the way we mentally organize information. Thus, although any lived experience is first perceived by the five senses, it would bring into play different mental representation systems for each. They have indeed noticed 3 modes: visual, auditory and kinesthetic. Some tend to perceive and represent an experience primarily visually, others more auditory, and others more kinesthetic (a system that combines touch, smell and taste). These different modes of representation would be reflected not only in our verbal language, in the words we use, but also in our non-verbal language and in our personality.

According to Gurdjieff (1916), we each have at our disposal three energy centers: instinctive (tendency to quickly take action), emotional (tendency to adapt according to their feelings) and mental (tendency to reflection and language to approach any situation). This division corresponds to the tri-unique functioning of our brain, which integrates in depth three elements functioning differently. Each person has all three types of center, but we all have a dominant center. This allows us to better understand our behavior in the face of a situation or problem.

So I tried to put these teachings into personal practice. I discovered that I had a predominance in solving problems using logical-mathematical intelligence. This form of intelligence demonstrates a great sensitivity to logic models, certain facilities for supporting sound reasoning and analyzing information. That's why I tried to twist this thesis from a systems perspective so that I could properly model my thought system. To this is added my awareness of my system of mental representation which is predominantly visual. So I turned my note taking on the principle of sketchnoting in order to visually represent the information transmitted to me. I also learned that my behavior went much faster in the direction of action when dealing with a problem. So I tried to build on this point and orient my learning process in a mirror mode (reproduce by following the gestures of another individual as for the tutorials) in order to produce while learning.

B. Self-assessment

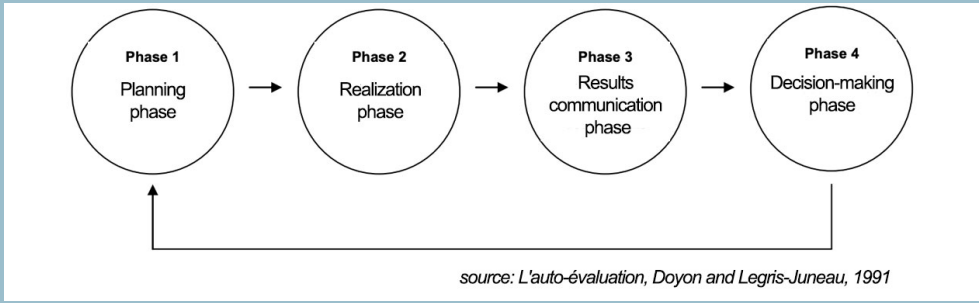
Self-assessment helps to understand the main goals of our learning and, therefore, what we need to do to achieve them. It is difficult to embark on projects when we do not know our capabilities, sometimes we overestimate our skills.



source: Why We're Ignorant of Our Own Ignorance, Verywellmind, 2020

According to this diagram illustrating the self-evaluation of a subject during the acquisition of a competence and the work on the Dunning-Kruger effect the estimation of our competences is a complex work and can involve numerous errors. Indeed, it could also be the main cause (up to 30%) of medical diagnostic errors.

Self-assessment is complicated and yet knowing how to estimate our strengths and weaknesses is important in order to be able to adjust our objectives and / or our stages of development. According to many researchers, including Bernard Donnadieu, Michèle Genthon and Michel Vial, learning self-assessment allows the learner to obtain total freedom in his learning and from that moment it allows him to build his own learning without being limited by a teacher. The learning of self-assessment is thus more than an ancillary technique of assessment. Learning self-assessment is the essential means allowing the student to go beyond a simple unreflected, purely operational know-how to access a reflected know-how thanks to which he can intervene and act consciously.



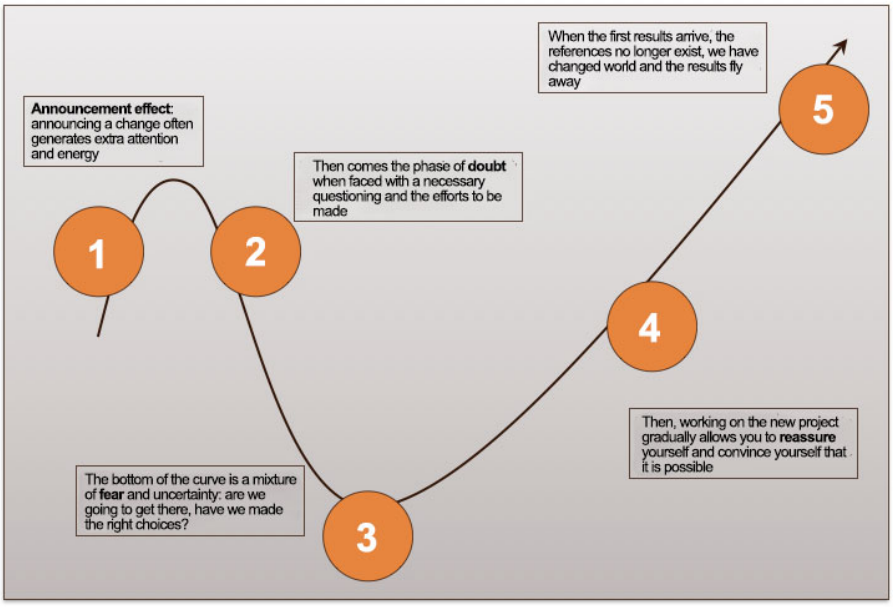
source: L'auto-évaluation, Doyon and Legris-Juneau, 1991

Doyon and Legris-Juneau (1991) propose a four-step approach to self-assessment: A planning phase that allows you to set learning objectives that must be reached during your process and to specify the evaluation criteria of these goals. In addition, during this first phase, it is important to think about the means to achieve it. An implementation phase during which the self-assessment and results recording activities are carried out. A results communication phase that allows you to inform an external agent of the results obtained in order to obtain feedback. A decision-making phase during which one becomes aware of the progress made in his learning. Then, thanks to this awareness and the feedback received, we will be able to set new objectives to be achieved which will allow us to regulate our learning and continue our progress.

I have not yet had the opportunity to fully implement the self-assessment cycle, but have already been able to begin the planning phase as part of completing my year-end project. So I listed my learning goals which are to improve my management and communication skills. To achieve these objectives, I determined evaluation criteria such as the ability to organize a team meeting, the ability to report on meetings or work produced, plan and communicate on the various progress of the project, etc. From this, I will therefore seek to find the way to achieve it and that is why I will propose to my team to be the person in charge of the organization within the project and of the internal communication to the team.

C. Motivation

Motivation allows us to maintain our approach in the face of learning obstacles. We've all felt totally demotivated when something didn't go the way we wanted.



source: The J curve, Albus Conseil, 2013

According to this diagram illustrating the curve of the evolution of the behaviors of an individual or a team compared to a change over time, motivation plays an important role in the progress of a project in order to cope to the various changes in behavior throughout the project.

Understand the deep interests of what we do, why, remember what it will help us in the future, when, how is the best way to face difficulties. According to the work of Locke and Latham (1968) on goal theory, goals have a directive aspect because they allow the individual to be oriented towards the relevant elements of the situation while ignoring those which are not. Likewise, according to them, two aspects of behavior should be distinguished: the motor or physiological aspect and the cognitive aspect of intentional direction, which leads to the construction of goals and projects. According to them, the specificity of human motivation lies precisely in the projection into the future. Representations of the future would thus have a preponderant role in the dynamics of behavior. The action would be directed by the intention to reach a «goal-state» which arises from the representations of the subject. As said earlier, Locke and Latham demonstrate a positive correlation between commitment to goals and performance. Involvement therefore seems to be the key to successful motivation.

Staying involved is a daily challenge that requires remembering the goals and the reasons why we pursue them. So I designed a projection moodboard that I placed in front of my desk in order to be confronted with it at least once a day and thus constantly remind myself of the reasons for my involvement. To this I added a letter in which I explained to my future self, using the five-whys, the underlying reasons for these goals. To remind me, in the event of a hard blow, where I left and where I want to go.

D. The belief system

Recognizing and dismantling the beliefs that limit us and that cause results contrary to those we expect allow us to act in a positive way and give us all our chances in a learning process. We all have that little voice in our heads that can tell us that we are bad, unable to do certain things, etc., which forces us to give up before we even try.

« Let me tell you ... »
And, without waiting for my consent, he began to say:
« When I was little I loved the circus, and what I loved most of all about the circus were the animals. The elephant in particular fascinated me; as I learned later, it was the favorite animal of all children. During its act, the huge beast exhibited extraordinary weight, size and strength... But immediately after and until the next performance, the elephant remained still attached to a small stake stuck in the ground, by a chain which held one of its captive legs.
But this stake was only a tiny piece of wood barely sunk a few inches into the ground. And although the chain was thick and strong, it seemed obvious to me that an animal capable of uprooting a tree should easily be able to break free and walk away.
The mystery remains in my eyes.
So what's holding him back? Why doesn't he escape?
When I was five or six, I still had absolute confidence in adult science. So I questioned a master, a father or an uncle on the mystery of the pachyderm. One of them explained to me that the elephant did not escape because it was trained. I then asked the obvious question: If it is trained, why do we chain it?
I don't remember being given a coherent answer. As time went by, I forgot the mystery of the elephant and its stake, only remembering it when I met other people who one day, too, had asked the same question.
A few years ago, I was lucky enough to come across someone knowled-

geable enough to know the answer: The circus elephant does not come off because, from a very young age, it was tied to a similar stake. I closed my eyes and pictured the helpless newborn elephant strapped to that stake. I'm sure at this point the baby elephant was pushing and pulling and sweating to try to break free, but the stake being too strong for him, despite all his efforts, he didn't make it. I imagined him falling asleep exhausted and the next day trying again, and the day after... and the following days... Until one day, a terrible day for his story, the animal eventually accept his helplessness and resign himself to his fate.
This huge and powerful pachyderm that we see at the circus does not escape, poor man, because he thinks he cannot. He keeps the engraved memory of the helplessness that was his after his birth. And the worst part is that he never tried to test his strength again.
«This is Demian! We are all a bit like the circus elephant: we go around the world tied to hundreds of stakes that take away some of our freedom. «We live with the idea that 'we can't' do a lot of things, for the simple reason that once, a long time ago, when we were little, we tried and didn't success. »

EXTRACT FROM LET ME TELL YOU THE PATHS OF LIFE
WRITTEN BY JORGE BUCAY

As Jorge Bucay's fable of the chained elephant perfectly illustrates, we are sometimes imprisoned by our beliefs. Recognizing and dismantling the beliefs that limit us is a complicated task, but one that leaves the opportunity for each of us to surpass ourselves and thus progress through time. The concept of «positive thinking» comes from the work of Emile Coué de La Châtaigneraie who developed a method of conscious autosuggestion within the framework of personal development. It is called the "Coué" method. Positive thinking requires showing more kindness and intelligence towards yourself. By moving away from both a dramatic and a utopian view of life, she advocates remaining realistic and constructive while cultivating a «conscious and willful optimism».

We have the ability to change our thoughts. To choose those that are most beneficial to us. For this it is therefore important to start by identifying and spotting a false belief. This involves listening to and observing his speeches with others or with oneself. Then it is important to question your beliefs and seek to understand how this thought was constructed. And from that, make this thought evolve into a positive thought, by reformulating this thought in a positive and objective way or by finding counter examples to it. And finally make the effort of internal resistance by taking action.

As a result of this research, I set up the realization of a post-mortem letter for each new goal that I set for myself. I write down all my negative thoughts on the subject upstream and from that I analyze them and try to de-dramatize them and rephrase them in a positive way.

A work with others

Part 03

A work with others

A. Collective intelligence

Sharing allows us to create a principle of reciprocity which enriches our own knowledge. We have all already been confronted with a problem and have sought and found the solution on the internet through a blog. Wikipedia is a great example of collective intelligence. All content is published under a free documentation license, allowing anyone to distribute and modify the free text, while ensuring that no one can restrict access, even to modified versions. Based on this collective intelligence system, it has become one of the largest encyclopedias published on the Internet and thus highlights the power of the notion of knowledge sharing.

The notion of sharing or transmitting knowledge is in a way an investment. It is a value-added process. By sharing our knowledge, we do not lose anything unlike physical objects, on the contrary, we multiply them. And by adopting this idea of sharing, we value ourselves as well as others. Thus, it is possible, by principle of reciprocity of collective exchange, to develop one's knowledge and make it evolve. According to Pierre Lévy, collective intelligence is intelligence distributed everywhere, constantly valued, coordinated in real time, which results in an effective mobilization of skills. More precisely, he means: that no one knows everything, everyone knows something, knowledge is in humanity and not in a transcendent entity which would organize its distribution within society, which the human collective thus organized would have for wealth central to the human in person. Pierre Lévy insists on the fundamental notion of the economy of human qualities. Thus, each member of the collective would be the bearer of a wealth that could not be neglected and which would ensure a unique place and contribution within the intelligent collective and that collective intelligence is not just a theoretical or philosophical concept. , it can underpin a new effective and efficient social organization, based on skills, knowledge and knowledge. Collective intelligence favors power over power.

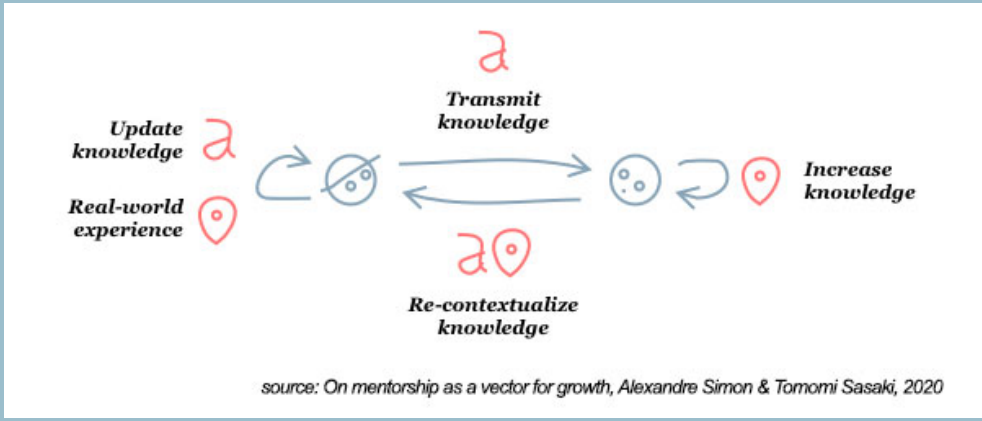
The goal is to share information. It is therefore necessary to develop educational processes through the practice of listening, exchanging information, sharing knowledge. And also to build a shared vision implemented by simultaneous and interactive processes, based on the exchange and capitalization of each person's knowledge. As well as the establishment of communication at different scales in order to allow accessibility to the various players to exchange constantly and capitalize on experience.

At my level, I was able to set up this collective approach by making my personal work public and accessible to all by inviting visitors to discuss my work with me. I also pushed the idea in my company to carry out and publish «case studies» on our projects in order to promote our know-how but also to share our experience on this project and thus try to develop this intelligence on our scale. collective.

B. Transmission of knowledge

Teaching, mentoring, having this transmission process allows the establishment of a growth mindset in terms of learning. We have all wanted to explain a subject to someone and sometimes we find ourselves not fully in control or at least not the way we thought. As Alexandre Simon, designer and founder of A42, explained to me in an interview: "Passing on knowledge is an opportunity to update and deepen what we think we know. «This helps to focus on the shared benefits of the learner and the teacher. There are two sub-ideas in this idea. The first is that the process of transmitting knowledge to another individual allows us to confront the limits of our own knowledge and thus starts a self-assessment process in order to rework and update their current knowledge. The second being our involvement in learning new knowledge. In fact, teaching others means seeking to be oneself much more legitimate in terms of knowledge.

According to Connac (2009), the process of transmitting one's knowledge first of all enables one's own knowledge to be reinforced. The tutor is required to mobilize his knowledge and therefore to anchor it more. He also develops his skills by helping. To this, can be added various studies such as those of Baudrit (2002) expressing the idea of a «guardian effect», which is the fact that the person who comes to the aid of another person in difficulty sees progress. also. Indeed, to help the tutored, the tutor must structure his thinking, reorganize his knowledge, and this process allows him to progress. The diagram below shows these thoughts very well.



It therefore seems interesting to reproduce this "tutor effect" by trying to transmit knowledge to others or by making oneself available to help individuals in difficulty on subjects that are within our competence.

That's why I took the initiative to visit Stackoverflow regularly in order to help other developers solve certain problems. This has allowed me to this day to learn more about how to understand the needs of the authors of posted questions and also to be able to correctly synthesize my thinking. To this, I set up with another developer of my class, a system of co-learning in pairs. Our goal is to learn about a given subject separately for a given time and then to complete a tutorial or documentation for the other in order to pass on what they have learned. And finally to exchange together with a view to evaluating or even re-contextualizing our achievements.

C. Feedbacks

Seeking advice or even feedback allows you on the one hand to contextualize your project and / or approach and also to bring a fresh eye and a step back on our way of solving a problem and thus to develop our thinking. Asking for advice or feedback on projects is often a complex task for either the person giving the feedback or the receiving it. And according to a study published in Harvard Business Review, 72% of people think their productivity would improve if they were given feedback on a regular basis.

Asking for and receiving feedback is not easy and yet it is a crucial phase in the development and progression of a production or learning. Feedback allows us to highlight points that we may not have imagined or to open our eyes to difficulties or problems that we did not see. This can only work by accepting to listen to this feedback and by being able to step back in order to ask yourself and ask the right questions and therefore question yourself.

According to Boud and Molloy (2013), feedback is a process by which the learner obtains information about his work in order to appreciate the similarities and differences between the standards corresponding to this task and the qualities of his own work in order to to generate better quality work. This definition highlights three essential points: First, the fact that feedback is considered as a process and not simply as information received. Then the fact that the role of the learner is put forward in the search for information, which suggests that the reception of feedback is not passive. And finally, the fact that the feedback is not only information on a performance and an indication of deviation from the goal but can also be useful for improving in subsequent similar or more complex tasks. Feedback provides information that can be more or less elaborate. They can also be defined in a very precise way by different characteristics that will distinguish them such as the source, the positive or negative connotation, the focus, the number of feedback provided during the task and the inter-feed coherence. back, when and how feedback is received. The information provided and the characteristics have an influence on the effectiveness in learning.

To carry out our evaluation and feedback approach, it is necessary to orient communication under the principle of non-violent communication. It is based on listening to yourself and others in order to take into account and express each other's feelings. Empathy is a central dimension of this approach. The approach is designed in 4 steps known by the acronym OSBD for: observation, feeling, need and demand. The first step is to observe and describe a situation objectively and without judgment. The second step is centered on feelings: it is about formulating what one really feels about a situation. Then comes the expression of need in order to identify the need behind the feeling. Finally, the last step proposes to formulate a concrete, precise, achievable action that satisfies all parties. The dialogue, kept open, promotes cooperation to find a solution.

I therefore sought to implement this approach on the latest projects that I have carried out. I turned my requests for feedback around the word «advice» which invited more to lend a hand rather than a «criticism» or something negative and signaled to the person my interest in their expertise or knowledge and guided their responses by asking them to try to respond to me by following OSBD. From this experience, I have noticed a better formulation of the feedback but also a better understanding of the deep and useful reason for the remarks.

A work on the environment

Part 04

A work on the environment

A. Immersion

Challenging ourselves to develop projects allows us to boost our learning process. We have all experienced this situation where we learn on the job by being immersed in the context. According to a study by the National Training Laboratories Institute, our retention rate when learning is 75% when we practice.

Getting into a practice phase is one of the best ways to learn. By being confronted with the realities on the ground, problems and errors we are more involved and this anchors these learnings in the memory in a deeper way. Theater teachers are used to saying that when you rehearse on stage in front of others, you are as much playing as you are learning. What they want to emphasize by this is that there is no longer any point in distinguishing between learning phases and those of work. Learning is at the heart of the work situation. If you really want to discover and appropriate a new practice, you have to experience it in its unity of time, place and space. At least 5 components must be observed together at the same time: gesture, behavior, processes and tools, interactions, environment. To improve our process it seems interesting to immerse ourselves and be at the heart of our learning subject.

For my part, I tried to challenge myself by comparing my learning to practice. I therefore carry out projects on each new programming language that I wish to assimilate.

B. Openness to novelty

Surrounding yourself with a wide range of relationships or even changing your setting or environment allows for an open mind, a new perspective and an evolution of our knowledge. We have all already had this feeling of being locked into a routine or of being overwhelmed with daily tasks that prevent us from taking a step back. According to the results of the Editions Tissot survey conducted by Opinion Way, 30% of employees want to change companies out of weariness or a desire for change. These figures highlight the importance of expanding our field of vision and getting out of our comfort zone.

Change place, change context, culture, adopt another perspective, put ourselves in another role ... This opens up particular horizons and allows letting go, an opportunity to look at the world in which we live with another paradigm, another angle of view, neither better nor worse, just different.

According to behavioral therapist Andrea Kuszewski, this is what happens when we learn something new: "When you look for something new, many things happen. First of all, you create new synaptic connections with each new activity that you engage in. These connections build on each other, increase your neural activity, create more connections to build on top of other connections. The learning is in progress. The new experiences trigger the release of dopamine, motivating us, which in turn leads to neurogenesis, or the creation of new neurons and neural connections. Being able to think, try new things and keep learning broadens our perspectives and nurtures our learning abilities.

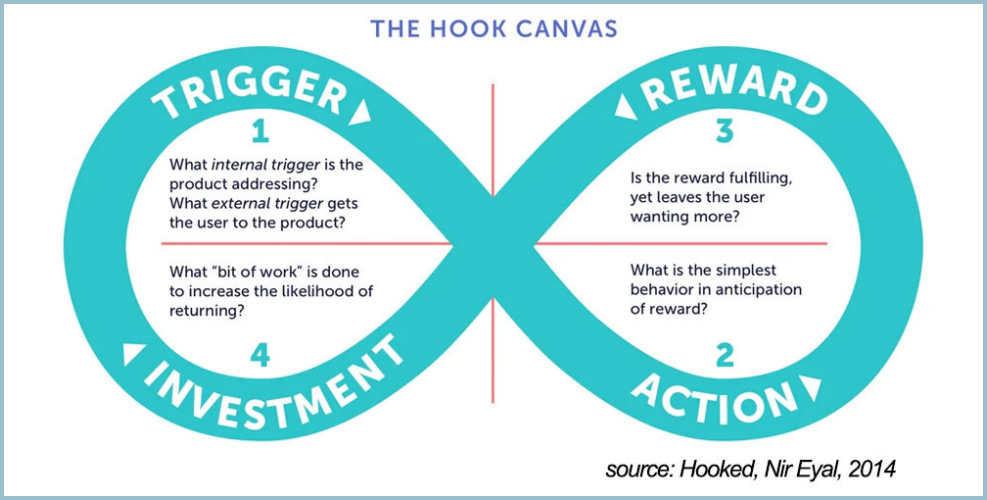
Openness to novelty can happen through a change of environment or through meeting new people. At my level, I do not yet have the opportunity to implement this type of approach on a daily basis such as teleworking in different places to soak up the atmosphere of the environment or work with collaborators abroad or even while traveling because of the current health crisis. On the other hand, following my interview with Alexandre Simon, I signed up for Lunchclub, which connects people with common interests for videoconference exchanges.

C. Habits

Establishing new habits allows for a long-lasting learning process. We have all already listed new resolutions that we have never been able to keep in the long term. According to the study at the University of Hertfordshire, 12% of people are able to keep their resolutions. These figures therefore highlight that setting up new habits is not as easy as you might think.

The establishment of new habits is a difficult process to put in place but once installed they persist and subconsciously automate our behavior. According to Phillipa Lally, a health psychology researcher at University College London, on average it takes over 2

months for a new behavior to become automatic, 66 days to be exact. And the time it takes for a new habit to form can vary widely depending on the behavior, the person and the circumstances. According to his research it can take 18 to 254 days.



To set up a new habit I used the book, Hooked: How to Build Habit-Forming Products by Nir Eyal. Through his book he describes the Hooked model, represented by the diagram above. He explains the techniques to create new habits in consumers. The Hooked model has four stages: First the trigger is the actuator of the behavior. There are two types of triggers: Internal triggers which boil down to what the user wants, his will. And external triggers that boil down to a user reminder. Then the action, which is the result of the trigger. To increase the chances of redoing the action it is important to make it clear to perform. Then comes the variable reward, which allows the user to hook up and multiply the effect associated with desire. And finally the investment, which seeks to engage the user through a reminder of the user's progress. Through consecutive «hook cycles,» the habit might naturally settle in the user until they unconsciously re-perform the habit.

At my level, therefore, I tried to establish a new habit. That of having more regular reading and improving my note taking. So I created a calendar by scheduling end-of-day reminders for 66 days to read. I then randomly bookmarked and once I got to a bookmark I would allow myself a reward. And once the action is complete, I have placed a progress grid that allows me to note and visualize the efforts that I have already made.

Conclusion

Conclusion

In conclusion, we live in a world that innovates and evolves exponentially, thus disrupting the standards and habits of each. This leads us to grow with him and leads us to learn to adapt and know how to update his knowledge as well as to learn new ones. When leaving school, it is difficult to say that our skills will possibly no longer be viable or competitive in the job market within a few years. Understanding and learning how to learn therefore seemed to me to be a fairly significant issue for the success of my professional future. I oriented my thesis around the systemic which allowed me to better understand the complexity of my subject. Indeed, the learning system is a complex system which, thanks to different subsystems which interact with each other. Its sub-systems were therefore the basis of my thesis and allowed me to propose an analysis and solutions to undertake a continuous learning process.

The first sub-system, and our first lever for action, was work on oneself. It was necessary to understand that we were the heart of our own learning. In order to be able to apply our learning process, we had to become aware of ourselves and of our way of functioning in the face of the action of learning, but also to develop our ability to self-assess ourselves over time, to maintain our motivation. over the long term or learn to recognize and dismantle our limiting thoughts.

The second subsystem has been working with the others. The learning system is a system that develops and survives through interactions and the exchange of information between individuals. To nurture and develop our learning process, we had to participate in these exchanges of information thus leading to shared benefits. This involves our participation in collective intelligence through the sharing of knowledge and know-how, through the establishment of a process of transmission of knowledge through the hats of teacher or mentor but also by concept of advice and criticism.

The third and final lever for action was working on one's environment in order to understand how it could influence our learning process. We therefore had to highlight the principle of immersion and experimentation during learning as well as raise awareness of the challenges of novelty through the change factor and lead to the establishment of new habits in a sustainable manner.

Thanks to these three levers of action, it seems important to me to realize that it is possible for us to undertake on our own scale to develop ourselves personally and to change our way of learning but also and I hope to inspire other people in order to develop

our business sectors towards this continuous and common learning process.

This thesis presents and offers a personal approach to the learning system based on documentary research, reading and interviews with professionals. Only in the context of this dissertation have I been able to develop only a tiny part of this lifelong learning process which is extremely vast and exciting. This is why it would seem interesting to me to be able to further develop each sub-part so as to better understand their system and their interactions and thus develop this reflection of continuous learning. Particularly through the following questions: How does a successful mentoring system articulate and develop? How, at our level, can we help the learning of others? How is our belief system built and rooted? How to bring the reflection of learning to an organizational level?

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Resources

Resources

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