DESIGNING A CURIOUS LIFE

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DESIGNING A CURIOUS LIFE

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Designing a Curious life is about living a meaningful life. It is for those who try to achieve an inspiring, creative and resilient legacy. It would fulfil the desire for those who like to try things, without restricting themselves of what is possible or impossible.

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PREFACE

Humanity cannot claim development without having qualities that define its healthiness and its differentiated contribution. One of the primary qualities of healthy communities is their capacity to be continuously Curious. Curiosity needs to be attained and managed, so that we can maintain our competitiveness.

If we study Curiosity, we will find its sources stem from every discipline in life that lead to exploiting humans' full potential and spark their creative capacity. Therefore, designing a Curiosity-driven mindset or Curious communities are considered the best investment that we can make or achieve.

In order to explore and sustain designing of curious life, this book comes in chapters that help to choose the paths of what and why to design a curious life, then followed by how to design this Curiosity. Therefore, after introducing how we create our world by introducing Curiosity design, we start to appreciate all the known types of Curiosity. Curiosity anatomy and psychology are discussed to give importance of 'why we should design and live a curious life?'. Then, 'what is the importance of curious life to our learning and development is discussed in detail?'. Again, 'how Curiosity would differ when we try to find the right problem or right solution?' are discussed in details. Since the main formula of the book says that *Curiosity + Focus = Visualisation;* we discuss how this formula helps to create 'breakthroughs' in our life journey.

The last three chapters focus on the Curiosity design measurement and how they influence Curiosity and thus our capacity in dealing with a complex environment. We conclude about the importance of realising Curiosity influence on economy and socio-economy by series of recommended implementations that would enhance one's experience on the importance of this Curiosity in our life.

Latest research shows more significant interest in the 'science of Curiosity' as it revealed to be vital to the organisation's survival and differentiated performance. Harvard Business Review, Gino (2018) established how Curiosity could improve adaptability and performance. If Curiosity is designed in a particular way, people, organisations and communities can gear their Curiosity towards positive change. When Curiosity explores hidden opportunities, it creates transformation towards the outcome. Without designing Curiosity, risk and inefficiency found to increase in the performance outputs.

Curiosity is a series of attempts that are initiated by 'inquisitive thinking' tools such as exploration and observation that would lead to a learning, or a reflective outcome. Curiosity is heavily associated with humans' development desire which excites them to acquire new knowledge that leads to new learning, or association of things not fully realised before. Designing a behaviour towards being curious means architecting our desires to gain something not available within us. When we design our Curiosity, we are setting our intention for directing our capacity-load to trigger the different life-development stages.

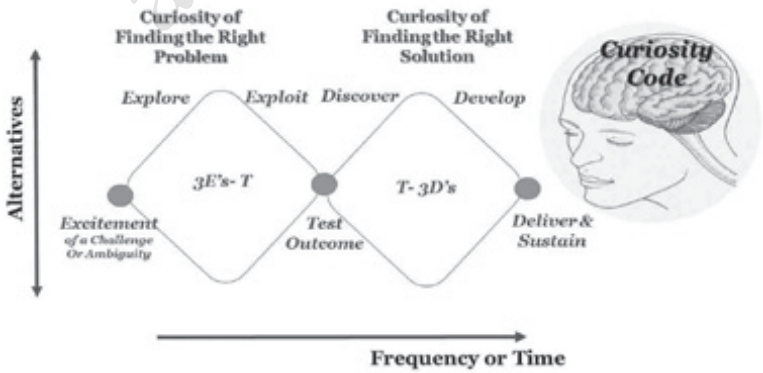
Curiosity is the basis of life. Without Curiosity, life has no meaning. However, no evident efforts have been taken about understanding how to design this life differentiating tool and make it sharpened all the time. In this book, we try to see how Curiosity can be established through understanding the basis of

Curiosity design. Therefore, curiosity anatomy is investigated. Then, Curiosity sources and types are explored more to see how they act in today socio-economy. This is followed by the psychology and education of Curiosity.

Curiosity design needs to be linked to the development of how innovation and learning can be integrated into our daily life. Figure (p-1) shows the basis of Curiosity design of this book. In this book, we are going to show how curiosity can be in its 'ultimate-state' during the search for finding the right problem during exploration, or exploitation of excitement or a challenge or an opportunity. Also, the figure shows how Curiosity of finding the right solution would lead us to practice how to discover, develop, deliver and sustain a state of excellence.

As we move in the era where alpha generation and beyond who are prone to take more risks and challenges, regardless of their social and economic background, Curiosity design cannot be seen as a luxury business any more. Curiosity codes would be essential for our life purpose of existence and a critical source of differentiation of our legacy.

Figure (p-1) shows the Basis of Curiosity Design



CHAPTER 1

Introduction to Curiosity Design

Why this Book?

We are living in a world today where we need to be more selective. It is an age of selective knowledge, where one does not have to search for knowledge. This means we need to be careful of what we consume rather than seek different types of information and knowledge which the big data revolution is throwing at us. This is an economic decision, and it is a decision that would influence the impact and the outcome we could leave, or create, in our life. It is a decision that is full of opportunities as well as challenges.

If we search literature, we will not find enough references about how to utilise Curiosity as a currency for differentiation. You would get a harder time in your search to discover how Curiosity management should be used to avoid energy and time drain. The economic consequences of our Curiosity regarding a specific issue, or information, or invention are yet to be understood. Moreover, the socio-economic, the medical, the psychological and the social consequences of triggering Curiosity still have many black spots that need to be discovered.

Hence in this book, we target to understand more about 'Designing a Curious Life' through:

a) Realising the importance of Curiosity, as one of the most intrinsic powers that can differentiate our life journey and our life contribution.
b) Designing or re-designing how to manage our Curiosity.
c) Designing when to trigger our Curiosity.
d) Designing how to measure the outcome of our Curiosity and then how to develop it further.

Thus, we need to balance between the demands and the throughput of the speed of life which push us to explore how

we design the best curious life. That is a book to structure a life that would make us strike a balance between 'wants of life' and 'needs for leaving a type of contribution' or legacy in this life. Hence, 'Designing a Curious Life' is about a serious attempt to explore the purpose of life and then define the most suitable design that would engage us in activities, not only directly related to maintaining a living, but related to creating socio-economic differentiation. It is a book that aims to work somewhere between the area of the mind that curiously pushes us to explore, and the area responsible for judging and evaluating what we are exploited with.

Kidd and Haydin (2015) emphasise that despite the role of Curiosity in pervasiveness, there are still today no integrative theory that links between the Curiosity purpose and its mechanisms. With the advancement of neuroscience, many leading psychologists and neuroscientists begun coordinated efforts to unlock the mysteries of Curiosity, including Gruber et. al (2014), Gottlieb et. al (2013) and Kang et. al (2009).

How Can Curiosity make a difference in our Lives?

There were three ships which were nearby when the Titanic sunk. They were the Sampson, the Californian, the Carpathia; the first one was the nearest. The Sampson was only 7 miles away from the Titanic, and they saw the white flares signalling danger, but because the crew had been hunting seals illegally and did not want to be caught, they turned and went the opposite direction away from the Titanic. The Californian ship was only 14 miles away from the Titanic, but they were surrounded by ice fields, and the captain looked out and saw the white flares, but because the conditions were not favourable and it was dark, he decided to go back to bed and wait until morning. However, the last ship,

the Carpathia was 58 miles away from the Titanic when they heard the distress cries over the radio. The captain decided to turn his ship around and went full steam ahead through the ice fields. Through this Curiosity-driven action, there were 705 survivors of the Titanic that was saved by the Carpathia.

Hence to answer how Curiosity can make a difference in our life one could say "that it is the most guaranteed tool that could make us: get engaged, acquire, deliver and realise newly explored knowledge, without going against nature". Although not many people are obsessed with realising the depth of what they observe or experience, almost all humans would love to see how they transform what is around them to useful, productive meanings, and that is what makes Curiosity so unique.

We Create Our World

Curiosity matters to life; all of us would agree to that. However, many of us do not know that this same Curiosity that is essential for our lives should also be used to help us focus on 'solving problems' not 'working on problems'. The spirit of inquiry should help us to discover not only what we are curious about, but even what is our Curiosity potential impact.

Even though many people would try to create our world the way they see it, since we were young, the chance is more today that we can re-design our world. No more than ever parents are more aware today about handling their children curious questions, because they do not know all the answers. Therefore, many schools around the world are trying to change their rules to encourage curious minds to develop more and more.

If we want to stay curious, we have to nurture interest within the typical social systems that we live in. This interest would help us to absorbs Curiosity without dissipating additional energy. Once we are curious, we would transform from a passive mental state to an active one.

When our Curiosity is awakened, we need to make sure that we point it in the right direction. Being effectively Curious means to be always one step ahead of social systems through a balanced life-strategy that absorb all kinds of challenges. If we target a life that is full of Curiosity, we will always find a way to nurture our Curiosity, no matter how rigid and narrow-minded the people and the systems around us.

With Curiosity, we can increase the threshold of livelihoods. We have to be curious to the level where we would act as if we do not know anything, as Curiosity opens up new unexposed areas that lead us to creativity, innovation, or lifelong learning implications.

Edmund Burke mentioned that the first and simplest emotion which one could discover in the human mind, is that whether he/she is Curious or not. Despite that many scientists, for a long time, theorised that Curiosity is highly related to our level of intelligence, the latest studies show it is not. Studies now shows that our Curiosity can be triggered by our conditions, our environment, our trait, our history of growing up and based on the challenges around us. Thus, as if our Curiosity is part of an imaginary block-chain which is when linked to focus, creates visualisation; triggering and differentiating again our Curiosity and focus. Based on this metaphor, the first Curious life design formula simply say:

Curiosity + Focus = Visualization

Mohamed Buheji

Introduction to Human Enhancement Capacity

Enhancing human capacity is a serious business which has been the concern of many researchers in the last five centuries. The recent developments of neuroscience shown that we are still very late in rising our capacities as humans and in using our vast potential opportunities. However, due to the rising of a knowledge-based economy, humans are now more aware that they need to address the world's pressing challenges through not only associating knowledge, but through exploring how to benefit from such knowledge in relevance to their human attributes and their hidden intrinsic abilities.

Curiosity is considered one of the main concern about the lost human opportunities for hidden intrinsic abilities that can change the way we live and function. Curiosity is found more and more today to be a source for change for anything from science, to politics, to socio-economic problems solving. Through Curiosity only we can change our thought patterns and thus our attitudes and behaviours.

We have to be a little bit rebellious, if we want to nurture our Curiosity and creativity.

We need to understand first the nature of Curiosity deeply, so that we can optimise human innovation and inspiration towards a productive outcome. This means, we need to accept to live with ambiguity through realising how to design our Curiosity journey in this life, as if we are designing our life-excitements and our happiness. Designing such journey means we would have more focused exploration about our life-purposefulness while taking many pauses in life to explore the 'what' and the 'why' of the things around us, and in our way.

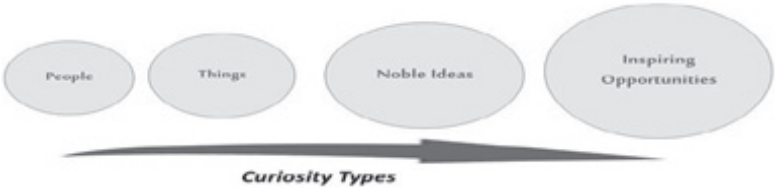
The design of a Curious life requires us then to relate to how we deal with communities' issues through engaging Curiosity to the challenges which influence our optimum achievements. In this book, we try to test and then employ Curiosity in different life reality issues, so that we build new learning minds and evolving mindsets. Therefore, this book first presents the anatomy and the physiology of the brain, before, during and after Curiosity is triggered. The idea here is to manage our minds so that it would not limit our Curiosity, or chain it, as this is what happens to more 90% of our fellow humans; especially once we enter school.

Curiosity is shown in this book for all types of ideas, but with more focus on complex ideas to help design new creative life. Curiosity brings in a range of personal characteristics, such as reliability, life-fulfilment, tolerance with ambiguity.

The conception of Curiosity starts when we integrate with a strange, or unknown or hidden ideas, then it would grow as we glimpse possibilities for new solutions. Curiosity helps to bring in strong connotations and building of novel ways. Using our sensory to provoke Curiosity means we need to use more divergent thinking, as we start the exploration stage, followed by periods of cognitive Curiosity that test the new ideas and differentiate their different opportunities.

Curiosity needs to be designed for a continuous life journey, a journey that helps to close the gaps through a more in-depth understanding of facts. In order to engineer such Curiosity, we need to establish communication channels and utilise more evidence. Therefore, we show in different areas of the book how designing a deep Curiosity arises from sustained focus and engagement. The more we are focused, the more we could move from being Curious about people to being Curious about things and then ideas, till we reach 'inspiring opportunities', as shown in Figure (1-1).

Figure (1-1) Shows the Levels of Curiosity as we become more focused and engaged



Definitions of Curiosity

There is no widely accepted definition of Curiosity, as a term. However, one could see that a Curiosity definition would depend on the type of personality, or the condition of the Curious, or the level of ambition, or the level of education, or the level of self-fulfilment and or the clarity of the life purposefulness.

The philosopher and psychologist James (1899) defined Curiosity as an impulse towards better cognition which gives higher intellectual capacity to deal with complexity. Through Curiosity, we set a general condition reflecting the need to seek new experiences, or to extend one's knowledge into the unknown.

Daniel Berlyne (1950) was the first to propose a model of Curiosity. Berlyne saw Curiosity as being two deeply uncomfortable states, under-stimulation and over-stimulation. Edward Deci (1970) seen Curiosity reflects our intrinsic motivation to seek out novelty and challenges, to extend and exercise one's capacities, and then to explore and to learn. Deci synthesised that Curiosity comes as a result of discomfort, but to generate positive experiences. George Loewenstein (1994) of Carnegie Mellon University, proposed through his "information gap" theory that people become curious

upon realising that they lack the desired knowledge, where the feeling of uncertainty compels them to uncover the missing information.

Marvin Zuckerman (2000) seen Curiosity as a sensation-seeking, or the willingness to take risks to acquire varied, novel, and intense experiences. This study was followed by Britta Renner (2006) definition on 'social Curiosity', where Curiosity is believed to be ignited by talking, listening, and observing others learn what they are thinking and doing.

Curiosity is not a one-dimensional construct. Thus we need to examine the different theoretical accounts of Curiosity and the various dimensions and context where it is used. This means we need to explore the links between Curiosity for both its historical and cultural references. The first definition of Curiosity is about its biological nature, as a human-driven. Here, Curiosity is seen as hunger that can be satisfied with the exploration and exploitation of knowledge. The drive theory helps to explain the seemingly paradoxical use of resources (such as time or effort) to gain knowledge or experiences; analogous to the resources used to satiate hunger. The second theory, more cognitive, is that Curiosity is evoked by the incongruity between something (an event, object, etc.) and a person's existing world view. We try to make sense of the world around us, and when an expectation about the way the world works is violated, Curiosity is piqued.

The third definition of Curiosity is more emotional. It frames Curiosity as the desire to close an information gap between a given reference point (some desired knowledge) and a person's existing information set. This model proposed by George Loewenstein (1994) interpreted Curiosity as a form of cognitively induced deprivation that arises from the perception of a gap in knowledge, or understanding.

In summary, each Curiosity can be defined differently based on the type of intention, level of visualisation and the well for implementation of the category and the depth of the information targeted.

History of Curiosity & Life Design

The scientific study of Curiosity was mainly launched by Berlyne (1960) in his book entitled: Conflict, Arousal, and Curiosity. Since that time much research has tried to understand the phenomenon of Curiosity (Day, 1982). However, Maw and Maw (1964) have indicated that, if Curiosity is to be fully adopted it needs to maintained or developed with adequate measures. Berlyne's conceptualisation of Curiosity has been widely accepted.

Curiosity drive with a state of arousal, as mentioned by Berlyne (1960), induced proper stimuli that represented novelty, uncertainty, conflict, and complexity. The resultant behaviour of exploration of such stimuli, then, reduced the Curiosity drive. Berlyne emphasised how complex it is to employ Curiosity. However, in general, one could conclude that literature is still rare in relevance to how we design Curiosity in our lives.

Curiosity has not always had the positive connotation it has today. Going back to most history and till the early 1700s, Curiosity has been viewed as a "demonstration of a lack of self-restraint". Saint Augustine of early Christianity wrote about Curiosity as being one of three significant sins (along with carnal pleasure and pride).

The wake of scientific discoveries of Curious people like Galileo and Newton, by the end of the 1700s the moral view of Curiosity began to change. By 1800s, Curiosity became more morally

acceptable, but was linked only the noble class. By 1900s, the term Curiosity referred more to be like behaviour or a mode. However, 1960's, many books came about the importance of Curiosity even though seemed to be strange, or odd.

With the beginning of the spread of knowledge and innovation economy, especially since the 1980s, Curiosity became an attitude linked with a behaviour that could be embraced. However, since then literature moved slowly about the issue of Curiosity till the development of neuroscience and neuro-economics. Today, due to the developments of research in neurosciences, it is about time to work on utilising and optimise Curiosity in our life. By using Curiosity, our life would be motivated by scientific discovery, societal advancement, or a "love of knowledge".

Embracing Curiosity in all our life deeds and activities helps to foster innovation. Our life would be filled with excitements that come from investigations that are perceived to be trivial. By designing to be curious, means designing to have a degree of freedom to explore one's fascination with a specific inquiry that leads to discovery.

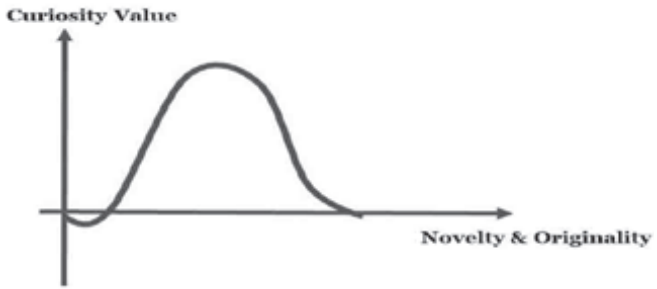
This is the right time to re-design Curiosity in our life. We live in this moment in a world where many things are around our hands and might excite our brains by different means. This can increase our assets wealth, as we can see many more today the products of thousands of years of evolution. The availability of more knowledge and easy access to information creates more demands on us today, and in the future, to be more Curious. The inexpensive communication and transport options around us, make us more capable of communicating, connecting and investigating what we are curious about. Thus, it would really be a waste of life if we do not realise and optimise the advantages of all these facilities and wealth of potential assets, through not being curious enough.

Importance of Developing Curiosity

Curiosity is one of the fundamental purposes of life. Despite the incredible advancement of modern-day technology and society, few of us know why it is crucial to develop Curiosity throughout our lives. However, despite knowing the importance of Curiosity mechanisms, and purpose; Curiosity never been optimised as a tool for improving our life outcomes and achievements. Perhaps this is due that most of our time is spent in unsatisfying or repetitive daily work.

In the survey that was carried by Gino (2018) and published by HBR of 92% of 3,000 employees in countries of Germany, USA and China, confirmed that curious people bring in new ideas into teams and organisations and viewed Curiosity as a catalyst for job satisfaction, motivation, innovation, and high performance. The survey found that 84% believe that Curiosity catalyses new ideas, 74% think it inspires unique, valuable talents, and 63% think it helps development and promotion. Hence, one can conclude from this research plus much similar recent research that Curiosity has high value-added differentiation and its value increases with the amount of originality, as shown in Figure (1-2).

Figure (1-2) Illustrates the Value of Curiosity vs Contribution Originality



If we study all the characteristics of what created 'civilisations', we would see the most critical frequently repeated character of these civilisations is Curiosity. Curiosity would perhaps specifically be seen as the most important attitude of the middle class and the society leaders. Once Curiosity reaches a state of active, genuine interest, or wanting to know, the community could build a higher capacity to adapt to unfamiliar challenges and would have more opportunity to experience exploration with joy.

Development of Curiosity in the community would increase its tendency to learn faster and would gear our attention towards more tangible and intellectual achievements. This Curiosity is considered very important to the excitement of the brain. With this Curiosity, the gaps in the mental state trigger our focus until the knowledge gaps are completed.

With Curiosity development we can build the basic for lives survival as with Curiosity we can increase our competitive (capacity vs demand) formula, instead of being controlled by the (supply vs demand) formula. The hunger for information that Curiosity development creates transform our focus from being involved with what is available to what is not available. Thus, when we are Curious, we can see different learning and inspiration patterns that we did not experience before. Curiosity improves our level of attention and mitigates sources of depression; thus we will not be easily distracted.

This book illustrates the importance of Curiosity design in organisations which establish a culture of organisations that give employees free time to pursue their interests similar to innovative organisations as 3M, Facebook, IBM and Google.

Differentiation between Curiosity and Information Seeking

Carving out a formal distinction between Curiosity and information-seeking has proven difficult. However, Curiosity usually would involve more exploration and attempt for discovering hidden opportunities more than just a reinforcement of learning. With Curiosity, we are not seeking information or data, but instead seeking profound knowledge that comes from integration with different data and information besides interaction. With Curiosity, we have the intention to deploy the information or the knowledge captured into a specific initiative or deed. Therefore, being Curious means, we are more open to diversified information that would enhance a specific assumption or change it.

In order to define clear distinction researchers are studying Curiosity more as a phenomenon that would trigger our proactive desire towards exploring, experiential learning, learning through playing, reflective learning. Gruber et al. (2014) and Jirout and Klahr (2012). Gottlieb et al. (2013) sees that the development of our methods of observation as field observations help to develop a differentiated Curiosity from information seeking.

Coding Curiosity

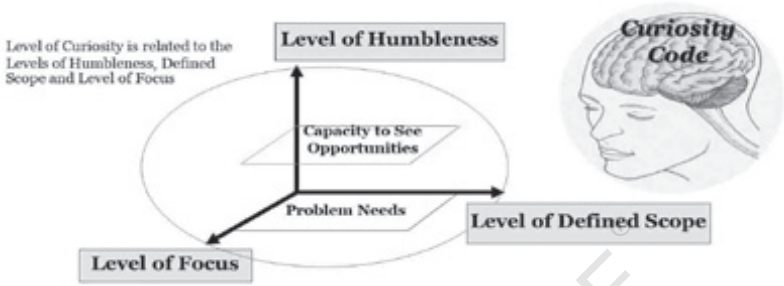
Everything has a code if it is to be explored and utilised. Curiosity is no exception. James (1899) seen Curiosity code could be seen when you get a higher, more intellectual form of impulse that builds for you more complete scientific and philosophic knowledge. Harlow and McClearn (1959) referred to Curiosity as a basic drive-in and

a manipulatory-motive that drives organisms to engage in puzzle-solving behaviour that involved no tangible reward.

We all have to make hard decisions in life. Facing harder decisions proven to create unique, inspiring success stories that drive Curiosity code which gets attached to both the individual and his communities live. This code would move the concerned people away from capital-based 'push-system' environment. Although the information is intangible, it has real value to any organism with the capacity to make use of it. The benefits may show immediately, or in the future; the delayed benefits require a learning system. Not surprisingly then, the most popular theory about the function of Curiosity is to motivate learning. Therefore, one could say that Curiosity code could be figured by addressing the gap in knowledge towards a better level of realisation. Having small information about something create excitement which triggers the code of Curiosity. Spreading the best practices in creating the 'Curiosity code' would help to break the Curiosity chains in any culture and thus would optimise its intrinsic powers.

Coding Curiosity requires a minimum level of humbleness, as shown in Figure (1-3), in the way we think and in the ability to see things from different perspectives, i.e. to have a flexible mindset. Once problems need is defined, our Curiosity pushes us for a defined scope, and if supported by a certain level of focus it would lead to a better capacity to see the opportunities inside the problem. The level of Curiosity coding is related to the levels and extent we can be humble in our mindset, besides the precision of the defined scope and the amount of focus done.

Figure (1-3) Shows how the Curiosity Code is defined by Humbleness, Focus and Level of Defined Scope



Habit stacking is a technique that is used by psychologist to trigger new habits. So, when for example we help to have the habit of giving charity to the poor we should stake with it exploring why they the same people bring poor for such a long time.

Curiosity Design through 'Habit-Stacking'

The brain has a phenomenon called synaptic pruning and this increases with age. The brain prunes away connections between neurons that do not get used and builds up new connections for neurons that get used more frequently. These connections are called synapses which effectively connects between the neurons in our brain. Hence, if we are practising observation, then our brain will strengthen the connections between those syntheses of observation neurons. The more we observe, the stronger the connections become. Not only that, the connections become faster, but also become more efficient each time we practice observation. As our brain builds stronger and faster connections between neurons, we not only build expertise but build biological change. As a result, the brain prunes away those unused

connections and allocates energy toward building connections for repeated habits and practices.

This explains why new-born babies' brains are like a blank canvas and where Curiosity would be at its highest stage, since everything for them is a possibility, as they do not have strong connections routes yet (Oxford University, 2017). Synaptic pruning occurs with every habit that utilises the available neurons connections as our brain builds more network of neurons to support our current behaviours stronger and more efficient connections build-up. When it comes to building new Curiosity-related habits, one could use the connectedness of behaviour to design more Curious life that creates a better legacy. Thus, when we link a current habit we already do and then stack it with another Curiosity behaviour we establish 'Curious habit stacking'. This habit stacking establishes a clear intention for implementation where the pairing of Curiosity would replace the pairing of, for example, time and location, to the support implementing the intention to investigate and explore.

To illustrate the relation between habit stacking and Curiosity, let us take for example, how we design Curiosity if a patient to be diagnosed from a complaint. Here, we could build or stack Curious habits through making the physician assess the patient for risks of NCD's, i.e. riskiness of being on the scale of the WHO Non-Communicable Diseases scale of: Obesity, Diabetes, Blood Pressure and Cholesterol, now or in certain coming years. If this becomes a habit, i.e. patients become randomly and routinely screened after specific diagnosis for NCDs risks; we would raise the healthcare services capacity for the early discovery of NCDs. The same type of process-based thinking could be applied to other cases as poverty, youth quality of life, migration, family instability. For example, in the case of poverty, we could investigate first whether the comprehensive wealth and the different assets of

the poor be exploited. Hence, our current habits can be utilised to chain new Curiosity-related habits, and this would make the connected neurons waves in our brain to be more utilised to the benefit of our society development and elimination of chronic socio-economic and global problems.

Utilising the patterns and the behaviours that have been strengthened in the brain connected neuron over the years, or the frequency of repetition, help to establish new habits through the routes that are already built into our brain. Hence, Curiosity likelihood increases by stacking it to the existing behaviours which help to create a set of simple rules that guide our future behaviour, as if we are planning for a game. This would help to create generations where Curiosity habits stacking is built-in the time and location of the well-established behaviour.

Learning and Curiosity

When learners indulge their Curiosity into what they try to explore or absorb, actually this process make them more capable to focus their effort on useful information that they do not yet possess. This enhances our attempts to optimize the learning experience. For example, even the observations would be used to enhance the learner encoding and retention of the new information.

Curious learning creates for the learner better choices and more efficient exploration. When Curious the learner can deal with more sophisticated challenges. The Curious play a role in optimising our capabilities to intake more information and transfer it to knowledge.

Discovering what you do not know means being lost for sometimes. This means you will learn a lot more from such disruption than the usual structured and systematic learning approaches. If we practice accepting to live with some ambiguity throughout our lives, we will get used to managing fussiness as part of life journey. We would learn to make sense of the ambiguity fog and would establish a type of habits that would gradually reduce our fear from the unknown. The more we discover the way ourselves, the more we could build new connection pathways between our neurons. With these connections would improve our resilience and thus would make us capable of dealing with the unexpected.

Unfortunately, we find many leaders still believe if employees are not constrained from following their Curiosity this could lead to organisational inefficiency. In a recent survey, Gino (2018) found that 520 chief learning officers do not encourage their employees to follow their Curiosity. Gino emphasis that even though such organisations would have created Curiosity as one of their main goals to compete and survive, they are still seeing Curiosity as a source of slowing down and increase in the cost of doing business.

If we study the history of most popular companies today, we will find that Curiosity played more than 50% of their start-up differentiation. Take for example the most popular social network company on earth today, Facebook, without the Curiosity of its founder to make a unique program for dating for his university mats we would not have a company that plays a role in the life of millions around the globe today. Same if we study Toyota, the largest car manufacturer on the world. If Toyota Taiichi Ohno did not have the Curiosity to improve the way cars production are done on the floor with best quality and cost, we would not see many developments led by Toyota as we have experienced today. We can continue mentioning many Curiosity examples that lead

to learning and then to world development similar to cases of Facebook and Toyota, which changed our lives.

Getting Back to Our Original Curiosity

Curiosity trigger (idea generation) and (idea evaluation) through both prototype and generation. Going back to original Curiosity is very important, as it could shake and shape our life assumptions. If we want to get back to our original Curiosity, we should think about how when we were children used to be too Curious about exploring many things around us. This means we need to understand more why when we were children were the most Curious creatures on earth? Why were we faster in learning? What differentiates us then that made us learn quickly? The answer to all of this comes when you see how these children learn while they are playing.

Yoon et al. (2014) emphasised in their study about the importance of getting involved with creative problem-solving which help to develop the ability to start the creativity process. Yoon team showed how Korean undergraduate students are different today due to their being challenged to be more creative in problem-solving. Assumption and reversal thinking help to classify idea generation phase and the idea evaluation phase which are highly related to Curiosity.

Original Curiosity means we think like children and thus be able to combine both information and emotions, i.e. purely empathetically. This makes them more biological learners with no pre-assumptions, no shame of error of mistakes and dares to try new things without preservations. They do this exploration with fun, and certainly without worrying about any rules or regulations. This makes them humbler and more willing to try

new things, or go through the new experience without constraints, to ensure they play without a feeling bored.

Strategies of Curiosity Design

To adapt the Curiosity design, we need strategies that target to connect the needs, with interests and motivations of learners. There should also be Curiosity-confidence strategies that help the learner to show positive feedback and provide external and internal reinforcement for the efforts done.

To discover the best design suitable for individual or entity or society we need first to understand the conditions that arouse Curiosity. This understanding requires the use of perceptual measures involving judgments, similar to studies done in the 1960's by Berlyne where he tried to design Curiosity based on the stimulating figures or intentional conditions that led to Curiosity arousing properties.

Curiosity strategies are like setting a fantasy that leads to learning and wisdom strategies. The challenge would be then how to embed these strategies into educational practices. The first thing towards deploying these strategies is to build a culture that sees failure is expected and are encouraged through experiential learning.

The strategies should help to manage the challenges that create more learners. For example, strategies of Curiosity on country development, or socioeconomic problems might lead us to strategically think how the issues of unemployment and inequality in placements may be a threat to the democratic movement of the country.

Modular Thinking and Curiosity

Curiosity leads our mind not to focus on 'what needs to be solved', but also 'what needs to be fixed' and 'what went wrong'. Having modular thinking helps to build active solution journey and ensure effective communication of the idea to problem stakeholders. With modules, decisions such as codifications NCDs patients on how to deal with the red (emergency) cases from green (non-emergency) cases; our Curiosity would drive us to build the big picture in mind on how to tackle the problem solution outcome.

The other benefit of modular thinking is that it helps to build a 'holistic thinking' which is very important for transforming the way we explore things around us. This helps us to think horizontally when tackling a complex problem, not only vertically, i.e. not trying only to bring in solutions from the same speciality, but from a holistic multi-disciplined thinking. Thus, Curiosity using modular thinking helps to break the problem into parts, this helps to ensure the integrity of the solution. The modules of Curiosity help to build a shared understanding between the concerned stakeholders of the problem-solving framework. This type of Curiosity thinking found to have the capability of decomposing the significant issues into smaller sub-issues that can be tackled separately, one at a time. The other benefit of modular sub-issues is that it answers the questions of "What?" or "Why" in a simpler way. i.e. put the modules together, which helps to answer the question clearly, or adequately describe the idea of the solution.

If we curiously study nature, we would find that in reality, we would see that each part is like a (module), it must know its place and value in the whole system, however, it works and solves its problem autonomously. The autonomous of each part is designed

to eliminate any focus distraction which is very important to the process of observation and selecting the opportunities with a level beyond accurate forecasting, called here intelligence. With modular thinking, we can bring in different solutions to create differentiation and then legacy. The modular thinking help to determine how Curiosity can attribute to each type of issues while focusing on the qualities affecting the content of the potential solution.

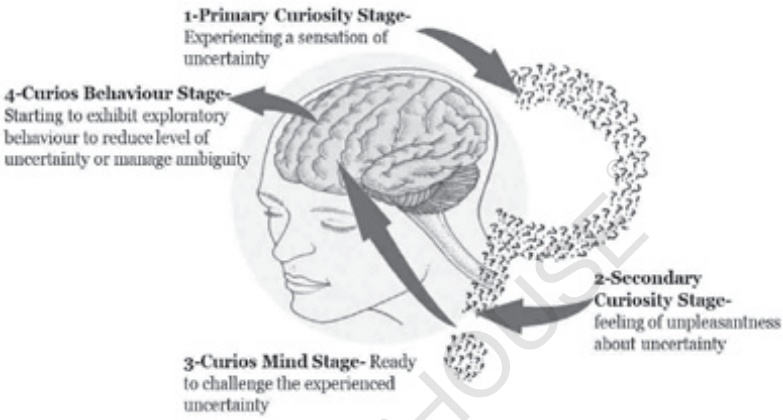
Stages of Curiosity

Curiosity can be built in stages. Studies show that we might go through 'primary Curiosity' when we experience a sensation of uncertainty, or a 'secondary Curiosity' when we perceive unpleasantness about this uncertainty. These stages create Curious mind that acts to dispel the experienced uncertainty. By exhibiting curious and exploratory behaviour, we gain knowledge of the unfamiliar and thus reduce the state of uncertainty or unpleasantness. This theory, however, does not address the idea that Curiosity can often be displayed even in the absence of new, or unfamiliar situations. This type of exploratory behaviour is common in many species.

Figure (1-4) shows the four main stages of Curiosity that lead to the Curious behaviour that is expressed by persistence in dealing with uncertainty, or management of ambiguity. The primary Curiosity stage is about experiencing a sensation of uncertainty, while the secondary Curiosity stage is feeling of unpleasantness about uncertainty. Then, we have the Curious mind stage where we are ready to challenge the experienced uncertainty. Once this uncertainty is experienced we might enter the most advanced stage that is the stage of Curious behaviour where you can start to

exhibit exploratory behaviour to reduce the level of uncertainty, or manage ambiguity.

Figure (1-4) Illustrate the Four Main Stages of Curiosity



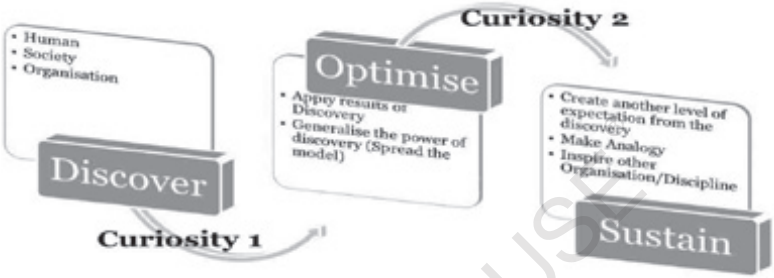
Levels of Curiosity

Besides stages of Curiosity, Curiosity has levels that are needed to address different socio-economic and life challenging issues. These Curiosity stages are triggered by two Curiosity waves and lead to the desire to discover, then the desire to optimise and finally the desire to sustain.

The first level of Curiosity happens only we try to discover through relating or correlating variables related to the human capital, or social capital and the organisation. The first wave of Curiosity would lead to optimising our capacities by applying results of discovery and generalising the power of discovery. The second wave of Curiosity would lead to sustaining the level of expectation from the discovery and creating more Curiosity from analogical

thinking. Figure (1-5) represent the two waves of Curiosity that lead to transformation towards sustained Curiosity.

Figure (1-5) Illustrate the Two Waves of Curiosity from Discovery till Sustenance.



Since Curiosity is a formation of experiences that lead to emotional knowledge in addition to sensory experiences this formation happens in levels. The levels of 'discover' start with senses, then movement, then particular action, then reflection level. Hence, the levels of Curiosity are very related to the desire to see, hear, touch, taste and smell. During this level, sensory Curiosity helps to develop the desire to learn by- doing, or testing, or exploring. This desire for learning establishes the eager for knowledge, understanding, and learning.

The second level of Curiosity 'optimise' and it is ignited more with the desire for knowledge, understanding, and achievement. We can see in this level Curiosity in the way individuals question and inquire while dealing with uncertainty. In this level, we can experience how Curiosity is one of the highest humanitarian motivations that might be achieved. Curiosity stimulates us more as individuals, or organisations, or communities to acquire all the knowledge hoped.

The third level 'sustain' focus on making Curiosity a type of behaviour that focuses on exploration. 'Cognitive Curiosity' indicates that Curiosity is one of the motivations that enables an individual to identify what he wants in this life. While 'sensory stimulation' helps to create the exploration and the treatment that leads to growth motivation. During this level, we would appreciate that the motive of Curiosity is one of the psychological motives gained, and is classified as one of the motives of excitement and activity. In this level, we see how Curiosity increases the learner's attention and then gives the appropriate response to investigate every original thinking and helps to develop flexibility.

A survey was done in the UK lately about the levels of Curiosity throughout the country. The research has shown that people in different regions might be more Curious that others. For example, the survey found that in a region like Wales, people were generally more curious than people in the UK, while the survey found Cardiff to be the most curious city in the whole UK.

Efficiency of Curiosity

Although we believe that a Curious life would have many alternatives, we should also avoid having non-utilised waste and excess of these alternatives and options. Working with the Japanese as a direct QA/QC manager for one of the largest companies in Distribution Control Systems Instrumentations, called Yokogawa, taught me what differentiates the Curiosity of this eastern culture in relevance to western culture. The Japanese Curiosity is sharply focused on what is considered to be value-added, i.e. the focus first on the elimination of the waste (called the Muda in Japanese), As once you eliminate the Muda, you would clarify your Curiosity from the non-value added. Once the Muda is eliminated, we would eliminate the Muri (the physical

and mental strain) that comes as a result of the problem. This, in turn, would eliminate the Mura (the instability in the process). Thus, the Japanese Curiosity is so efficient that it does not carry any alternatives for Muda, Muri and Mura.

In 2000, two researchers set up a field study by seeing customers' Curiosity vs the purchasing decision of the pedestrians' of the honey selling booth. The researchers offered the first six types of honey. It was reported that 40% of pedestrians stopped in front of the kiosk and asked about the types of honey. Three quarters or 75% of those who stopped decided to purchase one of the types of honey. Then, the researchers increase the number of honey types to 24 kinds. Despite there was an increase towards 60% of pedestrians stopping and asking about species and their differences, only 5% of those who stopped bought one or more honey jar. The study shows that having too many alternatives always distract the Curiosity of the customers from making efficient decisions.

When alternatives or options multiply then the mind is lost and often end up exhausted in thinking, thus in cancelling the main Curiosity idea permanently. This is what happens in many things in our lives. Hence we curiously get full with many ideas we do hesitate more to create effective decisions. Therefore, one could find that Curious minds like Steve Jobs and others do not strain their minds to think about choices and direct their energy to make more critical decisions in the future of the world they visualise.

Curiosity Design Establishment and Development

The world is a beautiful and sophisticated place to live in, especially now. We are more Curious people than ever before, besides we are expected to live longer and with more learning

capacity. Currently, millions of people are leaving the life of poverty which means they might develop more Curious life. These and similar radical shifts lead to some very serious challenges. While populations, economies and resource demands grow, the size of our planet remains the same. Thus Curiosity about hidden opportunities should help us to even challenge the potential of running out of natural resources. We thus need to establish extreme changes in new ways, because our current answers seem inadequate and outdated. At this area, breakthroughs happen. At this stage also the frontiers of research and development make us far better equipped to take on more challenges and stay Curious.

To appreciate Curiosity design, IKEA established a vision focused on creating a better everyday life. In order to acknowledge this vision, IKEA uses Curiosity to discover new ways of doing things. In order to maintain Curiosity, IKEA developed the SPACE10 setup. It is like a future-living lab for exploration and inspiration. The lab uses both the customers and suppliers' Curiosity to create better and more sustainable life products and services.

The case of 'Migrants' Curiosity

Any Curiosity design project needs a mindset that helps to develop aspirations and raise the level of trust, the meaning of wealth and the stability of assets before we can see an outcome of a success story. Let us take the issue of the rapidly increasing migration from the south to the north, i.e. from developing countries to developed countries which caused a crisis to many European countries. If we are to re-design the Curiosity of dealing with such a problem, we should start first with the mindset of the migrants. To appreciate the migrants mindset, we need to understand the assumptions that manipulate their level of aspirations in migrating to the north, instead of exploring the opportunities in

the south. Thus, we should be curious about how to raise the level of trust in the Southern nations, and this means exploring the differentiated wealth and assets in the south. Then, our Curiosity should establish help us to set models of success stories that show the opportunities found in the south which could not be found easily in the north. This sequence of Curiosity would help us to mitigate the migration risks as illustrated in Figure (1-6).

Figure (1-6) Shows the Curiosity in relevance to Migration Issues

CHAPTER 2

Types of Curiosity

Understanding Curiosity and its Types

Todd Kashdan (2009) emphasised that being Curious is a means to capture the essence of recognising, seeking out, and showing a preference for the new. This is one type of Curiosity. The more we seek new experiences, while effectively managing ambiguity and uncertainty, we can adapt to the demands with more resilience and flexibility and this brings again another type of Curiosity. When we become more capable of discovering deep passions, we become more Curious. This type of Curiosity is based not only on the information sought in relevance to the type of realisation or recognition, but also depends on the type of ambiguity handled, and the type of demands managed, or tolerated. All these conditions differentiate the Curiosity type.

When the challenges are minor, we accept them without much Curiosity. At the other extreme, when the challenges to current expectations are high, we would experience Curiosity arousal. The absence of information also causes evoking Curiosity. Curiosity then is an information-gap function that is piqued when a person or an organisation, or a community begins to feel that gap. For instance, when we are asked a question, or after learning about some sequence of events without knowing the conclusion, we become more Curious. Storytellers use this form of Curiosity gap to keep people engaged in their message.

Learning about a subject can spark Curiosity. This is due to the shift in focus from what someone knows some information or knowledge initially till then becoming increasingly more aware of what he/she do not know once they have learned more about the topic. Similarly, Curiosity increases as the likelihood that the information or experience being sought will close the information gap.

Types of Curiosity

There are many different kinds and types of Curiosity. This is due to Curiosity can come in a whole variety of qualities and wavelengths, flavours and intensities. The different types of Curiosity are the key to understanding people's personalities and motivations. The different types of Curiosity create the essence of storytelling tools. Through storytelling, we can engage and persuade more people.

Regardless of our profession or passion; we are all trying to create Curiosity, but from different angles and perspectives. This differentiated Curiosity would trigger different kinds of questions. Therefore, one could say that Curiosity is a tool that builds a sense of purpose. The more we work on Curiosity types the best way to stay connected to different people and diverse subjects. In the rest of this chapter, the known types of Curiosity shall be listed and discussed briefly.

'Social' Curiosity

Curiosity can be triggered by different means. It can be emotional, psychological, social, situational, developmental and integrative. Social Curiosity is about being involved with social issues and being able to connect effectively during a social gathering or events. Many of the social Curiosity was the cause of many changes in history. When we are inspired by a higher purpose in life, or new ideas, or projects that come as a result of this social Curiosity, we help our thoughts and mind to transcend beyond limitations.

Social Curiosity thus helps us to discover opportunities ingrained within our community. Here each concerned part would start

to see the wealth inside each problem faced, or challenged. This would create more acceptance for our ideas where the community would start to believe in the opportunities claimed.

'Emotional' Curiosity

Curiosity can be described as positive emotions towards acquiring knowledge. Discovering new information may also be rewarding because it can help reduce undesirable states of uncertainty. Besides Curiosity is seen as a pleasurable experience that comes with exploratory emotional behaviours.

When people are emotionally curious, they can be in a state of arousal, excited, or merely alert and interested. This excitement is an emotional state that helps us to be more frequently Curious. When we become Curious, we get an impulse to resolve, or satisfy emotions. Emotional Curiosity can be seen when we become in love with someone, or something. We can see it more with thinkers or leaders that become obsessed with creating a definitive change.

When we design our life with sources of emotional Curiosity, we feel more enthusiastic and energetic about the phase of life we are living in, whatever is this phase. Hence, we avoid feeling bored about whatever routines of life we have surrounded with. By being emotionally Curious we re-assure ourselves and knowledge with the human conditions. Hence, we become ambitious to reach new goals. With emotional Curiosity our attitudes would change to reach the targeted goals, i.e. thus we become more positive of seeing things from different perspectives.

Many of us fail to find out triggers of our emotional Curiosity. However, if we merely take inventory of our interests and

emotions and focus on positively utilising these emotions, we can create a significant life contribution. Moreover, since our life is full of distractions and distortions, emotional Curiosity helps us to find-out what we want, at every step in our life journey.

In order to enhance our empathetic thinking and try to perceive the world from inside the head of other people we need to develop skills for building emotional Curiosity. By being emotionally curious, we could build exciting stories and outcomes, as we see the world from other perspectives.

'Appreciative Inquiry' Curiosity

I came across 'appreciative inquiry' when I was in a visit around all the best practices in New Zealand, about ten years ago. Appreciative enquiry works on the reduction of unpleasant feelings, during any enquiry and thus to make it a more rewarding experience. This method found to trigger the Curiosity of the stakeholders for any type of transformation through self-determined change program.

Curiosity is very related to pleasant feelings. Recent neuroscience studies show that Curiosity is triggered more when people desire coherence and understanding in their thought processes. This is also what 'appreciative enquiry' does. When this coherence is disrupted by something unfamiliar, uncertain, or ambiguous, our Curiosity-drive attempts directly to gather information and knowledge of the unfamiliar, in order to restore coherent thought processes. Through this process, Curiosity is developed strictly out of the desire to make sense of unfamiliar aspects of one's environment, through the interaction that exploratory behaviours make.

Once the unfamiliar is realised, the behaviours and desires would be calibrated. Thus, Curiosity can be positively ignited from an appreciative based inquiry where the intention is to explore the basic needs, or challenges that face us in different life situations.

We can design our life with better Curiosity that leads to better self-realisation and understanding of our thought processes. When this coherence is disrupted by something unfamiliar, uncertain, or ambiguous, it is Curiosity-drive that attempts to gather information and knowledge of the unfamiliar, to restore coherent thought processes. Through this theory, the general concept dictates that Curiosity is developed strictly out of the desire to make sense of the unfamiliar aspects of one's environment through the interaction of exploratory behaviours. Once an understanding of the unfamiliar has been achieved, and coherence has been restored, these behaviours and desires will subside.

'Problem Ambiguity' Curiosity

Living with ambiguity is the most resisted change for almost all humans. As many life circumstances, we might face with non-systematic and reverse conditions. Living with ambiguity means we will have an open mindset that manages the challenge of the new hypotheses while attempting to reduce the blind spots. Through ambiguity of any problem faced in life, we can build Curiosity and thus avoid any negative thoughts. Neuroscience now shows that not knowing the answers inspires the human mindset as not knowing the clear path, or even the outcome of a socio-economic problem when we start, raises our Curiosity for exploring and learning. This would help us to come-up with creative solutions and pursue the outcome that we could not visualise.

Jepma et al. (2012) study showed that humans would have a Curious, active brain when they deal with ambiguous contents, such as blurry photos, or unclear outcomes. Curiosity found to activate the anterior cingulate cortex and anterior insula. These are sensitive regions in the brain where the waves of Curiosity would activate the striatal reward circuits.

If we always humbly start with a mindset that admits about not knowing the answer to the problem we have faced, we will usually end-up with a clearer focus. Hence, embracing any ambiguity in life could help guide us toward more focus and might help generate more quality ideas. We can design our life through ambiguity which can help us to discard bad ideas. Managing ambiguity helps us overcome a variety of obstacles and constraints while we are exploring profound hidden opportunities and unexpected solutions.

Problem ambiguity needs however a mindset that is ready to believe that there are opportunities inside each problem. This belief increases our chances in creating a unique outcome. Starting with this mindset help us to be more iterative as we start to link what is known to what is not known. By continually iterating, refining, and improving the approaches for exploring and linking opportunities; the assumptions of our mindset for seeing and dealing with ambiguity would be unlocked, thus leading us to a differentiated outcome.

Once our assumptions about ambiguity are positively changed, we become more responsive to the problem details. This responsiveness makes the problem solution ready to be tested with even new assumptions. The iteration of the problem investigation attempts allows us to see the different opportunities on the ambiguity explored. This iteration between what is ambiguous and unambiguous help us to arrive at solutions that can be

piloted with excitement, before being adopted and embraced. This is an inspiring journey that is missed by almost 90% of the world population today, since most people are constrained by the structured approaches that prevent anyone from seeing the holistic picture or discovering the unknown.

Though the ambiguity of a problem even though it seems to be counterintuitive, recent neuroscience studies shown the brain to be more active. When not knowing the answers, or not knowing a clear, structured path, or even the outcome of a problem, our Curiosity would be raised to learn more and with a more open mindset. This Curiosity helps us to come up with creative solutions and thus pursue outcomes would not be possible to be visualised otherwise.

In order to maintain the minimal level of Curiosity and not to withdraw from the attempt to explore we need 'optimal level of arousal'. Therefore, we should design that our life would have an environment that has excitements that trigger our exploratory behaviour and lead to optimal arousing. In essence, our Curiosity drive would look for the perfect balance between our intrinsic inspiration and the 'optimal level of arousal'. This arousal addresses the absence of uncertain, or unfamiliar situations.

'Calibrated' Curiosity

In order to recalibrate our Curiosity, we need to go back to the basis for the exploratory behaviour that we used to have as children. Using our earlier Curiosity development helps to re-look at Curiosity by merely observing its interaction in a novel way. In order to reduce our anxiety, as we used to be during our childhood, our parents used to build up what triggers our

Curiosity. During our childhood, we used to have exploratory behaviour, as a basis for complexity and Curiosity measure.

When we recalibrate our Curiosity, like we used to be as children, we could be further motivated to learn how to deal with uncertainty. Challenges when we were children used to fuel our Curiosity, more than the introduction of a novel, or a complex object would. If we could recalibrate ourselves to this level of response, we would surely benefit from Curiosity and its influence on our lives.

'Lifelong Learning' Curiosity

The advancement of neuroscience is making us appreciate the different constructs of Curiosity. Now we know more than ever that Curiosity can come from the state or the condition we are in, i.e. comes from extrinsic conditions, or due to our intrinsic traits, i.e. we can determine when Curiosity occur.

From neuroscience studies, we now know that those with intrinsic Curiosity traits are driven by lifelong learning interest. At this stage, we will see Curiosity as the urge that draws people out of their comfort zones and fears as the agent that keeps them within those zones.Go to:

This type of Curiosity makes us imagine the world from inside the head of other people. It disrupts our solid assumptions and thus helps us create new learning.

Lifelong learning makes us more capable of being persuasive and where we can link stories of life, while taking pauses in life. Thus, the more we imagine how the world looks from other people's perspectives, the more we can be Curious. The deeper

we practice lifelong learning, the more we would be comfortable with unconventional ideas and the more we would understand when to take risky decisions in different life journeys. Through this mindset, we would design a new communication model with things and thus can sustain or address our Curiosity.

'Exploration then Exploitation' Curiosity

Exploration means searching for unknown or unfamiliar areas. You usually need a research technique or field study with a spirit of enquiry to achieve successful exploration. Exploitation, on the other hand, need intentional actions that target to benefit from resources around us.

This probabilistic element causes them to occasionally explore other possibilities, leading them to better overall choices. The frontal lobe cortex and intraparietal sulcus are significantly more active during exploration, whereas striatum and ventromedial prefrontal cortex are more active during exploitative choices. This means that Curiosity is linked to the brain canonical reward areas. Thus this triggers the activation of prefrontal lobe during the exploration stage, overriding the exploitative tendency.

In a similar task, neurons in the posterior cingulate cortex (PCC) in the brain create great tonic firing during the exploration activities than during exploitation activities. Firing rates also predict adjustments from exploitative to exploratory strategy and vice versa. These results highlight the contribution of the PCC, a critical yet most mysterious hub of the reward system, in both the transition to exploration and its maintenance. PCC is linked to both reward and regulation of learning, thus underscoring the possible linkage between these processes and Curiosity. PCC responses are also driven by the salience of an option, a factor

that relates directly to its ability to motivate interest, rather than reward value. The precuneus, a region adjacent to, and closely interconnected with the PCC is also found to be associated with Curiosity.

'Childhood' Curiosity

Childhood Curiosity creates our adulthood Curiosity signal. The dopamine signal, for example, originates from our brain frontal-lobe and orbitofrontal cortex (OFC). These two signal generate an input that makes us more curiously active. This childhood Curiosity reduces the uncertainties and in discovering the different the world around us.

We can start shifting towards childhood Curiosity by encouraging more Curiosity-driven competitions that push students outside of pedagogical contexts. This Curiosity helped us to manipulate the ambiguity of various variables that used to be around us.

This childhood Curiosity bridges between reward and learning.

'Youth' Curiosity

By using observation, followed by Curiosity of exploration, youth found to have the capacity to prioritising specific practices. During mid-adolescence intellectuality begins to move from concrete thinking (what is) to abstract thinking ("formal operations"—what might be accurate if…?). Both stages if utilised would enhance the Curiosity and develop further the youth-socioeconomic integration. Youth at this stage would and could evaluate, or build their perception of their current decision.

At this stage youth would be differentiated by their expanded interests; intense, short-term enthusiasm and would develop both socially and emotionally.

Youth need to have a clear self-identity, i.e. how they define themselves in order to have competent self-esteem. The more countries and communities plan effectively for youth adolescence, the more they can change their Curiosity responses towards their peers, family, school and the rest of their social environments. This has a tremendous socio-economic impact, as it shapes their perceptions towards their belonging.

If Curiosity is carried throughout the adolescence period, we would see the significant influence of youth on the socio-economy. This process corrects youth distortions in reasoning and improves their learning attitudes. This helps to build more curious minds that are very important for any youth driven economy.

If youth are trained on exploratory thinking, they will start with the questioning "What?" of things. i.e. youth would get used to explore and consider "what are the components of the problem?", which usually comes from more than one source. This type of Curiosity would lead us to build logical and analogical thinking which enhance the way things are explored and repeated. Here the area of tackling the change, or the challenge, would need to be specified, and the type of failures would need to be appreciated.

'Resilience' Curiosity

In a new study published in Psychological Science Journal, by the neuroscientists, Moshe Bar, a professor at Harvard Medical School, concluded that the less our minds load, the more capacity we have for creative thought. Therefore, the tension between

exploration and exploitation in our brains makes a great difference in the ability to be more resilient. Once the exploration exercise start, the mind becomes more curious and start learning new things. The more we continue this practice of exploration the more our mind would be resilient to expect the unexpected and to manage it too.

Resilience economy practices flourish when we start the reasoning stage of what we experience. With active experimentation or experiential learning, we start the Curiosity journey of socio-economic problem solving and positive mindset. It is therefore not a pure coincidence that there is lately a series of rising research about the relationship between appreciative enquiry in organisations and resilience. Studies show that maintaining positive emotions while facing adversity promote flexibility in thinking and problem-solving. Positive emotions serve a vital function in the ability of the organisations to recover from stressful experiences and encounters.

Once inspired, people, organisations and societies become more resilient and tend to be more curious to explore the inner strengths and focus on outcomes while optimising resources.

In order to establish early resilience, we should turn all the collected observations into useful linkages, i.e. use the fields of opportunities. The results (impact) driven mindset would increase the resilience of the mindset in a way that it would increase the Curiosity of the "what is the essence" of many things, then the technical Curiosity of the how do we reach to the optimum solution of what we are Curious about.

Harnessing resilience brings in high frustration, less tolerance, less self-acceptance, less self-belief, less humour, less perspective, less Curiosity and less adaptability. Developing resilience keeps a

rational mindset that makes us see the blind spots. Therefore, the resilience mindset is full of Curiosity, where Curiosity = Focus + Visualisation. Resilient mindset can be based on complacency and perseverance. The resilient mindset should be more competent to overcome challenges, failures and also open for new assumptions. Hence, resilience stamina is like a rocket, i.e. we have to go down in order to pass the standard zones and go to another.

Through resilience economy and resilience engineering, we can assess situations on the basis well-supported evidence - not on emotional reasoning. A checklist based on RE can be developed, based on building Curiosity based on the "why?" questioning. Why involves defining terms that must be clear and concrete. The resilience checklist should involve examining evidence as sharing different opinions, exploring the assumptions and biases of the mindset of those involved. The checklist is an education tool to overcome our own biases during any Curiosity journey, as it helps to justify the reasoning and tolerate uncertainty.

Resilient Curiosity is essential as it would help us to minimise non-sustainable, or non-holistic solutions. Our experience shows that such solutions, if not sustained or not holistic, would turn out to be sources of problems again. Hence, resilient Curiosity leads to sources of opportunities, thus act as selective Curiosity. Selective Curiosity mindset is found to be more resilient and ready for challenges.

Resilience Curiosity raises our ability to be more tolerant, thus to be capable of seeking more challenges and minimising disengagement of feelings with the investigated with the problem. Resilient curious people found to be more competent in resolving conflicts by using social support, besides being more innovative and creative. In the meanwhile, being more curious found to establish practices that help local economies to build more

resilient communities and organisations that withstand shocks and hidden opportunities.

'Innovation' Curiosity

The current state of knowledge in the fields of Curiosity and creativity strongly supports that Curiosity marks the beginning of a creative process. There is substantial published research that widely supports the relationship between Curiosity and creativity. Maw and Maw (1965), for example, identified how curious children in the fifth grade are more creative than their peers. With social innovation, the mindset would be even more curious to investigate the criteria for establishing a healthy balance and capacity of agility that would maintain stability and develop robustness in times of challenges and risks.

'Innovation' driven Curiosity can come from different dimensions. Excessive anxiety impedes human lust for discovery. Curiosity brings in multidimensional creativity model that can be integrated into a single model. With 'innovation' Curiosity, we recognise and seek-out new information and experiences. In creativity and innovation, the Curiosity on the problem triggers the absorption dimension as a tendency to be fully engaged in activities.

As a higher number of scientists started studying 'innovation' Curiosity, additional discoveries emerged. Using our Curiosity towards innovation and creativity found to enhance our well-being upon and helping us to capture the full bandwidth of Curiosity. With innovation and creativity in mind, our Curiosity would be therefore more linked to 'differentiated exploration attempts'.

This exploration brings with it emotional feelings, sometime real desire and anxiety to solve a complex problem. Innovation driven Curiosity help us also to start abstracting complex ideas, in order to plan another knowledge expedition. This type of Curiosity is what differentiates leading research and development institutions where their capacity to be tolerant with confusion and fuzziness at different stages of our exploration cannot be matched. Therefore, we believe that as part of our attempt to design a Curious life is to attach ourselves to innovation mentors that have a significant role in enhancing exploration. The role of these mentors is to create positive stimuli that start with the encouragement of knowledge sharing and transfer that leads to different empowerment planning program based on the concept of learning by exploring. Such learning found to improve the Curiosity and the integration with the problems. We can also find that innovation Curiosity plays a role in the level of dedication of entrepreneurship. Curiosity here enrich novelty and help to stand a better chance of survival. One of the reasons behind this close link between Curiosity and creativity might be due to Curiosity's ability to stimulate both divergent and convergent thinking.

In the 'Nature of Human Intelligence', psychologist J.P. Guilford identified the presence of both convergent and divergent thinking in response to a given problem. Divergent thinking draws on different fields of enquiry to produce many answers to a problem, such as 'find uses for a paperclip', whereas convergent thinking is the production of the one best answer to a problem. Creativity involves both convergent and divergent thinking. It seems intuitive to us that 'specific Curiosity' is linked with convergent thinking, whereas 'diverse Curiosity' is liked with divergent thinking.

Curiosity is therefore closely related to creativity. The overall innovation process could be summarised as including periods of sensory Curiosity that provoke explorations of an environment

and divergent thinking, followed by periods of cognitive Curiosity that test only new ideas for practicality.

'Productivity Focused' Curiosity

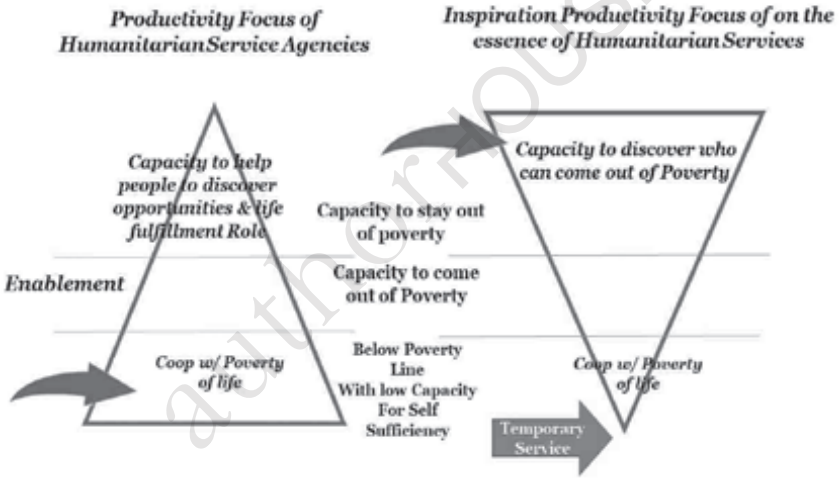
If we study the productivity of most organisations, it is usually linked to its capability to mobilise people and resources towards specific goals. Rarely we would see that the productivity of the organisation focused firstly and mostly on capacity. Only world leading companies as Google and Microsoft do that since their motto is being Curious for any possible development rather than just growth. When organisations focus on developing its capacity instead of making its goals, its capacity for discovering new opportunities will link Curiosity with life-fulfilment goals, and this would influence the organisation current and future performance.

Let us apply productivity-focused Curiosity framework on Non-Profit Organisations (NPOs) as humanitarian NPO that is based in a developing, or under-developed countries. The drive for capacity enhancement for such NPO is expected to be around how to bring the collective efforts for the stakeholders of this organisation to stay out of poverty. This means the organisation should have enablement techniques for moving the capacity of people below poverty line, or those registered as beneficiaries with tools that would raise their capacity to come out of poverty, or to coop with the poverty of life, as shown in Figure (2-1).

In order to trigger productivity Curiosity, we should encourage or challenge those beneficiaries of the humanitarian NPO towards self-sufficiency first. A Curiosity-driven productivity would make the NPO focus on the essence of their humanitarian services, i.e. to bring people out of poverty.

The NPO productivity Curiosity could build the organisation capacity to discover who could come out of poverty, or how they can bring people to come out of poverty. Hence, Curiosity can change the business of the NPO from 'helping people to coop with the poverty of life' to 'helping people to come out of the poverty of life'. Thus, coping with poverty becomes a temporary service, not a permanent one.

Figure (2-1) Shows how the productivity-Curiosity help to re-design the poverty elimination model



'Reflection' Curiosity

The critical reflection found to enhance the Curiosity of learning and engagement on the projects which cannot be taught in the classroom. Overall reflection raises the Curiosity and the spirit of inquiry.

Critical reflection enables us to plan the Curiosity influence with foresight and to plan according to ends-in-view or to come into command of what is now distant and lacking. Reflections create a Curiosity mindset that is more driven and unique in "problem-finding" and not only "problem-solving". Through the mindset of problem-finding, we would have the Curiosity of discovering 'what is' the problem. Through 'reflection' Curiosity we can solve many problems, more effectively by finding what the problem before we go next to problem shaping and problem-solving.

'Scientific' Curiosity

Scientific Curiosity is driven by our desire to understand ourselves and the world around us. The problem of pure science Curiosity is that it does not accept authority, but relies on the confrontation of hypotheses/meanings with experiments/ experience.

Curiosity is significant for any scientific exploration as any scientific study supposed to go beyond what seems to be obvious to discover solutions for a humanity problem. This type of curiosity allows us to see hidden opportunities that we would not have if we just accepted the results and never asked: "why?". The repetition of the steps of scientific Curiosity help to apply the same experiments elsewhere and this enhances the possibility for significant discoveries. For example, after a worldwide scientifically Curious experiments search Alexander Fleming, in 1928, discovered penicillin as an effective antibiotic. Because of this type of curiosity, countless lives have been saved. Science as a field is entirely based on curiosity, since its framework is based on processes of observation and data collection. The scientific spirit moulds with the Curiosity to humbly accept that any experiment that does not give results hypothesised is not a failure, but rather a contribution to the body of knowledge.

'Intellectually Stimulated' Curiosity

Intellectually stimulated Curiosity has been defined as instructors' ability to challenge students and promote intellectual growth. Possible approaches through using an interactive teaching style which engages and challenges the students (e.g., making sure students know the material well and pushing students to do their best), or encouraging independent thoughts (e.g., helping students think critically and helping students come to their conclusions about course material). (Bolkan & Goodboy, 2010).

Intellectually stimulated Curiosity we would have 'program openness' which focus on closed learning outcomes. Crucial to this process is that students are not burdened with a pre-determined expected outcome. Instead, they stress the value of finding ways of delivering educational material that requires students to explore and investigate topic areas and create their outcomes actively.

'Insights' Curiosity

With problem-solving labs, we can spread the spirit of measurement and practices based on interviews, questionnaires and focus groups that promote the spirit of Curiosity and develop the possibilities of bringing more insights. In general, insights have been used in the literature to describe the process by which a problem solver suddenly moves from a state of 'not knowing how to solve a problem' to 'a state of knowing how to solve a problem', as per Mayer (1992). Within the creativity context, insights have also been conceptualised as the cognitive content that enters consciousness suddenly and which is usually called 'the Aha moment' (Csikszentmihalyi and Sawyer, 1995).

Insight plays a role in stretching our limits as human beings thus helping us to discover more the benefits of abundance thinking which leads to more creative solutions in solving uprising life problems. Insights during problem-solving help to build communities that have differentiation in overcoming challenges and can see things in different ways.

'Empathetic' Curiosity

Empathetic Curiosity can only be appreciated by experimenting and action, not by perception. When we actively experiment links of cognition within specific environment, we enhance our perspectives of the problem investigated, and then our field contribution can be differentiated.

In order to reach empathetic Curiosity, we need to move our Curiosity and exploration from focusing on 'money-making' to 'meaning-making'. Therefore, we have to live with ambiguity for many times in our life to discover the meaning we are looking for. This ambiguity raises our capacity in relevance to the 'hit rate' from being at the 'level of estimation' to the 'level of forecasting', then till the 'intelligence level'.

The case of 'Women Empowerment' Curiosity

In order to illustrate how the different types of focused Curiosity can play a role in creating a socio-economic transformation and to our life, let us take the case of 'women-empowerment and advancement' as a Curiosity example. In such case, i.e. when we are subject focused, our Curiosity helps us to know what to think, to prioritise and to observe. Such subject-focused Curiosity

raises our exploration and problem-solving capacity. Based on its empathetic drive, a case like 'women empowerment' especially in developing or under-developed countries raise our tolerance and resilience Curiosity. Besides being a resource for acquiring knowledge that supports critical thinking, case-specific Curiosity is considered to be a tool for overcoming the distorting effects of many cognitive biases.

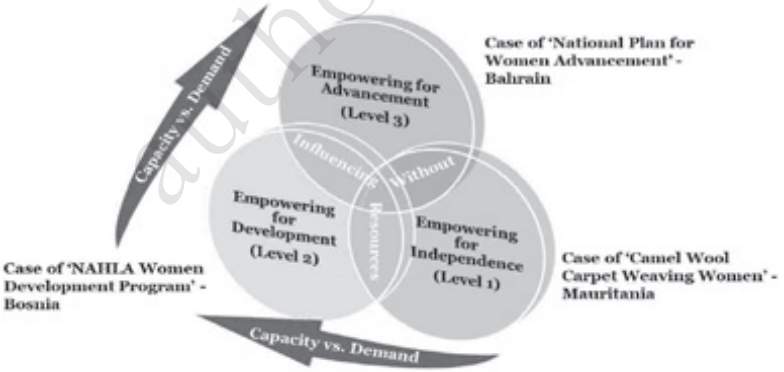
'Women Empowerment' has been a well-established subject that has been around for more than a century now. However, the way women are empowered became more of services demands than a real enabler that leads to a greater outcome on both women and its community. Therefore, having Curiosity on the benefits of women empowerment would lead us to wonder how to create better outcomes from the movement of women-empowerment. i.e. towards women development and then women advancement. Figure (2-2) shows the results of actual cases of 'women-empowerment' projects that gone through Curiosity focus and led to the following:

a) Empowering Women for Advancement (Level 3). Here we mention about how Curiosity for better women influence and impact on the society lead to the development of a 'National Plan for Women Advancement' in the Kingdom of Bahrain, which profoundly shifted the results to be outcome based. i.e. no Curious about how many break the ceiling glass for specific jobs, but what are their values added a contribution to the society.
b) Empowering Women for Development (Level 2). Here the case of the women entrepreneurial NGO called NAHLA in Bosnia is mentioned where this organisation shifted from focusing on training women for skills development to training women for a better role in the community.

c) Empowering Women for Independence (Level 1). Here the case of 'Camel Wool Carpet Weaving Women' in Mauritania is a good example. In this case, women were supported by weaving machines and production materials, in order to effectively produce from the village, instead from the factory. Then, these women are supported by a sales force team.

What differentiates each level is of these Curiosity-driven change initiatives is the target intended to meet the demand of empowerment. For example, if level of the empowerment targets the development of women role and her influence on the socio-economic issues, more than just building a business model for women independence, the second level would focus on measuring what the women influence on the society, more than what the women need from enablers to create her independence.

Figure (2-2) Curiosity Levels of Women Empowerment



These focused levels of Curiosity help to build selective women empowerment schemes that would lead to the management of women dissatisfaction after receiving the empowerment service

and would make women empowerment appreciated by the rest of the society stakeholders. These levels of Curiosity would react with facts based on the targeted women contribution, type of women situation, the condition and the status of the women before and after any empowerment project. Thus, all these Curiosities based initiatives are expected to specifically focus on the level of availability, effectiveness and efficiency of empowerment enablers, as illustrated in Figure (2-3).

Figure (2-3) Management of Change as part of Curiosity in Case of Women Empowerment

CHAPTER 3

Curiosity Anatomy

Mechanisms of Curiosity

Like any other behaviour, Curiosity is found to have a device in the brain that produces it. With the development of neuroscience, it is now known that Curiosity not only can be produced, but also designed with mechanisms that would ensure its retrieval, lubrication, and development. We live in an era where we humans can experience Curiosity in levels never been presented before.

Studies show that the sense of Curiosity can be developed through ensuring that humans pay attention to what is 'happening and not happening' around them in both the short- and the long-term. Thus, one could say that the mechanisms of Curiosity are built through this orientation and re-orientation of things available or missing around us. Such type of drive integrates us more with the surrounding environment and community's needs. When organisations and communities start to build mechanisms for curious minds, they could open the unfamiliar to whatever outcomes it may bring. This mechanism optimises the economic sides of this Curiosity over time thus helping to build their intrinsic power effectively.

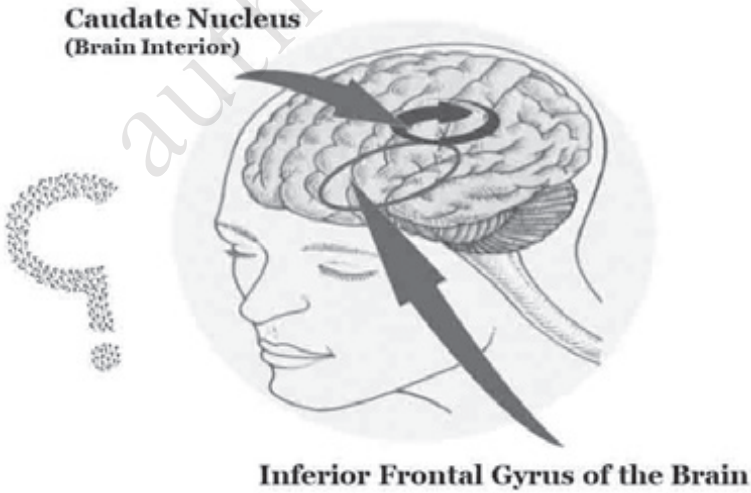
The curious minds mechanism could create a life that is full of thrills, where goals could be achieved in a shorter time, a bit like Steve Jobs life. As we learn to work on developing the mechanism of Curiosity, we would have a better chance of resisting adaptation and to consistently be comfortable to seek what is unfamiliar. History shows that the more mechanisms work together to create novel ideas the more they can leave an unmatched legacy.

Therefore, the more we bring the mind, the heart and the spirit together, the more we would see practices of thinking about the alternatives. This thinking would improve how we perceive things and how we could react with Curiosity to discovering even more new

things. However, this Curiosity mechanism depends on the 'quality of perceptions' and the 'concrete experience' that lead to feelings.

Recent studies concluded that the mechanism of Curiosity is triggered by the presence of an information gap, using fMRI studies. Through this study, the brain found to develop self-reported Curiosity, once it starts its activity in the caudate nucleus and inferior frontal gyrus (IFG) in the brain. Figure (3-1) shows these structures mechanisms and how they are activated by anticipation of many types of rewards where Curiosity is triggered. In another recent study of Knutson et al. (2001) shown how Curiosity mechanism is related to the nucleus accumbens in the brain which is activated when rewards are anticipated. Once the answer to the curious investigation is revealed, it would trigger brain structures associated with learning and memory, such as parahippocampal gyrus and hippocampus.

Figure (3-1) Shows how the Mechanisms of Curiosity is Triggered in the Brain



Thus, the mechanism of the 'Curiosity state' creates better learning through activities in both midbrains (implying the dopaminergic regions) and nucleus accumbens. Here, the memory correlated with midbrain and hippocampal activity creates intrinsic motivation and feelings of rewards. The mechanism of both possible reward and early seeking of information enhance then the Dopamine neuron activity (DA) in the brain. The presence of these Dopamine neurons (DA) provides a key learning and motivation signal that is critical for Curiosity cognition.

Introduction to Curiosity Anatomy and Physiology

The anterior cingulate cortex is in the frontal part of the brain where it is triggered by both conflict and arousal and thus seems to reinforce specific exploratory models of Curiosity. The brain releases a chemical known for stress regulation called cortisol. However, this chemical found to be associated with Curiosity and exploratory behaviour. Findings in recent studies suggest the role of cortisol in creating Curiosity arousal. The release of a small amount of cortisol causes stress, but also encourages curious behaviour, while too much stress can initiate "a back away" response.

Curiosity found to play a significant role in our level of attention since it manages our ability to selectively focus and concentrate on particular stimuli in the surrounding environment. Attention allows the brain to better focus on what it perceives to be most important, thus, raising our Curiosity to focus, or being engaged with the specific issue. Attention raises the Curiosity of a person or a group based on the level of stimulus energy. Curiosity makes the individuals or the group focus their attention on unfamiliar stimuli. Thus, one concludes that Curiosity demands attention.

Once we start the observation both the frontal lobe and pre-frontal lobe we would be excited through the process of attention and concentration. Curiosity also provoked the brain striatum as it coordinates both motivation and attention. The presence of the precuneus grey matter region in the brain ensures that attention along with Curiosity and exploratory behaviours. The level of Curiosity found to be highly correlated with the grey matter in precuneus. Taking Curiosity-drive and optimal-arousal as sources of neurobiological aspects of wanting and pleasure requires the involvement of mesolimbic pathways of the brain that directly account for dopamine activation, shown in Figure (). The use of these pathways and dopamine activation lead to curious attempts for gaining new knowledge and then active reflection which keeps the exploratory behaviour on.

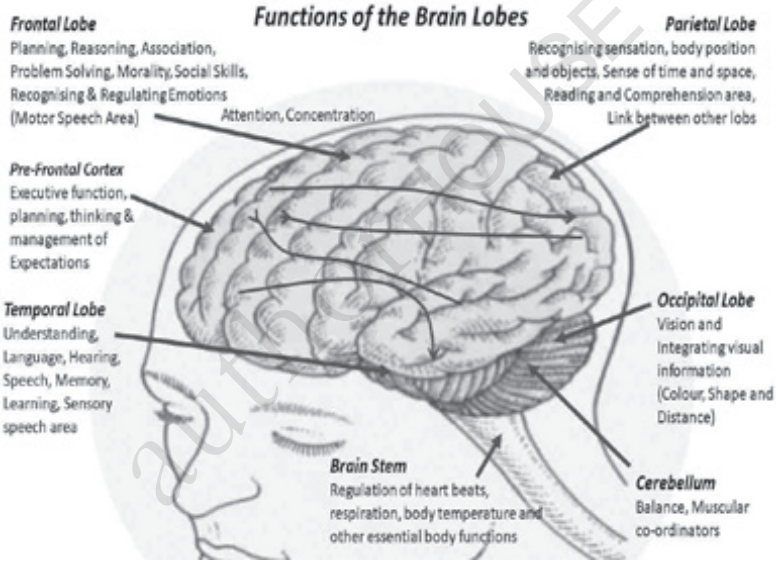
With nucleus accumbens being active in the brain, more neurons and rewarding pathways are activated. As previously mentioned, the reward pathway is an integral part of the induction of Curiosity. The release of the dopamine makes Curiosity, and exploratory behaviour facilitates learning during the different years of our life. The processes of both 'wanting' and 'liking' play a role in activating the reward system of the brain, and perhaps in the stimulation of curious or information-seeking tendencies as well.

The hippocampus and the parahippocampal gyrus (PHG) in the brain found to play a role in differentiating our Curiosity. PHG, therefore, is instrumental in determining the novelty of various stimuli. The area of grey matter surrounding the hippocampus has recently been implicated in the process of Curiosity. This finding suggests that the PHG may be involved in the amplification of Curiosity more so than the primary induction of Curiosity.

The Amygdala is also associated with emotional Curiosity; particularly for the emotion of fear, as well in the memory and

emotional reactions towards novel or unexpected stimuli and the induction of exploratory behaviour. The frontal lobe also helps to execute the association, recognising and reasoning, that Curiosity usually needs in the process of exploration and exploitation. Figure (3-2) also shows how the pre-frontal lobe executive functions help to continue any exploration process. The exercise of the observations would create further waves or association pathways in parietal, temporal and occipital lobes.

Figure (3-2) Curiosity Excitement Areas in the Brain Lobes



Association Pathways between the brain lobes shown in Figure (3-2) helps to show how the problem observation stimulates the brain neurons and cortex. When one area of the brain is activated due to the Curiosity that the problem observation brings, other areas along the pathway respond. This starts through the Frontal Lobe excitements which come through observation and opportunities

exploration. Such exercise would create impulse control, better judgements and more focused initiations.

Curiosity and Myelination of Nervous System

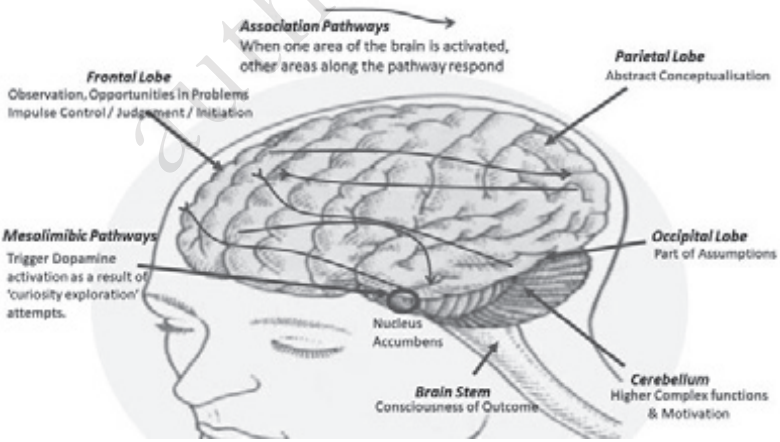
If we start to mentally contrast what we visualise through a Curiosity that is linked to do and implement, we will move a sheath-like material in the brain which forms an insulating and protective coating around nerve fibres called 'Myelin'. This Myelin is not only vital to the normal functioning of the nervous system, but it is also considered to be the main wires of the brain. We need to maintain these Myelin wires throughout our life to ensure that all of the information that passes quickly and simultaneously through the nerve fibre, the axon, have a good transmission of electrical impulses, i.e. from the cell body to the receiving neurons, along with the glands and the muscles. Myelin decreases naturally with age, partially because age limits the action of oligodendrocytes, the myelin-producing cells. As we approach our sixties, the Oligodendrocytes would have less capacity to split into cells that produce myelin naturally.

Thus myelin helps to stop the axon from leaving the nerve through creating electrical resistance to the electrical impulses; enhancing the signal conduction. Myelin insulates the axon by assembling specialised structures at the nodes of Ranvier. This myelination of nerves dramatically increases the speed that signals (referred to as action potentials) are transmitted between nerve cells. Therefore, the more we can keep our Curiosity, as we get older, the more we will be able to minimise the influence of ageing on our full mental capacity. Thus, here Curiosity would lead to myelination of our brain and thus can influence our cognitive abilities, our memory, our problem-solving capacities, our brain-development, our speed

of reaction, our learning capacity, our sensory perceptions, our attention, and our perception of reality.

Recent studies show that Curiosity about problem finding trigger inspiration physiologically and thus cause the myelination of our brain. Our mind and spirit are usually evoked by the excitement with the challenges of the problem that needs to be solved. Even the socio-economic problem, it is also affected by this type of thinking. For example, if our mindset is controlled by convergent thinking where our attitudes and Curiosity would be focused on finding a particular answer to a problem, the solution would be different from that of divergent thinking where our mindest and Curiosity would try to generate as many possible solutions to a problem as possible. Therefore, the solution to a problem is most highly dependent on the attitude and the type of Curiosity of the problem solver.

Figure (3-3) Shows Mesolimbic Pathways in Brain as Curiosity Exploration Starts.



Curiosity as a Reward System

The recent development of neuroscience studies has helped to give more insights about how the phenomenon of Curiosity works. Curiosity now is more evident as a source for a neurological mechanism that may impact characteristics as learning, memory, and inspiration to do. The idea of reward after every Curiosity attempt creates a type of positive reinforcement that leads to relief, pleasure and satisfaction. Many areas in the brain are used to process these reward-related feelings and come together to form what is called the 'reward pathway'.

Neuroscience now confirms that many neurotransmitters as dopamine and serotonin are available in this reward pathway. The reward pathway is triggered first by dopamine which is a hormone transmitter that works more when we explore with ambiguity. The neurotransmitter dopamine is even found to be released more when the reward is unknown, and the stimulus is unfamiliar.

Curiosity Role in Neuro-genesis and Neuro-plasticity

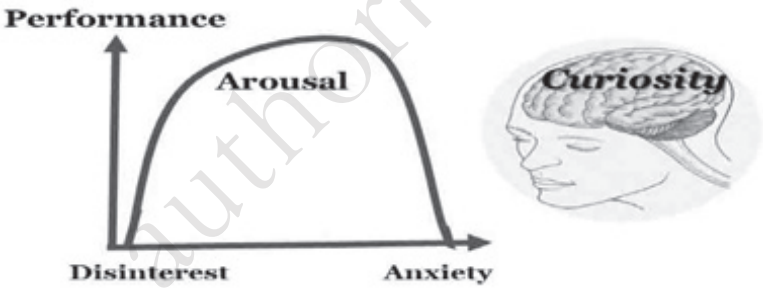
Both Neurogenesis and Neuroplasticity are theories about reviving the neurons of the brain to make it both healthier and more active, subsequently. With the advancement of Neurosciences, these theories are expected to be further validated soon. However, the review of the literature of Neurogenesis claims that neurons of the brain stem-cells play a significant role in learning, memory and emotions through being re-generated. Thus, by being curious, we can enhance the learning and emotions that enhance the Neurogenesis phenomenon.

Neuroplasticity of the brain, on the other hand, hypothesise that the brain can adapt to physiological changes that happen as a

result of its interaction with the environment. Curiosity helps the brain cells to develop connections, in response to changing needs. This dynamic process allows us to learn and adapt to the different experiences we go through. Same does Curiosity which helps the brains to receive more updates and creates more new connections between our neurons. Understanding and believing in this scenario makes us appreciate what is differentiating Einstein's level of contribution till today than most of us.

In summary, active Curiosity leads to neuroplasticity that is synchronised with the brain arousal that transforms intention performance from a stage of disinterest to an anxiety stage, as shown in Figure (3-4).

Figure (3-4) Shows the effective transformation of Curiosity Arousal



Thus in a nutshell Curiosity develop neuroplasticity through helping the brain to focus on forming new connections and pathways, as we discover more new exciting knowledge and realisation. Thus, Curiosity by these actions and outcomes helps to create neurogenesis by making the brain more capable of growing new neurons.

The relation between neuroplasticity and Curiosity depends on our level of learning where new pathways in the brain would connect new neurons and change our brain's default mode of operation. Thus, the extent of learning, as a result of Curiosity, is expected to create more potential for neuroplasticity of the brain.

Where Does Curiosity-Drive Come from?

The drive of Curiosity is a human drive and is comparable to hunger. Curiosity is evoked by the differentiation between excitement and an event, or object, or a challenge. This differentiation gap arises the Curiosity and gets even more profound with physical engagement. This physical engagement can come from field exploration for a challenge, or a complex problem investigation, or specific scope of activities, or entrepreneurial projects, or exploiting the life-purposefulness, as shown in Figure (3-5).

Figure (3-5) Type of Curiosity-Drive

Thus, the Curiosity drive makes us focused on the development of specific subjects that create a passion for search and research; targeting to see the big picture. This type of Curious-drive makes us try to solve different problems and to reduce the difference of an issue gap, or build the desired impact in the society, without reliance on authority.

Dealing with the Anatomy of Curiosity

The anatomy of Curiosity is about understanding the (What) and (Why) of an investigated issue. When we curiously understand what the problem is and why a situation occurs, we can focus on understanding the problem inputs. This is especially important for complex socio-economic problems. Once the (what) and (why) are dissected and then the Curiosity increase. This Curiosity helps the problem solver to intimately explore the opportunities for change and the opportunities we want to discover.

Once we define the (what) and (why) of an issue, we can get a significant role in defining its outcome. Well-defined Curiosity anatomy starts with reflection about looking back over what has been observed or done. Curiously extracting the net meanings from an issue or a problem investigated help to develop the capital stock for the outcome. With clear Curiosity anatomy and clear reflection, we would have the capacity to look forward and look backwards, till problem opportunities are clear. The restatement of the problem helps us to build up our next Curiosity cycle to anticipate, act, observe and organise ideas for future use.

The Curiosity anatomy starts with observing what the essence of the problem is. Then, curiously exploring the depth of the investigated issue opportunities help to exploit and then prioritise the seen and the hidden opportunities. This would help to reach

a construct that is very important for problem management, that is the mindset which the problem assumptions are built on. The behavioural change is expected to be part of the Curiosity anatomy too.

Experience and history show that the anatomy of being curious with socio-economic problems solving has never been based on instructions, or discussions only, but from working on the field, and using experiments along with trial and error. When we dissect the Curiosity of a socio-economic problem, we will see that each problem has its constructs and codes that differentiate it from other problems Curiosity. Thus, each problem has its Curiosity structure, specificity and complexity. This means that each problem gets engaged in a different cognitive process that needs different data collection and synthesis approach.

Thus, mental activities of the Curiosity on each socio-economic problem should differ in its approach when it goes through the process of acquiring, retaining and using knowledge and it might extend even to the level when synthesis, inferences and conclusions are withdrawn. The Curiosity anatomy of the socio-economic issue can be thus visualised through the field explorations.

The field visit helps to build the Curiosity of the problem solver to focus on acquiring information and knowledge about a particular problem through being able to imagine it. For example, without the field visit for an Amazigh village, we would not be able to prioritise the village way-out of poverty. Thus, the Curiosity triggered by the field visits has a significant role in helping us to break the fear of "learning by doing", or "learning by trial", or "learning by experience".

Mohamed Buheji

Curiosity and Hit-Rate Mindset

When we deal with Curiosity as an attitude more than a habit, it turns to be a ritual in our daily deeds and processes. Maintaining our Curiosity with any issue for just 2 minutes, would keep us focused on it till we achieve our desire, and thus, could increase our potential hit-rate.

Understanding the anatomy of Curiosity help to go to the extent of trying extreme solutions, or look for hidden opportunities in challenges and problems identified, and without fear of loss. This increase our visualisation and ability to link and integrate objects or events. This gradual building of more clear visualisation about the problem, reduce the probability of errors and increase the hit-rate towards a specific solution.

The continuity of solving problems leads to a better understanding of our role in life and in getting Curiosity in relevance to life-fulfilment. Our learning from the consistency of solving problems makes us more agile to deal with different problems in whatever shape and form. The gradual problem solving is usually followed by the development of queries which raises the Curiosity. As Curiosity starts, the whole story of life could be formulated.

Failing to equip people with different processes of thinking, writing, and problem solving, are considered to be the main blockages of inspiration and one of the main reasons for the reduction of their hit rate. The more we are curiously engaged with the hit rate, the more we are enhancing our lifelong learning. One could conclude that a society that is poor in valuing and nurturing its Curiosity would have a hit rate that suffers from lack of inspiration and sustenance of its differentiated abilities.

Differentiating our learning by the development of the hit rate build a spirit of persistence, which comes after allowing our brain to access everything that might be useful in solving the socio-economic problem. For example, questioning with Curiosity can be the cues which point us in the right direction, and this is the best way forward. We need to do this over and over again until the process becomes subconscious and this allows us to solve problems with a higher hit rate than the average person.

Striving to maintain this level of Curiosity create a great passion for research and the ability to see the big picture. This type of self-development thinking drives us again to try to solve the problem to reduce the difference, or to build the desired impact in the society, without reliance on authority.

Managing Complications and Complexity through Curiosity

Curiosity help to manage complications by turning it to be contained in a series of predictable interactions. However, sometimes we need to have Curiosity with complex patterns; this means we need to be able to manage the interactions that are continually changing with more interacting elements. Thus the more significant the complexity, the higher is the Curiosity level required. Therefore, Curiosity systems bring in more predictable results.

Curiosity needs more practical experimentation which depends on the quality of the observation. Curiosity provides an appropriate climate for intellectual exchange that helps to crystallise our ideas and stop distracted perceptions.

Curiosity to Coop with Ageing

We are living in an era where ageing would never come back as it used to be, as the coming ageing group has higher Curiosity than their previous ancestors. Therefore, as reported by BBC it would be more common to see that those in the '60s, or even in the '70s and '80s would be starting new careers. Today, retirement in the majority of age group will not be a time of taking it easy, or having a quiet life, but rather a time for a bucket list of many curious issues that were never pursued.

Curiosity and Design Thinking

Design thinking enhances human process abilities thus helping us to develop a mindset that will not follow conventional problem-solving ways. It is a type of thinking that relies on our ability to be intuitive, to recognize patterns, to construct ideas that are both meaningful and functional. Thus, it is thinking that helps us to express ourselves through means beyond words or symbols. Design thinking thus inspires its establishment of an integrated, holistic view that is based on feelings and intuitions.

The design thinking in socio-economic problem goes through three processes in the mindset: problem inspiration, solution ideation, and proposed model implementation. The design thinking triggers the brain to start the ideation process to generate, develop and test ideas. Implementation of the model is the path that leads from the project stage into people's lives.

In socio-economic design thinking, we can stimulate the proper experiences in dealing with the problems through utilising networking and observing recent trends around us, besides involving the decision-makers. This design thinking helps our

societies to integrate and produce newly generated ideas into actions thus delivering desired outcomes while enhancing our communities' readiness towards change.

In design thinking, the participants for example in the socio-economic issue start their Curiosity by observation, followed by a brainstorming session to generate a stage called absorption. Many ideas at this stage are curiously discussed to get the participants involved with potential hidden opportunities. With collective brainstorming, we can identify issues rapidly through consensus on the most critical issues, while determining possible solutions to chronic issues. Brainstorming leads to synergistic decision making based on the premise that when people are supportive of one another and follow a rational sequence of activities in dealing with a problem, they can perform beyond the sum of their resources. This synergistic Curiosity requires the participant to have both effective interpersonal skills and rational thinking processes until reaching an outcome or a solution.

Thus one could say that Curiosity brings a connecting thread between critique thinking, disruptive thinking, and integrative approach thinking, as shown in Figure (3-6).

Figure (3-6) Types of Thinking that comes with Curiosity Design

One can conclude that design thinking help to develop concept generation of the socio-economic issue under-study. This concept generation becomes a continuous process between the dare to challenge until we start to reflect on all the steps taken to reach the full realisation of the outcome perceived.

Psychologically, the design thinking, make our mind curiously busy with the issue investigated or targeted to be solved, especially when we observe recent trends in our community. Say, for example; we collected observations from physical field interviews, site visits, surveys and the trends happening in relevant to employment, the spread of poverty, migration, youth quality of life, values, the economic situation of the lower class, entrepreneurship practices, the social-psychology of the community, in Mauritania. The capability for sense-making, problem-solving, decision-making, communication, networking capabilities, as well as our Curiosity is going to shape our capacity of design thinking and our ability to act on the selected Mauritanian problem.

Our ability to deal with unexpected demands due to this design thinking help improve the socio-economic outcomes which could be measured with different yardstick due to its valuable insights. The style of design thinking combines the empathy for the Mauritanian context with the creativity in the generation of insights and solutions and rationality to analyse and fit this complex socio-economic context.

CHAPTER 4

Curiosity Psychology

Psychology of Curiosity

Studies show our Curiosity starts from our second week since birth and become more mature within the fifth month. The study of Telman (1948) on the exploratory behaviour in animals shown that animals integrate specific behaviour approaches for developing their Curiosity natural drive, even without any external cause. Some psychologists have seen that through the nature of Curiosity we can manipulate the motives and engage people in issues of their community. Therefore, Daniel Berlyne (1954) distinguished between the different types of Curiosity dimensions such as (perceptual vs epistemic) dimension and (specific vs diversive) dimension. Berlyne seen perceptual Curiosity refers to the driving force that motivates organisms to seek out novel stimuli, which diminishes with continued exposure. It is the primary driver of exploratory behaviour in non-human animals and potentially also human infants, as well as a possible driving force of human adults' exploration.

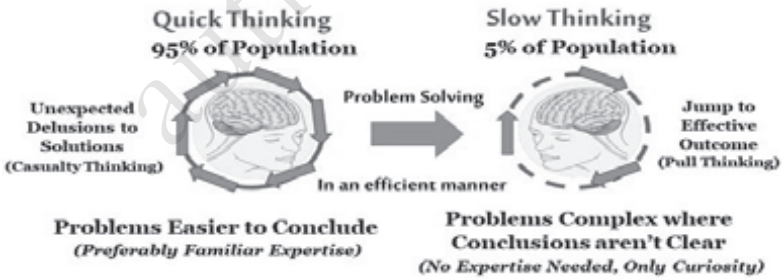
Opposite to 'perceptual Curiosity' is 'epistemic Curiosity', which drive us to acquire knowledge and to go beyond information stimulation. Berlyne (1966) describes how 'epistemic Curiosity' is what differentiates us as humans. Berlyne saw that even going to informational specificity differentiates humans between themselves too. The specific Curiosity creates a desire for us to look for a particular piece of information, move us to a higher level than the 'diversive Curiosity' which is the desire for creating cognitive stimulation to avoid being bored, for example.

The latest contemporary definition agrees that Curiosity is a self-driven information-seeking exercise (Loewenstein, 1994). By this view, Curiosity is strictly an intrinsic drive, while information-seeking refers more generally to a drive that can be either intrinsic or extrinsic. Oudeyer and Kaplan (2007).

Curiosity is profoundly affected by our traits and psychological profiles. Studies show that 95% of the population have 'high speed of thinking' that limit their capability to only deal with the unexpected delusions to the solutions through the 'casualty thinking'. However, these high-speed thinkers usually limit their Curiosity by making easy conclusions and producing types of judgements that are dependent on familiar problem expertise.

Their differentiated capability influences the Curiosity of the other 5% population for being 'slow thinkers'. Slow thinking capability can help in creating more clarity decisions, especially in dealing with complex issues. The mind, in this case, would jump to visualise and create effective outcomes. With pull-thinking, the mind would have selective Curiosity towards complex conclusions. Figure (4-1) shows the role of speed of thinking in differentiating our Curiosity psychology and thus is dealing with complex issues around us.

Figure (4-1) Illustrates Differentiated Curiosity as per the Speed of Thinking.



Now due to neuroscience advancements, we know that the caudate nucleus highly influences the psychology of Curiosity in the brain. The caudate nucleus is influenced by the dopamine and thus the reward pathway. Research has suggested the role

of the caudate nucleus anticipates the possibility of reward, due to the exploratory behaviour which triggers the gathering of information, thus contributing to factors of Curiosity.

Since Curiosity is about choosing to look deeper into seeing the real problem significance, the mind found to sustain the realisation of the problem opportunities through Curiosity only. Studies show that the brain can be active and alert when it is curiously engaged with a complex problem. Regular engagement with communities' issues helps to create a mental focus on the final targeted outcomes. Therefore, with Curiosity, the muscle of the mind becomes stronger while fulfilling life experience and creating new learning.

Curiosity thus is highly dependent on memory as we seek to understand the unfamiliar. Memory as a process helps the brain to remember if a specific stimulus has been encountered before. Thus, memory plays an integral role in unfamiliarity and therefore in triggering the level Curiosity needed.

Current studies using fMRI, which pin down brain signals show that being continuously Curious can influence our memory. The novel stimuli tend to capture our attention. Additionally, novel stimuli usually have a reward value associated with them. The psychology of moral thinking is highly intuitive and emotional, and only appears to be a product of careful reasoning, due only to the Curiosity of investigation that is followed by rationalizations of their thinking. The psychology of a passionate, curious person would be focused more on finding out when the changes happen suddenly, or gradually.

Role of Curiosity in Raising our Capacity to Influence

To create the flexible mindset that believes in our ability to "influence without power" we need to do activities that would trigger the involvement of the Reticular Activating System (RAS) area in their brain. RAS is considered to be the gate-keeper between the conscious and unconscious parts of the mind. Through selecting what RAS should focus on, we can visualise our ability to reach our life-purposefulness goals. Then, all the efforts will mainly be analysed from this point. So, once our brains become responsive to RAS, this will lead to more exploring the undiscovered opportunities. Through RAS, we would be able to shift (or disrupt) the logical mindset to focus on the most important areas that have never previously been dealt with in any depth. This builds an associative mindset which uses the "spirit of inquiry" as the principal element in creating judgments. At this stage, our mindset increases its Curiosity and creates an attitude of logical, critical thinking. This makes our mindset associative and sensitive to observations and thus able to absorb what is suitable and necessary.

Management of our mindset blind spots helps us to look curiously for subtle clues about something hidden and thus to focus on what to influence with minimal resources. With management of the blind-spots, we could avoid realising too late specific unproductive patterns and this increase our capacity to create the change without real authority.

Curiosity and Neuroscience

Curiosity work on the social centres of the brain through working on creating more attention on how to respond to the growing demands on our attention. Curiosity has been a significant

impetus behind the scientific discovery and the advancement of civilization. Without Curiosity, there would be no survival techniques. Neuroscientist Michael Gazzaniga specifically linked Curiosity to the human evolutionary drive to survive and adapt.

Neuroscience today is more focused on where Curiosity comes from. It is a science that shows us how human conducts accurately operate much like tools for carrying out relationships. With neuroscience, we can see the possibility of social change and a new form of intelligence in the future than the one we have measured through IQ tests. For example, how Curiosity might trigger the development of new languages, or our capacity for understanding our intrinsic powers.

Recent studies show that Curiosity about problem-finding trigger inspirational thinking. Our mind and spirit are usually evoked by the excitement of this thinking to handle the challenges of the problem that needs to be solved. For example, if our mindset is controlled by convergent thinking where our Curiosity is driven on finding a particular answer to a problem, the solution would be different from that of divergent thinking where our mindest would try to generate as many possible solutions to a problem.

Neuroscience studies now show that Curiosity is an essential element of our cognition. However, every day humans are humiliated by how much they do not realise the anatomy and psychological influence of this vital life functionality called Curiosity. The discoveries in neuroscience show how much humanity lost due to not understanding this enormous intrinsic power.

The latest study of Kidd and Hayden (2015) shows that we used to know about the relationship between Curiosity and proper decision-making, is only a small fraction of its importance. Kidd and Hayden showed that Curiosity is much beyond that. It is

very crucial for healthy development. Despite these barriers, recent years have seen significant growth of interest in both the neuroscience and psychology of Curiosity. In this perspective, we advocate for the importance of interaction with the field in order to trigger even more focused information-seeking Curiosity.

Through neuroscience, Curiosity has proven its crucial importance for creating predictive processing which helps the brain to use a probability distribution to enable optimal decision-making under uncertainty conditions. The brain accomplishes confidence by comparing newly field collected incoming sensory inputs with previous beliefs or expectations. This comparison continuously helps to re-shape the outcome and create pull-thinking lean decisions. Such selective decisions enhance our hit-rate and foresighted perceptions.

Maintaining of visualised driven Curiosity helps to develop our thinking and activities thus makes the cortical cortex act like a machine that tries to catch up with this Curiosity. This type of Curiosity renews our mindset, since it breaks our solid assumptions that were built by capitalism logical thinking.

Research published in the Neuron Journal in 2014, has shown what happens in our brains when Curiosity is triggered. The study shows how Curiosity enhances the capacity of the brain for both healthy and diseased individuals. Such finding reveals a new form of insights as it gives another example of the importance of our intrinsic powers currency represented by Curiosity.

Studies using fMRI proven that students when provided with strange, unfamiliar cases, or figures, or photos and then given common questions, would answer better than those given these common questions directly. The FMRI has shown increased activity in the hippocampus, as well as increased interactions

between the hippocampus and reward circuit. People were found to be able to retain more information for more than 24-hours due to their Curiosity. Hence, Curiosity helps the brain to be like a sponge that sucks the information around and maintain it for some time. Curiosity found to replace the need for extrinsic powers, as motivation, since it works in the same area of the brain reward circuit and releases the dopamine 'the messenger between neurons'. Now the fMRI, studies started to show that such Curiosity increases the interactions between the hippocampus and the reward circuit which could have many medical implications, as it shows that if we manage to trigger Curiosity, we will make the brain circuits function more effectively. This is especially important for older people who tend to decline in memory function due to ageing. Neuroscience shows that now with Curiosity design we can improve the memory of the elderly which would have a drastic effect on the economy. The same could be applied to patients with memory disorders. Even in education, this would change the way our student deal with what they consider boring stuff.

Psychology of 'Judgements' and Curiosity

Realising the psychology in dealing with problems bring us a diverse set of judgements potentials, thus promote our mindfulness and leads to improving our wellbeing. Therefore, instead, for example, of primarily focussing on the question: "what is the problem of our community and how can this problem be solved?", our curious psychology would shift with time to questioning "what does a valuable flourishing community life would look like and how can this level of life be achieved through solving the issue identified?" Clearly, the first questions are not similar to the last ones. So, does their psychological consequences.

The psychology of judgement make many government and decision makers explore a socio-economic problem, as poverty or youth unemployment, in a classical way. This means they usually try to find and address weaknesses of the issue, instead of building strengths that this problem brings. When we try to find the opportunities, i.e., the strengths that the problem solution would bring to your community, we psychologically move closer to the desired direction that leads to an unmatchable, transcendent life-purposefulness journey. The more we have this focused life-purposefulness, the more we get rid of the fear of facing even our life problems. Such engagement level with problems can affect our mindset psychologically to have the capacity to make judgements and move closer to the desired outcome that would make us capable in re-inventing our lives through being actively concerned in community issues and challenges. For example, creating judgement on the socio-economic problem bring better interaction with opportunities thus help our mindset to build on it. The need for judgement is critical when we deal with problem instabilities, or with innovative wild ideas. In disrupted communities or complex cultural issues, the control of the speed of thinking becomes very important in order to be capable of dealing curiously with problems and challenges.

Curiosity and Mindfulness

"You cannot just give someone a creativity injection. You have to create an environment for Curiosity…" a quote full of mindfulness for Sir Ken Robinson. Therefore, we believe that Curiosity is evoked mainly when there is a clear exposure gap, or novelty research is done, or when we are faced with complexity. Besides, these Curiosity comes when we go through uncertainty, or when we are faced with conflict situations. We now know also that Curiosity is evoked when we see a differentiated level

of perseverance (continuity) and persistence (discipline) in an organisation's or a community's level. This is called a stage of mindfulness.

Mindfulness means focusing curiously on only one activity at a time. We usually refer to this in the slogan: "Take one, do one, finish one". Our minds cannot 'effectively control' two things at the same time. With mindfulness, we just stop our Curiosity from switching quickly from one task to the next, thus minimising its potential to become unfocused, Konnikova (2016).

Mindfulness leads to better focus, and this raises the capacity of Curiosity to create a differentiation for every attempt. The ability to focus means we can have full attention while improving the saliency of information; besides the capacity to create decisions without biases. With focus, we can have mindfulness with control on emotions. Mindfulness requires curious thinking that is followed by a behaviour towards dealing with problems and challenges correctly, in order to accurately address its needs. Through convergent thinking, we create a focus in mind to find a particular answer to a specific problem. With divergent thinking, we help the mind to generate as many possible answers to a curious question.

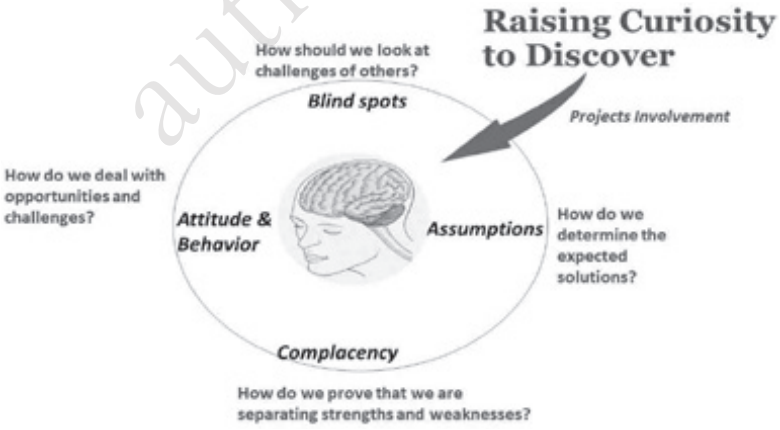
During problem-solving labs, we create incubation through raising Curiosity. We usually do this by leaving the problem for a time, allowing the mind to work on that problem without conscious efforts, thus leading to different insights. The focus and mindfulness allow us to do more trial and error to get a variety of solutions while eliminating those that do not work.

The focus is significant for the Curiosity design journey, as without focus, we cannot find opportunities, and we will not be able to tackle complex and chronic issues. Mindfulness can be achieved by self-training or by learning from doing as in problem-solving lab's

projects. Early focus helps us to select the most appropriate and relevant problem. Through focus, as Konnikova (2015) explained, our minds are programmed to wander, which multi-tasking exacerbates. Thus, to practice mindfulness, we need the will to be self-reinforcing. The more we practice mindfulness, the better we get.

Mindfulness comes when Curiosity work to discover how we should look at the challenges of others. This stage helps to exploit many blind spots around us. Through mindfulness, we could determine the expected solutions, i.e. the assumptions. These assumptions should raise our Curiosity in separating strengths and weaknesses without complacency. This should help us to identify the opportunities and challenges through the mindfulness attitude and behaviour. Thus, it is a status that would work like art during different learning and filtering-out of irrelevant Curiosity distractions, that help the brain keep a space for monitoring the environment, both externally and internally. Figure (4-2) illustrates how the mindfulness of Curiosity raise our capacity to discover.

Figure (4-2) Mindfulness of Curiosity to Discover



With mindfulness Curiosity, we create models that could help to develop thinking which leads to focused solutions. After curiously probing, or challenging the targeted community capacity we could discover the opportunities and the essence of existence, survival and development. Here the mindfulness Curiosity of the business model is one of the early tools to focus on monitoring, or adjusting the levels of challenge and managing the group dynamics, as a way for keeping the insights and the process of exploration going on.

When we focus on the process of possible concepts or solutions, we also need to consider other factors which affect them. Thus, it means that focusing on one activity, or thought at a time will help us notice, or remember details in our work. This kind of Curiosity focus will make us better attuned physically and emotionally. This explains the quick yet sharp observations that the greatest Curious thinkers can capture, analyse and optimise towards complex problems solutions.

Curiosity and Thinking Styles

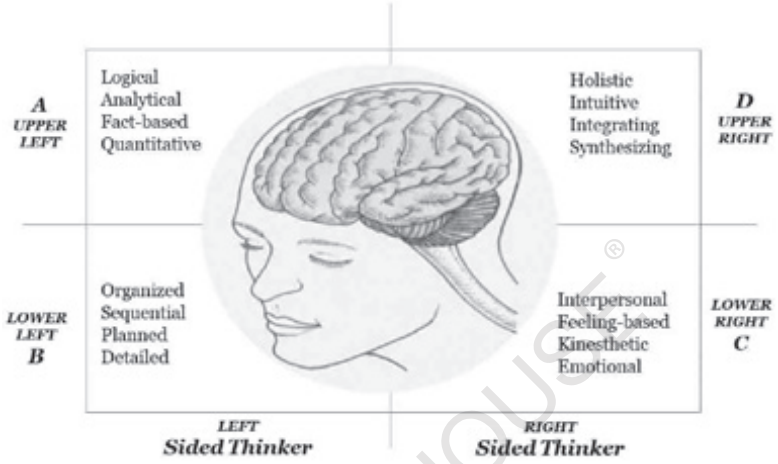
Curiosity is highly dependent on the type of thinking style. The Curiosity thinking target usually to reach first a level of 'problem-understanding' and then 'problem-realising'. Curiosity targeting 'problem-understanding' controls the mind, while Curiosity targeting 'problem-realising' brings in more persistence to visualise the outcome of the issue under investigation. Take for example a complex socio-economic problem as poverty; we need to curiously reach more 'problem-realising' through 'holistic thinking' that lead to a measured positive outcome. The utilisation of more than one thinking style can help us to tackle the chronic poverty issue in a migrant community starting with diagnose using both logical and interpersonal emotional thinking and then

synthesise the problem based on holistic thinking. Thus, once we start curiously exploring for opportunities that this 'poverty' problem brings, we could reach more facts-based and outcome-based solutions.

Hence, it is essential that we understand the types and styles of thinking during the Curiosity process which could help us use the right type of problem realisation. To ease this, we will use the 'Herrman Whole Brain Model'. The Whole Brain Model explains new ways of thinking that are needed for the specific Curiosity that may not occur to us at the moment of exploring for opportunities. Thus, as part of understanding how Curious thinking process work we would refer to the 'Herrman's Model' to understand, for example, how a socio-economic issue as poverty would be affected by the thinking preferences, once we start tackling it.

In order to ensure the holistic perspective thinking, we need to recognise the role of each of Herrman thinking preferences quadrants in influencing our Curiosity, as shown in Figure (4-3). This recognition of thinking preferences and non-preferences would help us to curiously understand what to communicate about and how to communicate with the issues stakeholders. In summary, any effective Curious mind needs to understand the four languages of the brain thinking, to optimise the proposed solutions with a holistic mindset that see the alternatives and the differentiated opportunities.

Figure (4-3) Replication of 'Herrman Whole Brain Model' of the Different Thinking Styles for Curious Mindset



As shown in Figure (4-3) the type A and B quadrants thinkers, use the upper and the lower part of the left side of the brain. Their Curiosity is known to be more of logical and realistic style. In the meanwhile, the Curiosity of both C and D quadrants thinkers, use the upper and the lower right. C and D thinkers use more interpersonal, emotional, yet integrative and holistic types of thinking. Quadrant A curious thinking style help to argue rationally and thus generalising the specifics while trying to solve the issues and the challenges logically. In this A quadrant, one would expect such style of thinking to use critical analysis to deal with a challenge after gathering the detailed facts curiously. In this quadrant, the curious thinking would try to make things work with rationality without being emotional and without considering the financial aspects.

In quadrant B thinking style, the Curiosity would lead to focusing on the 'how to' of the issue investigated. For example,

here we might see that Curiosity discuss more facts, figures and try to see the big picture, or answer questions openly in a way to start dealing with future needed. Here the Curiosity focuses on making plans and taking risks, or organising information, or focusing on overlooked details, or considering steps to be completed.

Both types A and B are known to approach problems practically and try to maintain consistency in the amount and the quality of the data collected. Both A and B also might have detailed plans and try to execute one thing at a time, since they are mostly disciplined and reliable.

Type A and B curious thinkers expect an organised, consistent approach to extract out a solution and to stay on track. These type of curious thinkers would try to evaluate the solutions and generalise the outcome. However, this type of thinkers needs clear instructions and expectations. They usually also struggle with risk, ambiguity, unclear expectations and directions, due to being more of traditional, conservative thinkers that see problems as a threat for safety and stability. However, A and B curious thinkers usually are poor with managing turbulent change; they like to handle such Curiosity using authority and resources. While quadrant B curious thinkers strictly follow the rules and usually are not keen on getting new ideas.

Type A would usually focus on Curiosity through understanding more (What) is the essence of the issue investigated. Thus, these type of curious explorers would try first to find the facts that get them across to the organisational, or community requirements. Type A Curious thinkers are considered very precise, i.e. where they look for facts that lead them to the solution point through logical and rational thinking. These type of thinkers usually like to find proof of validity,

before experiencing by trial and error. Their Curiosity follows the data strictly and search for the pure facts for being brief, clear and precise when they do their critical analysis focus on technical perspectives and would try to examine things critically.

The Curiosity of Type A usually is very serious about extracting solutions and would usually try to get down to the details most efficiently and cost-effectively. This type of Curiosity could usually work toward quantifiable outcomes, using critical analysis thinking. Such Curiosity could focus on what types of tools and techniques to be used and what are the resources needed rather than on the opportunities.

B type Curious thinkers would focus first on when the problem started. How can the community cope with this issue? Then would ensure that all the details are available. Type B likes to use their Curiosity to go through the problem details. They are a type of thinkers that follow the rule thoroughly. They would usually be capable of overcoming the problem complexity with holistic thinking approach.

Type B Curiosity would also usually focus on moving toward an outcome by building a type of story closure. Their curious minds would be focused on how to make a compelling story closure. Thus, their Curiosity would try to manage the tasks allocation, along with organisation planning and accountability.

When study types C and D Curious thinkers would see how they are open-minded and would usually take initiatives. Both C and D are flexible thinking styles; however, quadrant D is a more holistic thinker, risk-oriented, adventurous, initiative and entrepreneurial in their approaches. Therefore, the D type would be more of curious minds that look for effective solutions to chronic problems. Such mind Curiosity would lead them to ask

about any potential opportunities and dare to break the fear of trying, by asking 'why not?' and then dare to think next 'what if?'.

Type C Curious thinkers usually need to understand the impact they have on the profitability of a business. These type of people usually listen to their intuition while getting emotionally engaged. They are a type of Curious thinkers that highly consider their values and feelings while attempting to explore an issue. Such curious thinkers try to persuade the stakeholders to get more involved in exploring the solution. Some of the C Curious thinkers prefer an unstructured approach to group dynamics using empathetic spiritual thinking. They tend to use their hands curiously, or involve all their senses part of their learning. They are a type that struggles with too much data and analysis. These C type Curious thinkers usually use words that reflect their feelings, but might be humorous and like to test things and feel the touch, while considering an opportunity. They are curious minds that would ask themselves about what their intuition tells them and would be influenced when setting their final story with other people perspectives.

C type Curious thinkers would query who else is affected by the issue under investigation. Thus the Curiosity would focus on personal touch, expression, empathy and would have consideration for feelings and values thus would be very keen to explain, or analyse the problem, as stories and examples. The capacity of C Curious thinkers leans towards mediation and facilitation and best possible outcome. They are usually good at sharing, listening and expressing the possible opportunities inside each problem.

Type D thinkers use the upper right side of the brain and the Herrman model. They are also known to take immediate action without any procrastinates and to complete their visualised tasks to fulfil their novelty. D type Curiosity is innovative in their way of thinking, and many times they would come with breakthrough

solutions that come from unstructured and unplanned ways. These type of thinkers focus on the main points of the problem while dealing with the future. However, the Curiosity of D type makes them get excited about exploring the solution to the extent they become impatient about it. Such type of Curiosity makes them ask why does the socio-economic issue under study is affecting other solutions opportunities and how it is essential for the big picture of the total problem solution.

The Curiosity of type D can be described to be design-driven and artistic-based. This type of mind is usually both curious and adventurous. They always look for originality in their solution and try to fulfil their imagination about the problem solution. The uniqueness of type D is their persistence in generating lots of 'disruptive ideas' while looking for new perspectives. These ideas come from their capacity to overcome the obstacles, or rules built in the problem investigated. This comes from perseverance to explore the opportunities inside the problem explored, while looking at the 'big picture'.

The Curiosity of type D helps them to visualise the big picture using metaphors, integrating ideas and concepts. However, the competitive edge of type D comes from their capacity to envision the future variabilities and the new foresighted possibilities in the problem under study.

The Curiosity of the type D thinkers would lead them to use surprising approaches that picture metaphors in order to establish content discovery plan. They have the capacity of quick pace exploration using variety in approaches. Even though they are unique in opportunities experimentation and in linking new ideas and concepts, they usually struggle with time management deadlines and administrative details. They try to break the chains of systems that have a lack of flexibility while trying to solve the

socio-economic problem. They are a type of problem solvers that bring in a very imaginative yet integrative solution of possibilities. Thus the Curiosity of D type would focus on how to get the maximum outcome from the proposed solution. They are a type of thinkers that would challenge the status quo, being high risk-taking and experimentation-driven investigators.

Brain Interaction during Curiosity Cycle

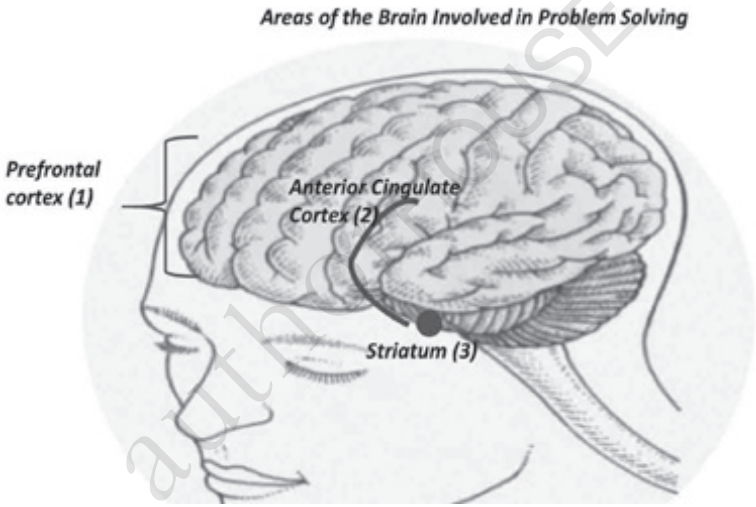
With neuroscience of today, we now know that being open to new experiences keeps our brain active and alert, which can be immensely helpful in old age. The mind is like a muscle: it becomes stronger with exercise, and there is no better mental exercise than Curiosity. Hawkins and Blakeslee (2014) how when our brains are curiously engaged, our predictions make us think of what we might experience next. This foresight thinking generates a type of commands that try to fulfil our predictions and creates the cycle of Curiosity, a cycle developed between the process of thinking and predicting. Therefore, it is thought that the higher our Curiosity cycle, the more potential that we would have a more resilient and tolerant mindset. Thus, in the Curiosity cycle, our brains would try to fulfil the mismatch between what we experience and what we predict. Due to this cycle, our brains would have a high capacity to interact with complex issues.

During the conscious attempts to curiously think and predict about a specific problem, we would raise a powerful neurotransmitter hormone in our body called oxytocin. Oxytocin focus on our social and emotional behaviours, thus effects our individual and social traits. In the hypothalamus, oxytocin is made in magnocellular neurosecretory cells and stored in herring bodies at the axon terminals in the posterior pituitary. Under optimal circumstances, oxytocin increases when we have a curious cycle

of social attachment to our communities' issues. (Carter, 2014; Leslie et al., 2010; Uchino, 2006; Kosfeld et al., 2005).

The striatum and the Anterior Cingulate in the inner core of the brain have three sections, and each one seems to work towards creating specific decisions in relevance to the curious cycle in the brain especially when we are tackling a problem, as shown in Figure (4-4).

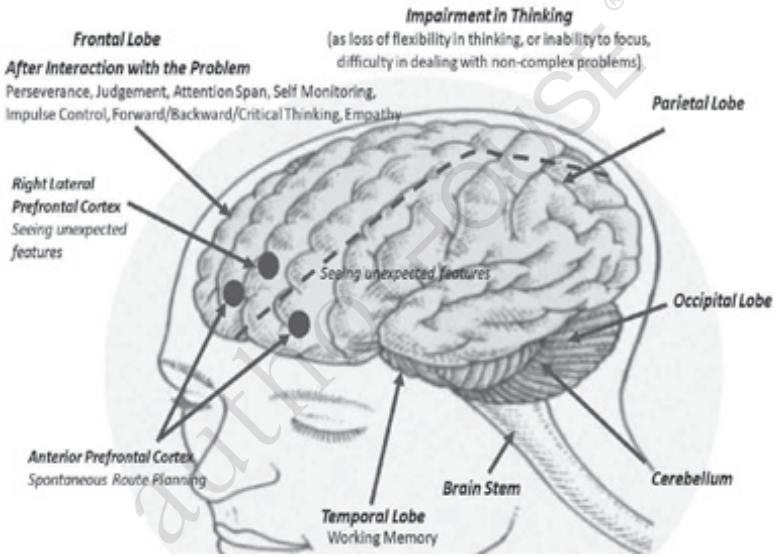
Figure (4-4) Areas of the Brain Involved in Curiosity Cycle



After the cycle of Curiosity interacts with the problem, the areas of brain capacity would start to get differentiated, as shown in Figure (4-4). The frontal lobe creates the cycle of Curiosity for interacting with the problem and creates waves that trigger perseverance. This Curiosity cycle creates more focused attention, better self-monitoring, more impulse control, more forward/backward/critical thinking and most of all feelings of empathy with the problem investigated.

Figure (4-5) shows the right lateral prefrontal-cortex of the brain once the Curiosity cycle interacts with the problem to help the investigators to raise their Curiosity towards seeing the unexpected features. The anterior prefrontal-cortex helps to build spontaneous route planning which helps, in the end, to move the temporal-lobe to utilise the working memory and to deal with the numerous challenges.

Figure (4-5) The Brain Interaction During the Curiosity Cycle with Complex Problems



Curiosity and Empathetic Story Scenario

Curiosity is an asset to be valued and nourished and is very related to empathy. When we are very curious about something, we make an effort to keep things fun. Studies show that people Curiosity are directly related to personal growth opportunities.

i.e. Curiosity determines how deep our connection to others, while empathy empowers Curiosity through utilising what, why and then understanding the benefits of how.

With empathy, we manage barriers and absorb trends. Early definitions of Dymond (1949) considered empathy as the cognitive ability to recognise and understand the thoughts, perspectives, feelings and actions of other individuals, organisation, community, or even country. The work Stotland (1969) sees empathy as an emotional experience that absorb the emotions of the other people, or the environment around. Therefore, empathy can be summarised as an important affective feeling that raises the Curiosity to discriminate and identify the emotional states of the others. Thus, with this empathy, we can build our capacity to take the perspectives, or the role of the others and raise our capacity for the evocation of a shared effective response. Miller and Eisenberg (1988).

Empathy has proven history to cause Curiosity in many disciplines, such as management, medicine, law, innovation and besides it has its long roots in philosophy and psychology. As empathy is now being studied for its influence by neuroscientists and its research spreading through neuro-economics, it is rapidly growing as an area of economic decision-making.

Curiosity establishes story scenarios for active, empathetic thinking. Building a problem story scenario, as shown in Figure (4-6) help to explore its opportunities effectively and to generate more critical facts towards building the model and final story. The more opportunities are exploited and synthesised, the more the ideas would help to identify new learning areas that would strengthen the outcome of the empathetic thinking.

Figure (4-6) Building the Empathetic Story Scenario through Curiosity

Building society empathetic-based models which function based on the scenario-interaction between individuals and their community is considered as an essential practice that needs to be embedded in all human-related activities, since it has a role in developing a curious environment, Buheji (2018c).

Empathy, if conditioned or engineered it would help us to anticipate others actions and contribution accurately. Empathetic engineering would allow the targeted individuals, organisations and communities to be curious, yet resilient and strive to understand the position of others. Therefore, empathetic engineering is highly needed here to live and mentalize the needs and feelings of others, Binmore (1994).

As with the development of behavioural economics, neuro-economists have now started to look at the relation of Curiosity and empathy applications. Roughly speaking, neuro-economics tries to analyse the nature of the activation of the human brain, while individuals are carrying out economic decisions or specific tasks, through different forms of a typical economic experiment.

Neuro-economists believe that such studies of empathetic applications will help to understand the process of how people put themselves in the place of other people.

Therefore, one could conclude that part of the benefit of empathetic engineering is proposing a communication model that could be part of the Curiosity design. For example, in the problem of youth migration where the focused Curiosity helped to differentiate between those who migrated, going to migrate, planning to migrate, those who came back home after migrating for few years; besides those who chose to explore the opportunities in their communities as local change agents and persistent entrepreneurs.

After our empathetic interaction with the problem, the areas of brain capacity would start to get differentiated as shown in the earlier Figure (4-5). The complexity of the problem would show the impairment in thinking, as loss of flexibility in thinking, or inability to focus on the problem opportunities, or even in difficulty in dealing with the problem opportunities. The frontal lobe in the brain, due to the empathetic interaction with the problem, would create waves that trigger perseverance, targeting of judgement, more focused attention, better self-monitoring, more impulse control, more forward/backward/critical thinking, and most of all, feelings of empathy with the socio-economic problem.

Going back to Figure (4-5) we can see that the empathetic story scenario makes the right lateral prefrontal cortex of the brain interacts with the problem complexity and starts to raise the Curiosity of the investigators towards seeing the unexpected features. The anterior prefrontal cortex also helps to build spontaneous route planning. Here, again the empathetic story scenario helps in moving the temporal lobe and make it

well-utilised to be the working memory which can deal with the constant socio-economic challenges.

Curiosity and the Mindset

There are different perspectives on the kinds of mindsets required to develop Curiosity in schools. Carol Dweck's (2007) found that the mindset while not explicitly concerned with Curiosity offers a useful continuum to build curious assumptions. At one end of the continuum are those who have a "fixed" theory of intelligence, believing that their success derives from innate ability – i.e. one is essentially intelligent, essentially average, or essentially unintelligent. At the other end of the continuum is the "growth" or "incremental" theory of intelligence, in which individuals believe that their success is based on hard work and learning.

Those with a fixed mindset fear failure because they interpret it as evidence of their inability to achieve. Those with a growth mindset are less likely to be concerned by failure, because they realise and assume that their performance can be improved. Dweck argues that the growth-mindset is preferable and should be nurtured because it is far more likely to allow individuals to lead not only to less stressful, but also more successful lives.

Curiosity can fuel three kinds of innovative mindset to help tackle our energy challenges. At the level of technology, we need a mindset that is more precise in connecting the kinds of feedback customers are looking for with the energy data provided to them. At the level of environmental messaging, we need a mindset to connect to questions that people naturally ask of the things they care about in their local environment, and create the experience of knowledge gaps such that people seeking-out the relevant new information themselves. Finally, at the level

of behaviour change, we need a mindset that is more curious about our natures, particularly about the complexities of habit formation and change.

Understanding Curiosity can help to create more useful feedback and on how we communicate environmental messages and develop more sophisticated strategies to change behaviours that are habitual in nature. However, we need deep Curiosity that is beyond Google search, a Curiosity that arises from sustained focus and engagement in the environment or culture around.

Curiosity and Anxiety Management

Now we know that Curiosity is a right attitude that we can build in our mindset to help us continuously change routine life and to reframe our health and mental status. Latest studies emphasise the importance of being curious, as a way of managing increasing life anxiety. Since anxiety is very related to stress from experiencing the repeated routine situations that we do not like, Curiosity can be the solution to turn any event into something meaningful.

With Curiosity, our observation skills would be sharpened to something that we usually miss in things we do not like, or things that would make us forget about or move from things we do not like. Hence, with time we shift our focus from things that caused anxiety to things we like and excited to explore and discover. Acker and Pietila (1961) found that classroom learning hinders Curiosity and increases the anxieties of students. Latest neuroscience studies found there are negative correlations between Curiosity and nervous behaviour.

Curiosity eliminates our worries of over-achievement. Therefore, Penney (1965) found that children who are reactively curious show less anxiety than children who are not as reactively curious. He found that children's reactive Curiosity was negatively correlated to manifest anxiety. Similarly, Maw and Maw (1970) found that highly curious fifth-grade boys are more secure and freer from anxiety than less curious boys.

Levitt (1967) found that anxious people will be less motivated by Curiosity and do not show as much interest in exploring new areas. The work of Levitt helps to see how curious people are less anxious in discovering things they believe to be beneficial, or exploring things they enjoy or excited about.

Sometimes we get anxiety from family, friends, customers, or from the organisation culture or setup. Creating Curiosity can ease this anxiety. For example, the more we make our customer engaged with products and services development, i.e. they become 'curious' about our productions the more we could mitigate the anxiety that come from their demand. Hence, designing our products or services with Curiosity triggers more innovative ways that would help us connect with the stakeholder through different tools.

Therefore, one of the new tools deployed by leading companies today to manage or mitigate the pressures of anxiety that come from their stakeholders is engagement by Curiosity. Having the stakeholders engaged in the re-designing their products, or services appraise their Curiosity and turn it to be as a promising idea that needs further inquiry.

CHAPTER 5

Curiosity Learning and Development

Curiosity as a means of Learning

The level of Curiosity is highly related to complexities and the learning that could come from complex systems. Curious people would deal with the unpredictable, the surprising and the unexpected.

Complexity today affects almost everything around us. Designing our lives to be filled with Curiosity make us more competent to manage the complexities of today and even be more prepared for foresighted complexities of the future.

Curiosity can be cultivated in schools by teaching students the deep persistence of what means self-development of competencies and dispositions. This self-development effort makes Curiosity to be used as the vehicle for learning, rather than merely an expected outcome. To use Curiosity as a vehicle of learning requires mentors and educators to encourage the different forms of 'mental attention'. This mental attention builds unique mindfulness that makes the students more curious about things they previously did not absorb or observe accurately.

Maw and Maw (1961) found Curiosity to be high in those children that remember part of the story that was read a week ago, than did their colleagues of more intelligence. The reason is the differentiation in the level of Curiosity. These children with a high level of Curiosity found to learn more and have a sense of the meaning of sentences more accurately from those of low Curiosity.

Curiosity today is even chained in pre-schools where children have to stay within structured facilities in order to learn while they gradually lose their experiential learning capacity or learning through play. It is reported that one of the most successful utilisation about post-it note in education is that it raises the Curiosity of the student to think.

Curiosity and Lifelong Learning

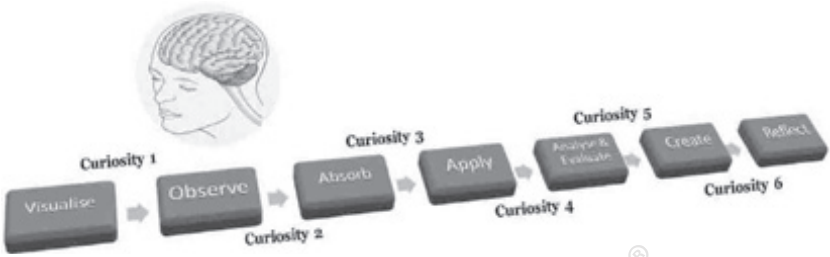
Given the complexity of Curiosity and its multifaceted role in cultivating innovation, there can be no simple formula for how to improve the prospects of people becoming more curious. However, there are certain implications for formal education and more generally for lifelong learning. We present some practical suggestions below to stimulate discussion.

Lifelong learning, when supported by Curiosity, would help us to acquire knowledge, to understand knowledge and then use or apply knowledge. Curiosity supports the broader case for making lifelong learning dispositions in education, for example. The first challenge for lifelong learning is framing, i.e. approaching Curiosity by centrality that brings in the desires of courage, exploration, experimentation, imagination, reasoning, sociability and reflection.

Gino (2018) mentioned that 24% of 3000 employees survey in USA organisations reported feeling curious in their jobs regularly and about 70% are facing barriers to be more curious by asking more questions. i.e. 70% live in an environment that does not, or could not trigger their Curiosity enough to be engaged in development.

Curiosity based education create a lifelong learner with clear visualisation which would use Curiosity to transform what is observed, to be absorbed and then applied. Further Curiosity would push us towards more analysis and evaluation in order to create and finally reflect on the issue investigated, as shown in Figure (5-1).

Figure (5-1) Represent the role of Curious Education in Designing our Lifelong learning.



Promoting Curiosity would help to build focal excitements and higher level of engagement. This excitement gives both the students and the receivers more chance to for deep learning and make their journey more of exploratory exercise. This reflexive awareness of students' natures the journey and enhance their learning patterns.

Curiosity and Resilience Learning

We can foster active learning and improve resilience learning when we confront people with problems and then stimulate the development of their deep learning. Such resilience learning helps to build lifelong learning by making the problem solver strive to solve a specific socio-economic problem, or assuming the responsibility for tackling it. Resilience learning makes the problem solver look for solutions, based on the realised life situations. Curiosity creates learning that is based on investigations, explorations and uses discussion forums through collaborative field research.

Resilience learning has the common advantage that it makes people feel more challenged with significant problems and

which would make learning more profound and lasting. The differentiation of resilience learning is that its Curiosity does not focus on a specifically defined solution, but it depends on the problem investigator, to look for knowledge acquisition and set up the most suitable problem communication.

Gino (2018) emphasised that once Curiosity establishes positive, resilient learning environment; it prevents us from 'confirmation bias', i.e. looking for information that supports our perceptions about things, or people, or ideas.

Resilience learning builds confidence to take the problem curiously, while also stretching to reach a new understanding. Resilience and human spirit development occurs when the brain-level explanations are integrated with explanations analysis to produce a richer and more holistic understanding. Resilience learning develops a more profound understanding that will aid in determining how and why we feel compelled to act on creative ideas.

Resilient learning affects our approach to different learning situations. The way we learn to be resilient during problem-solving help us to deal with ideas and with day-to-day situations while working in teams and managing conflicts. Working in non-formal, or even in a disruptive way, while solving problems brings in higher Curiosity and support more possibilities for social scientific research. Non-formal learning helps in building resilient learning and generate further ideas that can enable the achievement of desired outcomes.

Curiosity and Observational Learning

Learning by observation is one of the main parts of complex socio-economic problem-solving. Through this social learning and innovation tool, we can learn by observing others which can

help in developing our perspectives. Through observation, our Curiosity is raised to experiment.

Through observational learning, the problem investigators would use different brain sensory capacities to enhance their attention. This type of excitement enhances memory retention and makes the problem solver remember what type of attention needs to be focused on, including the exercise of coding, rehearsal, and mental images.

The intention of reproduction during observational learning helps to improve our physical capabilities and self-observation. Through observational learning, we would know if the problem needs to be re-structured or to improve its resolution.

Curiosity and Cognitive Load

'Cognitive load' is part of the learning process. Once we experience cognitive load the imaginative power helps us to manage different challenges and problems and turn them into opportunities in different ways. This imaginative power builds more life purposefulness, i.e. this supports Einstein's conclusion "Imagination is everything. It is the preview of life's coming attractions."

Opportunities centred learning creates the 'cognitive load' through making those involved, be it individuals or organisations, be more curiously active in solving the challenge early in the learning process. In certain times we call the cognitive-load as 'countermeasure' practices. Managing the cognitive load, through field learning that comes as a result of early learning help to curiously manage the vast amount of information. The cognitive load could be managed through the gradual introduction of problems opportunities.

Curiosity and Opportunities Centred Learning

Opportunities are viewed broadly as the potentials for change, or means for improvement, or as advantages that can help us keep arising towards social learning. Therefore, one of the most critical learning during a socio-economic solution journey is Opportunity Centred Learning (OCL). OCL helps to develop the cognitive load and thus build up the problem solver entrepreneurial capabilities, behaviours and practices. Figure (5-2) shows how the opportunities centred learning four variables would differentiate its impact on the socio-economy. This learning requires, as illustrated in Figure (5-2), exploring more opportunities, creating opportunities, planning to realise opportunities and acting on these opportunities.

Figure (5-2) Opportunities Centred Learning Four Variables.

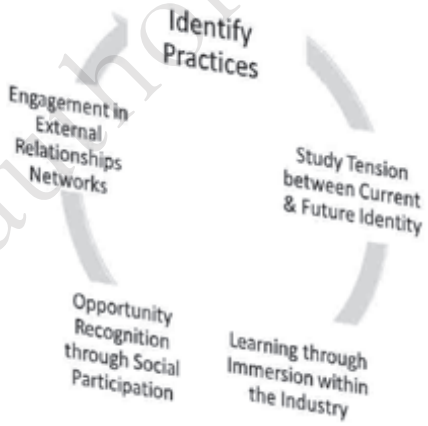
An Opportunity Centred Learning (OCL) establish through cognitive load behaviours that lead to innovative solutions to complex problems. The OCL model emphasises on natural and social learning triggered by Curiosity, desire and intentionality to accomplish a socio-economic outcome.

Curiosity and Experiential Learning

Experiential learning is a mental process that occurs when people work toward determining the solution to a problem. This human cognition usually reached by either 'Gestalt Approach'; thinking that depends on how Curiosity is represented and reorganised, or through 'Focus Approach' where Curiosity would be diverted in process finding. Both of these approaches raise the potential for experiential learning.

Figure (5-3) shows the importance of identifying practices during the Curiosity cycle. The Figure shows the tensions between current and future problems. Learning through immersion during a problem solving helps to build opportunity recognition through social participation.

Figure (5-3) Learning during Practice Identification



The famous example of experiential learning can be represented in Albert Einstein's Curiosity which led him to ask "how would the world appear if I were to travel on a beam of light?". This

learning developed Einstein's second Curiosity, which made him ask "would it be possible to travel faster than light?". The studies of Kang et al. (2009) found that when experiential learning is pleasurable, we would be having a series of Curiosity waves. Thus complete experiential learning can be achieved only when the mindset learns new attitudes, behaviours and more effective ways of how to respond to the complex challenges met. Due to Curiosity being part of human nature, experiential learning programs today are spreading as the most popular training forms of personal development. With such style of learning, people experience how to solve a specific problem and discover new ways of dealing with life.

When people are involved in solving life challenging problems, the process of ideation occurs, and this enhances the consistency of Curiosity. Therefore, it is imperative to understand our learning style to overcome the roadblock to a higher level of Curiosity and to discover new opportunities. Curiosity helps us to learn primarily through field observation collection, or discussions.

The design of Curiosity as part of the learning process improve our understanding in relevant to our role in life and in getting self-fulfilment. As with readers of detective fiction, Curiosity builds 'experiential learning' through first utilising 'interpretative approach'. Particularly, with poorly structured problems, Curiosity is highly needed to build 'interpretative approach' while exploring information to find relevant patterns and avoid 'dead-ends'. Using a case, or problem challenge and 'experiential learning' that use debates, peer to peer teachings and games can help to raise the Curiosity and prepare our mindset for real challenges that are expected in the turbulence of any economy.

Curiosity helps to choose between ideas or alternatives, to combine several ideas and modify them to create the final

proposed solution. This is crucial for experiential learning where the emotional component is more important than the intellectual and irrational components.

The process of Curiosity and experiential learning help to build a new type of assumptions that make the strange familiar; and the familiar strange. The tools for this process is 'personal analogy', 'direct analogy', 'symbolic analogy' and last but not least 'fantasy analogy'. For example, when we say for advanced, or developing countries that we will work to create Non-Communicable Diseases free country this a fantasy analogy. However, this fantasy analogy helps to raise Curiosity and create a metaphor that might create the experiential learning journey fascinating and push for further creativity attempts.

Curiosity and Distraction

Distraction is the most excellent form of inspiration because when we are distracted, we are more prone to think outside of the problem. Overcoming distraction or disruption can lead to an inspiration that leads to something real and tangible. Many scientists create an intentional psychological obstacle for students to stimulate their ability to learn beyond the traditional environment.

Jack Penn said one of the secrets of life is to make stepping stones out of stumbling blocks. What prevents us from finding a solution is not a distraction, but rather a functional fixation. Therefore, we need to appreciate sometimes distracting problems/challenges since, in reality, they have more probability for engaging us as learners. Even though distracting problems/challenges start with fuzziness and distraction, they possess multiple solutions and alternative paths that are less manipulatable. When distracted

by a problem/a challenge we build uncertainty about concepts, or rules, or principles that are necessary for the solution, thus our Curiosity would be focused more about which solution is the best.

Thus solving well-structured problems/challenges during our life journey usually creates new learning, while solving distracted problem/challenge would trigger more cognition approaches that might bring total radical change and learning.

Multi-disciplined education is one of the distractions methodologies that we can make or create in our communities to enhance Curiosity stimulation and develop a holistic mindset. With such type of disruptive education, we build a type of Curiosity that targets to see opportunities in each challenge. Figure (5-4) shows the relation of having a mindset that sees the opportunities in the distracted changes and multi-disciplined education.

Figure (5-4) Role of Multi-Disciplined Education and Curiosity

Curiosity distraction differs for both introverts and extroverts since the stimulation when it comes to the brain is processed differently, depending on our personality. For extroverts, the Curiosity distraction pathways are much shorter. It runs through an area where taste, touch, visual and auditory sensory processing takes place. For introverts, stimuli run through a long, complicated pathway in areas of the brain associated with remembering, planning and solving problems.

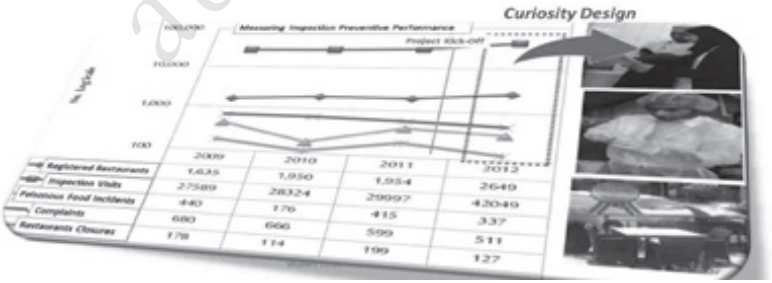
Curiosity brings in "insight" which help us to move from a state of 'not knowing the hidden opportunities' to a state of 'knowing what the hidden opportunity is and 'how to utilise it'. When we are curious during distractions, we are more capable of being active, collaborative, and cooperative.

Curiosity enhance our collective understanding of the issues of interest and how to use our creative or analogical thinking to the benefit of creating a competitive outcome. Human beings, in general, are programmed to deal with distraction through building Curiosity that leads to the growth of life experiences. When we are curious, we start first imaginative speculation and then disciplined ways of behaving where speculation is not cut down, but valued and encouraged. Curiosity enhances the imagination which makes us concentrate on the mechanism needed to identify the problem and to search for the solution and picture the product.

To illustrate the importance of distraction and its role in enhancing our Curiosity let us take a case where we are trying to eliminate fast food poisoning, in harsh hot weather environment. By being distracted Curiosity approach with fast food poisoning, during summer 2010, new means for accurate food safety preventive inspection were discover. In that summer of 2010, the food-handlers were trained to establish their self-inspection

model, instead of waiting for the public health inspectors. This distraction raised the Curiosity of all the stakeholders, i.e. the food-handlers, the consumers, the inspectors to be all focused on ways to stop food-poisoning, despite decrease number of inspectors compared to the restaurant growth and demands. This distraction helped us to think of new solutions that raised the capacity of bringing definitive efficient solutions compared to the demands. The distraction and curiosity led to transform the role of the inspectors to be more of coaches and local trainers. This transformation reduced the food poisoning incidences by 60%, in just eighteen months. This type of Curiosity help to develop the 'green sticker program', where a green sticker is given for restaurants or food handling entities when they manage to have three years clear records and with well-trained self-inspecting staff. Figure (5-5) illustrates the results of this formula curiosity + distraction approach that led to bring in hidden insights that led to creative solutions. This is just one example of many complex issues that could be tackled by this formula.

Figure (5-5) Illustrates how Curiosity Distraction in Case of Poisonous Food Inspection led to total Change of the Role of Inspectors



Curiosity Development Practices

Curiosity cannot develop if we are always eager to get used to things around us. The more we learn how to live with things around us and how to manage these things or people that more we lose the touch of Curiosity waves or signals. Curiosity even though keep us in different states of challenges, it gives us the essence of things we do or try to acquire.

In order to design a curious life, we need to know what ways make us more curious and what type of Curiosity we may target for each type of mission or vision, at different stages of life or maturity. Enhancing our capacity through Curiosity would improve not only our minds, but also our spirit which would both work to transform the way we see the world.

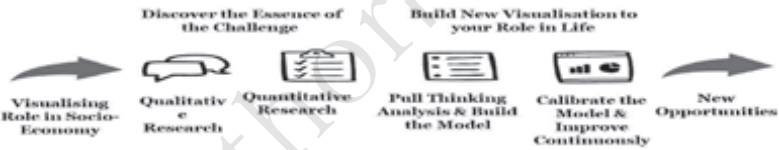
Curiosity can be generated scientifically when we are tested for explaining things around us, in a way that make sense. However, Curiosity is better when it is generated artistically, i.e. when we go through experiences that create meaningfulness of life and which changes our perception of our role of life.

The development that Curiosity makes in people can be seen in their practices, i.e. when they are keen to learn from mistakes. At this level, Curiosity would make us experiment through trial and error. This development would make us willing to repeat things and get excited to live different experiences. Thus, we can develop our Curiosity if we started to believe and practice that different challenges in life would require different kinds of Curiosity.

Humans have various forms of Curiosity that are particularly relevant to complex, or urgent challenges. The more we diversify our type of Curiosity the more we humans would start to discover our capacities vs the rising demands around us.

One of the main ways to discover our capacities is to go to the field with the intention to discover new opportunities. The Curiosity might be triggered by just being physically available in the field, or through visualising the essence of an issue. For example, in Figure (5-6) we show the expected process for Curiosity development in relevance to a socio-economic problem investigation. In order to discover the essence of the challenge, both a qualitative and a quantitative approach would be expected. Then our Curiosity needs to be selective, i.e. we need to define precisely the type of particular area of the problem we would like to work on. As we start working on a particular issue our Curiosity, we use convergent thinking to discover the opportunities around the problem to be explored, which could be used towards the visualised outcome.

Figure (5-6) Show Example of Steps of Curiosity Development



Curiosity and Imagination

Imagination is defined as arousing mental images of new things, situations or events that are not within the scope of the learning experience. Imagination can differ based on the source of curiosity. For example, sensory-based curiosity is different from cognitive-based curiosity.

Sensory curiosity can be seen, for example, through a sensory survey using multiple methods and a variety of presentations. The imagination would increase if we use for example visual colours

and sounds, or even use mobile. The more we diversify the source of curiosity the more we would see opportunities for learning.

Once we are stimulated by new stimuli, by sensory or cognitive stimulation, we could begin the exploration activity while we move our imagination to obtain information and experience about these stimuli. Curiosity creates better imagination which develops our capacity for positive response to new, strange, contradictory and complex stimuli. This imagination helps us to explore these stimuli's, thus to create the desire to recognise the reality and then finally the desire to know.

Curiosity Advancement with Human Development

Human development is very related to new sights, that comes from field explorations.

One of the main types of human development curiosity is what is called 'perceptual curiosity'. It is a type of curiosity that is built around the feeling of a particular experience. This type of curiosity helps humans to develop new sensations.

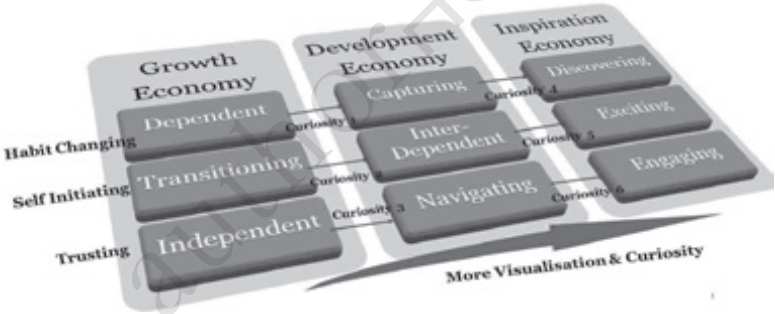
The urge to learn more, or to acquire some cognitive information is called 'epistemic curiosity'. This curiosity causes the development of thinking, more than the development of experiencing. This curiosity helps to develop the desire for information or knowledge than that of exploratory.

Once the curious desires for information or knowledge are directed towards answering a specific question, we would be ready to solve complex questions or issues. This type of curiosity called 'epistemic-specific curiosity'. Depending on the condition

and the context, a person will probably possess any or all of these types of curiosity.

Curious field visits lead to better networking and surveys and thus better active human participation and reflections. Curiosity helps to create a human asset that starts by creating growth in the economy and thus move from dependent transitioning to independent development economy. Through curiosity, humans can capture better opportunities and thus become more inter-dependent. Thus, they can navigate and discover new areas and hidden opportunities. Figure (5-7) shows how curiosity leads to human development.

Figure (5-7) Illustrate the role of Curiosity in Leading to Human Development.



One of the most challenging assignments in artificial intelligence is building cognitive neuroscience and cognitive psychology that would lead to curious robots. Without building Curiosity in robotics, in reality, they will not be a threat to humans.

Curiosity can continuously challenge our assumptions and conscious processor in the head and the mysterious relationship to the brain, receiving input, via the senses, from an outside world

that is 'given' and which functions primarily on a non-contextual, non-emotional basis.

In order to establish Curiosity in robotics, we need to build a positive relationship between Curiosity and knowledge in a particular domain. Any new information acquired can change the perceived size of the information set. In effect, when we learn about a subject, we realise that the subject has greater breadth and depth than was expected.

Curiosity might not increase with knowledge if the knowledge acquired makes the solution or the answer to the question too evident. Curiosity is likely to decline if one becomes exceptionally confident that one already knows the answer (Loewenstein, 1994). This is especially applicable in the age of advanced artificial intelligence. Therefore, in such type of knowledge based economy we need to be selective of our Curiosity and gear it to what increases our human capability to manage the coming AI challenges.

The emerging neuroscience forces us to rethink more today on the nature of perceptions, reasons and emotions and how they collectively involve Curiosity and its design. In order to build a more comprehensive view of relationships between our mind and the future, especially in the age of robotics, we need to distinguish our Curiosity by focusing on phenomenological issues. This phenomenological focus would enhance our visual perceptions. This means that we would start to see things in a different way than our controlled or limited sensory. This means our Curiosity would make us see colours and shapes as potential opportunities, i.e. what they are for, rather than just objects. This would open in our mindset new opportunities on how to use them or interact with them. For example, we might see a chair as a thing to sit or see a door as a thing to open. This would help us

redesign the doors or the purpose of the door and the chair and its type of utilisations.

Thus, in the age of robotics, we need to differentiate our curious minds and get it beyond asking 'what' questions by asking more 'why' questions. This means we can differentiate humans' outcome from robotics outcome, by engaging all the senses and making them work together, thus passing the limits of the robot and its potential Curiosity.

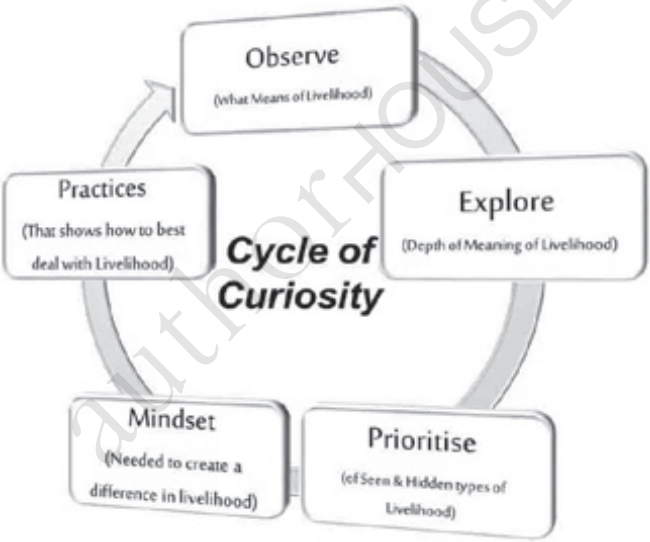
Creating Curiosity Culture

Curiosity as per Berlyne (1978) found to motivate learning and successful adaptation throughout our lifespan which advances any culture. Thus, in order to develop any culture, we need to establish what triggers and maintains its Curiosity. Working with the Japanese for three years, during 2001-2004, taught me the meaning and importance of setting principles that create a Curious culture on the level of the organisation, or the community. The Japanese culture retrieved old practices and used it as a sustainable means for differentiating the level of any Japanese company compared to similar other competing company in the east and the west. I still remember how sticking to simple practices as Poka-Yoka, which means foul or fault proofing, and Kaizen, which means small continuous improvement, have changed my way of thinking and mindset. Re-inventing practical, yet simple Curiosity-driven words and practices and then spreading it in the Japanese organisation's cultures made the leading western companies try to compete only on what explicitly keeps the Japanese ahead in the development of new products, but not on their hidden Curiosity drives.

Curiosity Learning Cycle

Any Curiosity cycle starts with milestones of learning. Usually, the first ignition of any Curiosity would start with an observation. By exploring in depth the meaning of the target we are curious about, our mindset would establish focus practices. Figure (5-8) shows the cycle of Curiosity in relevance to learning. The cycle of Curiosity link observation with exploration, so that we prioritise specific practices that help the Curious mindset.

Figure (5-8) Shows the Cycle of Curiosity Learning.



Seeing the essence of things when formulating a solution to a problem help to build realisations. This type of exercise increases our Curiosity to search and strive to discover. This dual formula of Curiosity and the challenge of associating possibilities creates the ability to see things in different perspectives and thus discover the hidden blind spots.

The cycle of Curiosity can be seen in the practices of the fictional detective 'Sherlock Holmes'. Holmes Curiosity always leads him to explain the problem as a learning cycle explicitly, then based on that he starts finding evidence and show examples. This type of Curious reasoning led him to be unique in his ability to generalise, apply, analogise and represent different solutions in totally different ways. Holmes managed to deal with reasoning under 'problem uncertainties' in a context that investigate the knowledge needed for the problem through what is called 'abductive reasoning' strategy which its success depends a lot on Curiosity. This is a form of critical thinking that occurs during the cycle of Curiosity where the fundamental constructs of the problem go through first patterns recognition and plausible reasoning. This type of reasoning in the Curiosity learning cycle brings in focused observations. These focused observations trigger divergent thinking which helps to build attitudes that promote unstructured solutions. Such solutions carry the spirit of Curiosity, persistence and a willingness to take risks.

CHAPTER 6

Curiosity about Finding the Right Problem

Mohamed Buheji

Living the benefit of asking 'Why?'

"The wealth of man to be discovered must be accompanied by a change from the inside." (A Chinese proverb). In order to discover this wealth, we need consistent experiments. The experiments start with intuitive thinking through the questioning 'why' and 'what', then to criticise what has been achieved previously through logical thinking. Asking 'why' during a Curiosity journey means we start a type of process of thinking sequence that would help us to discover our intrinsic power. As we ask 'why' we create a connection between what we need to change in ourselves in order to understand the outcome of 'why',

By asking 'why' we need to accept our ignorance more than our profound knowledge. This means we should accept and realise the importance of Curiosity-coding where (humility, identification, and concentration) would create real change to the soul to see the next transformation.

In the field of managing change in any industry and even at the level of our family, asking 'why' would help to accommodate what might happen. To avoid getting stuck with decisions within an organisation, we ask 'why' questions to build prior knowledge of the forces that surround the environment that might be faced. Daring to ask 'why' would make us overcome any thinking about when it is correct to ask. With 'why' we can have more focused Curious abstraction of the problem, or the issue investigated. By asking 'why', we build a sense of the problem and would dare to move from a large scope area to a specific area, which helps to have more focused troubleshooting. By 'why' we practice the saying 'measure twice and cut once'. This ensures that our Curiosity would have better hit-rate.

Curiosity and Observing the Right Problem

When we observe with Curiosity, we improve our 'visual fixations' capacity. With 'visual fixation' we can increase our capacity for attention and thus our ability to understanding the higher cognitive processes. This higher cognitive understanding helps us to absorb and reflect more effectively and efficiently. Hence, then we can see opportunities from different perspectives and realise the essence of the root causes.

Observing with Curiosity, build inside us information-seeking behaviour, which differentiates the acceptability of the neural systems. The level of Curiosity depends on the 'connections-waves' in our brain. i.e. when we see a yellow colour, some of us would remember Mc Donald's Burger, other would remember traffic light, others would see from an artistic point of view, or even as a signal to create a change.

Curiosity and Influence of Exploration

Have you wondered why humans are always striving for knowledge like they strive for survival? What is the source of this eager and what drives our persistent search for hidden answers? Why generation after generation we have been having more people getting involved with their community issues, or engaged in the new world problems? It is undoubtedly a type of Curiosity that is linked to our frequency of exploration.

We all have a type of search strategy for finding out, for example, where food is located. We use our Curiosity by tracking the scents of where the food may be, instead of only utilising this gifted Curiosity why don't you use such senses of linking things together.

When we explore something as if we take a trip to an unknown land and getting away from previous thinking. Therefore, Curiosity exploration provides better long-term payoff, because it provides help us to remove tension and transfer it to be the intention. This intention maximises the expected reward and information. Thus Curiosity can be ignited from exploring the basic needs, or challenges that face us in different life situations. We know one fact that through Curiosity we have more focused exploration. Through exploration, we can expand the knowledge of something unknown to us, but 'probably' known to others.

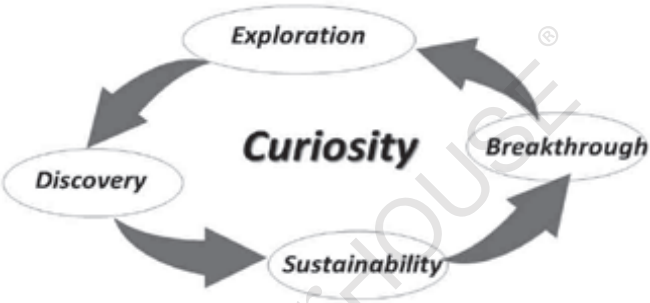
Exploration is about studying a new area. When we explore, we can be curious about the content of things, style of people, level of business, type of religions, the way of customs and complexity of ideas. Exploration thinking is another way of looking at life, and it is not a one-time event, but part of a journey stage of life which contains opportunities.

For useful exploration, we need observation that is linked to our intention and perception in relevance to the goals of the stage of the journey of life. Observation as part of exploration, should focus on the basic needs and resources available, see the challenges, needs mapping, examines the engines of change and layout plans for emerging challenges.

Our Curiosity makes us first wonder about the most visible role we can take in this life. i.e. what type of qualitative shift in products, or services we will contribute to the world (books, lectures, projects, volunteering work, new relationships, achievements, etc.). It is a way of thinking to deal with challenges or problems through the mobilization of the opportunities in them. Once the opportunities are appropriately explored, then we should try to link these opportunities with each other to come-up with stability and hopefully sustainability.

The Curiosity at the exploration stage might help us to create a 'breakthrough in thinking' and delivery. Figure (6-1) shows the four primary constructs that interact and are highly dependent on Curiosity: exploration, discovery, sustainability and breakthrough. These four constructs help to build the cycle of Curiosity that can help to re-design our life.

Figure (6-1) Cycle of Curiosity that helps to re-design our life.



Curiosity and Problem Synthesis

Curiosity through problem synthesis helps to deal with its complexity and ensure its useful interpretations. Through the synthesis of the problem, different interventions of learning cycle improve the creativity of the solution and help to overcome its constraints. Synthesis of the problem would bring learning interventions and possibilities the same as shown in Figure (6-2) which identify the problem to be solved through learning that starts with visualisation and planning of the solutions. Then, the potential solutions would be implemented to construct the problem learning models and test it.

Figure (6-2) Synthesis of the Problem Learning Interventions

The problem synthesis helps to increase the percentage of Curiosity and attendance to the complexity of the problem. The synthesis helps to develop the learning interventions which improve the networking and interdisciplinary approaches. Hence, socio-economic problem-solving synthesis helps to improve the 'productive and reproductive thinking' which create 'novel restructuring' of the potential problem solution and thus enhance our Curiosity. Once synthesised, the holistic approach used in problem synthesis increases our practical Curiosity to associate possibilities together analytically.

Curiosity and Community Problem Solving Initiatives

Throughout history, till today, all righteous people, legends and innovators came in this life to start a community problem-solving initiatives. What differentiated them is not their mindset only, but their level of focused Curiosity. A community needs exerted efforts and close following ups and diligent activities that help

them reach reference models for a sustained, targeted outcome. All this can be achieved through Curiosity initiatives

Communities-driven problem-solving initiatives need to be ready to meet the challenges of the 'school of life'. Curiosity besides the mindset of the problem solver should prepare him to be ready to accept failures to any initiatives, or manage any unexpected performance.

Since human behaviour is linked to community initiatives, therefore the Curiosity of the problem solvers can be a cause for tension, or an imbalance that requires some activity to satisfy their needs. A curious-driven community initiative should bring in internal physical and psychological motivation that raise behaviour in certain circumstances and continue until the end to a particular goal. When a community get curiously involved with the initiative of solving a specific socio-economic problem their performance is stimulated and determine their directions to achieve more specific goals.

Positive reinforcement can help any community to deal with any socio-economic problem-solving initiatives, as it provides immediate reward and acceptance that strengthen their collaborations. With positive reinforcement, we can improve the learning approaches towards complex tasks. Therefore, it is highly recommended always to appreciate the psychological influence that Curiosity creates on any community. With each time the solution is effectively accomplished, the Curiosity motivates the community to conduct a more behavioural activity which increases the community learning, retention and performance.

Mohamed Buheji

Differentiation of Curiosity Role in Socio-Economic Problems

In order to test our Curiosity, we need to test it in solving or managing complex issues of our lives. Thus, in a book called 'Re-inventing our Lives' and which was released in 2018, I called for using Curiosity as one of the tools to re-design our lives and our communities. Our interaction with socio-economic problems enhances our Curiosity capacity. The uniqueness of learning here, during the tackling socio-economic problem, is that it builds in us a feeling of working on something you profoundly believe in. When we believe in something, we will always try to solve it, or we will try to address the problems that come on it, or from its way, through using probably higher-order thinking such as evaluation, synthesis and analysis which all would increase our Curiosity again.

This higher-order thinking helps us to maintain our persistence demanding era. This higher-order thinking will let us start a new fresh perspective that tells us to hold on, and we will then start to feel Curious about the essence behind this challenge. Then, we will realise that what we experienced is normal, since we have not been trained to manage the pain of change. In the same time we are under consistent challenge of being told, directly and indirectly, that we are not brilliant, or we do not have fast thinking if we do not do logical troubleshooting, this strain our Curiosity more and more.

Life shows us that differentiated socio-economic solution outcome comes most of the time as a result of Curiosity and way of thinking, which differentiate our learning and help us to create 'radical reverse thinking'. By going through various socio-economic problems and challenges of life, we would discover the intrinsic value from the inside. Hence we can leave our mark on every "point" we come across in life. The feeling of frustration,

when dealing with difficult or challenging problems, along with the possible confusion and annoyance stretches our minds and create Curiosity that leads to the possibility of unlearning and re-learning. The sustenance of this Curiosity builds a spirit of persistence which comes after allowing our brain to access everything that might be useful in solving the socio-economic problem. Questioning a community problem with Curiosity can help to point to the right direction, until the process becomes subconscious and this allows us to solve the problem much more quickly than the average person.

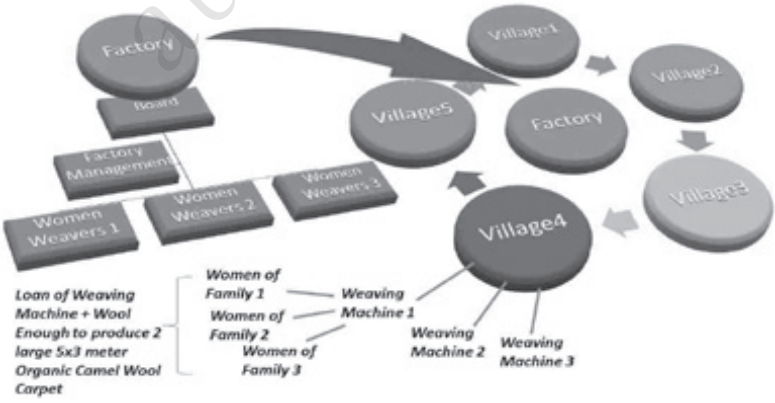
The more we handle problems, the more we will gain the differentiated learning that helps us to build persistent questions as what adds value and how it is created. This raises a type of Curiosity that would help us to identify the root causes of the problems better; what an "ideal" process looks like, how can we make things easy and intuitive. In such a setting, we could be curious about 'what are we trying to improve?' Alternatively, 'what are the causes that are preventing us from meeting our targets?', To build up better learning cycles that can lead to better outcome. To sustain the differentiated Curiosity "project closure" need to be used to ensure the accumulation of differentiated learning experience.

The "project closure" help us to learn first the types of problems that are linked to outcomes targeted and those which create a good reference for what we call 'one-point lesson'. The "project closure materials" can be an inspiring source for Curiosity that touches the heart, the mind and excite the spirit, when it is covered with its differentiated strong learning content.

Every socio-economic problem should have a "project closure" where it is ensured that the "measured outcome" of the community project impact is appropriately linked to the direct measure of the problem. This measurement would ensure differentiated

outcomes. Take, for example, the socio-economic case of women led camel wool carpets factory. The Curiosity of seeing the alternatives in specific production process helped us develop and redesign an entirely new community life around this business. The camel wool factory was used as a means for improving rural women conditions. The Curiosity was built around whether the carpet of camel wool needs only to be produced in the capital (Nouakchott) factory, or could it be produced anywhere and then packaged and distributed centrally? This type of curious questioning helps us later to discover and re-engineer the whole production. The production in the factory was shifted from the factory to homes in the village, instead of being centrally located. This influenced tremendously the quality of life and even the productivity of women weavers. As shown in Figure (6-3), the consistency of this Curiosity led to creating an interest-free loan scheme that would manage to give each three village women a carpet weaving machine, besides enough camel wool for two medium size carpets.

Figure (6-3) Shows an example of the influence of Curiosity on Developing the Status of Women in the Camel Wool Carpets industry in Mauritania

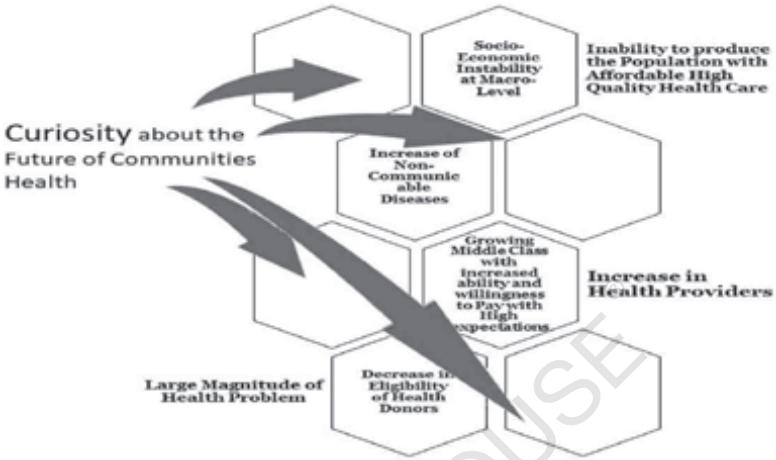


Importance of Curiosity in Problem Solving

Perhaps the most critical attitude in problem-solving is Curiosity. Curiosity is a critical state of active interest in knowing about an issue which allows us to explore any issue through strange ways. Through Curiosity, the problem solver can experience a more significant opportunity to discover unique sustainable solutions.

Due to the Curiosity of the problem-solvers they would always be proactive in setting and achieving goals. However, this Curiosity requires patience and calm when tackling socio-economic problems, where the capacity for rational and irrational decisions are needed. For example, take the issue for the Curiosity of controlling the rapid increase of patients all over the world with Non-Communicable Diseases (NCDs), or who are prone to the risk of NCDs. The Curiosity and concern about the future of communities' health in solving such problem push us to be less resource dependent, especially with the growing middle class which has the ability and willingness to pay, but based on high expectations. The large magnitude of health problem made our Curiosity focused on raising the involvement and engagement of all the healthcare workers to participate in early detection and discovery of NCDs risk in the population. The success of this exercise helped to reduce the potential risks of citizens of being infected by NCDs from 90% to 75% in just two years. Figure (6-4) shows how the paradox of Curiosity developed in the case of NCDs.

Figure (6-4) Curiosity about the Future of Communities Health



Renowned psychology professor George Loewenstein proposed that Curiosity is not only a mental state, but also an emotion that pushes us until we complete gaps in our knowledge. This is what happened, for example, in solving a problem of 'sweet water leakage'. The Curiosity focused on finding the 'visible' and 'non-visible' leakages, which developed innovative techniques for better water piping and ensured more efficiency in detection of water loss in the water network which saved millions of dollars.

Directing our Curiosity towards exploring the 'problem constructs' requires careful empathetic listening and understanding. Such consistent practice develops our flexible thinking and enhances our perspectives. More Curiosity in socio-economic problems, as mentioned in Buheji (2018) 'Re-inventing our Live', helps to find the presence of meaning, search for meaning and life satisfaction. Therefore, we believe that the life of curious people would be far from boring, as they would be involved with their community issues and future developments. They would always

be having fresh new ideas and a new world to explore, which open up new possibilities for them that are generally not visible. Thus, one could say that Curiosity about problem-solving raises our consciousness and improve the way we think or reflect. We are maintaining the Curiosity during the problem-solving journey help in finding faults or potential opportunities which raises our metacognition. Therefore, learning from the mistakes experienced during the exploration journey is vital to the whole outcome of the solution.

Curiosity is the perfect countermeasure to overcoming socio-economic problem fear. However, we need to manage our Curiosity for a problem by learning to focus on the positives of any situation. By being optimistic and approaching every experience to gain something positive from it, we will probably find that many of our socio-economic issues could be solved in more simplified ways.

With designing of Curiosity, we are making the mind to select the choice to look deeper into the socio-economic issue and see the actual problem significance. With Curiosity, the mind can sustain the realisation of the problem opportunities. Studies have shown that brain here can be active and alert, since it is curiously engaged with a complex problem. Regular engagement with socio-economic issues and trying to synthesise a problem mystery helps to build a novel experience that gets non-familiar outcomes and better preserve the mental focus on the final targeted outcome. Therefore, with Curiosity, the muscle of the mind becomes stronger while fulfilling life experience and creating new learning.

Curious problem solvers would have an open mind to new possibilities, ideas and sparking interest to explore more opportunities. When managing to gather data using most of the senses, we can start to shift from being 'aware of the problem' to

the stage of 'absorbing the problem potential'. DiSalvo (2018) seen that such practices help to engage our brains to stay busy with problem-solving, thus create a sufficient buffer against anxiety. Through maintaining Curiosity on the socio-economic problem, more focused capacity can be achieved which means fewer lost-opportunities. This trigger a response from the amygdala and ventral striatum of the brain. These areas in the brain are usually associated with challenges and threats which curious problem solvers would feel and appreciate.

Curiosity enhances our resilience. With resilience, we can deal with complex and unstable socio-economic problems. Resilience is highly needed when dealing with a socio-economic situation which has an unclear outcome, or robust to be achieved — resilience in problems solving help to establish well-defined boundaries to be dealt with. A well-defined problem is one with precise specifications of the start state (where you are), goal state (where you want to be) and the processes for reaching the goal state (how to get there). Curiosity would help us to deal with ill-defined problems, especially those that are lacking explicit specification of the start state, goal state, or the processes for reaching the goal state.

In order to have a sustained solution to socio-economic issues, we need to have a curious spirit and mind that brings in holistic solutions. Bringing solutions based on Curiosity prevent sources of problems to occur again. With selective Curiosity, sources of opportunities help the mindsets to be more resilient and ready for challenges. Curiosity helps us to break problems into constructs, where opportunities can be found in almost all of them. The collection of these opportunities would be the constructs for the outcome solution.

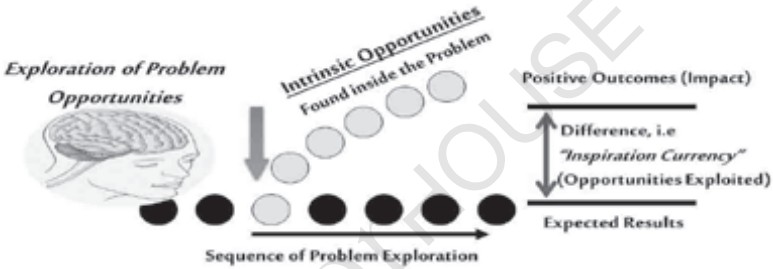
There are specific methods of problem-solving, however, few would lead to resilient curious practices. Example of the methods that raise Curiosity would include: systematic searching, trial and error, difference reduction, means-end analysis, working backwards and using analogical thinking. Once Curiosity leads to resilience in problem-solving, we start from the time we attempt to build a problem statement. Open minded, non-biased noise free observations that turn the physically collected data into absorbed information help us to be more curious.

Importance of Curiosity in Problem based Environment

Curiosity is one of the most critical 21st-century skills. With Curiosity, we can characterise the successive changes that are necessary in any problem. Pursuing changes in any problem stimulates continuous learning that raises the Curiosity again. For example, curiosity increases the capital knowledge of all stakeholders of the socio-economic problem (individuals-organisations-community) and thus increase the quality of life. The term "Curiosity" affect the excitement and direction of behaviour where sensory and cognitive Curiosity is differentiated. This means that Curiosity precedes exploration in its importance to the problem solver. Curiosity interacts positively with new elements in the environment and often seek new experiences. Curiosity protects in dealing with the ambiguity of the situations. Provoking Curiosity leads to planning more focused explorations. There are different types of Curiosity which leads to a continuous realisation of the stimuli and enhances the overall impact by (perceptual Curiosity). With the absence of Curiosity internal stimulants, cognitive Curiosity diminishes as a result of repetition. This lead to decreasing of desire and the state of tension in the problem solver and drops the desire to the need to know.

Cognitive Curiosity is stimulated when the learner's environment which is deficient and inconsistent. The motive of Curiosity is one of the psychological motives gained, and is classified as one of the motives of excitement and activity. The motives for Curiosity increases our attempts to find intrinsic opportunities inside the problem. The more we are curious about exploring the problem opportunities, the more we can expect positive outcomes. This is shown in Figure (6-5).

Figure (6-5) Curiosity Role in Exploring the Intrinsic Opportunities



Social integration raises the spirit of Curiosity and make us see the socio-economic problem from different resilient points and then propose solutions that take into account 'social cohesion', 'strong institutional foundation' and 'culture of acceptance'. Societies are better off, if they promote social-integration through inclusive policies that reduce economic inequality and poverty, and promote sustainable and equitable development.

Curiosity and the Productivity of Problem Solutions

Throughout this chapter, we have shown how the different mechanisms of Curiosity and learning have a significant influence on the productivity of the socio-economic issue. The outcome

from problem-solving creates multi-influence effectiveness that addresses the socio-economic needs or the realised functional outcomes. In order to create a unique, inspiring, productive outcome, we call it here (IP), we need to have the outcome sustainable compared to the efforts and input invested in it. This is symbolled in the formula:

(IP) = OC / I, where OC = Outcome of the socio-economic solution that brings in Legacy, and I= Input and efforts put in the socio-economic issue or its conditions.

Taking the formula of IP into consideration during the attempts of solving a socio-economic problem helps in shifting both organisations and communities' Curiosity focus from growth productivity (i.e. productivity that improve with resources and projects) to development-based productivity (i.e. productivity that improve with challenges and selective 'pull-thinking' influence) which comes from the type of problem constructs. For example, in a case where the Curiosity was focused on the Social Insurance Authority (SIA) productivity, the problem solution focused on this case to transform the services of the SIA towards creating an outcome and an environment that would ensure that the lower salary pension scale participants are more prepared for 'entrepreneurship environment', before retirement, through effective incubation and acceleration programs. This shifted SIA program from being just focusing on improving the services of the pension fund in general, or raising the minimum wages of those on a pension, or transferring them to a social development department. The new productive solution would ensure the level of productivity of SIA to reach the essence of its role, that is to ensure the best 'quality of life' for its stakeholders. The unique thing about this productivity formula is that it is simple and keep us focused on the final journey with great Curiosity.

CHAPTER 7

Curiosity about Finding the Right Solution

Mohamed Buheji

Curiosity and Reward-Driven Mental Representation

There are many moments in our life where we go towards a sense of achievement. One of the advantages of thinking about rewards is that we can apply the why, when, how and how much and where the reward will be, with a definition of the nature of the targeted reward model. Thinking based on reward mental representation requires a commitment and establishes a flexible thinking that triggers the subconscious area of the mind. Curiosity leads us to experiment without hesitation of dealing with the reward possibilities. It is like someone who enters the jungle looking for treasure in-depth waiting to grab moments of "I found it".

With 'Why' we challenge our mind to wonder and to dive deep into the roots of the problem investigated. The reward mental representation was therefore, been understood by the Japanese who ask 'why' so much in their sequence of thinking. Reward mental representation helps to establish flexible thinking and to shorten the sequence of thinking.

One of the essential requirements of sustaining a disruptive thinking approach is to renew our intention in the targeted area. This level of focus requires proper and correct observation, while building experience from reality and facts as we go on. Root-thinking methodologies also require that we do not only look at, or examine, the work and flawed things, but look more at work and the perfect things.

Most of us heard about the 10,000 hours' rule of thumb, which emphasises that if we repeat anything up to such amount of repetition, we will master it. However, the latest studies have proven that this rule of thumb is not accurate. It should include that if we repeat things with Curiosity, then only we could master it in less than 10,000 hours. Studies show that what sets

deliberate practices is not the number of hours they spend, but the Curiosity-driven by their 'mental representation', Ericsson and Pool (2016).

Mental representation could lead to 'purposeful practice' where our Curiosity would play a role in the specific goal, intense focus, immediate self-feedback (which we call hit-rate), besides frequent calibration of the goal targeted.

A recent USA study showed that two-thirds of people work in carriers that they are not passionate about. Just what differentiates those that are not happy about their jobs and those that are happy is the drive for a seen reward. Studies show that purpose-driven Curiosity help to improve our information-seeking where our decision would be linked to choices of stochastic rewards.

Curiosity helps us to adjust between exploration (sampling to improve knowledge, and thus future choices) and exploitation (choosing public best options). Sampling typically gives lower immediate payoff, but can provide information that improves choices in the future; leading to higher overall performance.

Cultural Analysis, Social Integration and Curiosity

Social integration is a critical process for creating Curiosity in socio-economic problems. Through social integration, we can create more visualisation for unity, desire for inclusion and participation, at all levels of society. This visualisation enhances our endeavour towards more acceptance of diversity.

By being Curious with socio-economic demographics, class, level of expression, socio-political freedom and cultural traits, we can ensure where we need to enable weakness areas of the problem to

be more correct. Through the intention of social integration, we can explore equal opportunities that would be related to human rights and services and directed as part of the mainstream of the solution. Social integration can be considered in solving chronic problems, as poverty and deprivation which represent a symbol of the socio-economic challenges.

The elimination of social exclusion through social integration programs means the society would be more competent for exploring economic opportunities and more ready to meet any failures for this cause. Social integration driven mindset would help to reduce specific alienation or marginalisation of a particular category and thus would reduce the vulnerability of those at risk. With social integration outcomes, we eradicate bad social practices as having stereotypes of specific issues that prevent the development of capabilities among vulnerable populations and those with deprivation.

Demello and Furseth (2016) believe that the more we do useful cultural analysis, the more we will be Curious and we would understand how to overcome challenges and deals with contemporary or future problems. For example, since technologies can be employed, accepted, or not accepted by the beneficiaries, it needs more in-depth cultural and social psychology studies and analysis that see and understand the effective integration between the practical and operational strategy that would enhance public service key success factors.

The broad external factors of culture and societal values are also another source of Curiosity which might help attract more application of technology solutions for critical societal issues, as addressing the 'independent living' needs. When we start analysing any social integration opportunities, we first need to realise the presence of real inclusion where are forms

of discrimination and intolerance are prohibited. This type of mindset help to target the socio-economic problem more stable and productively. Example of problem social integration starts with creating an environment that secures productivity through reducing poverty, reviewing the sustainability of social resilience.

Social integration helps to overcome challenges in the problems through affirming diverse identities, improving communication, building communities and developing inter-group conflict management.

Curiosity in dealing with the Blind Spots

There are many blind spots in our life where we miss important things, just because we did not visualise it. Blind spots are highly related to inspiration currency. The more we discover the blind spots, the more we discover our currency. Therefore, blind spots are highly related to challenges, or even what are perceived as life's chronic "problems".

Blind spots help to raise our Curiosity capacity to respond to life's challenges and thus lead us to build virtual observations and reflections. The blind spots could be eliminated through the development of the community maturity scale:

- ¥ Phase 1- Exploration of the blind spots
- ¥ Phase2- Relation of blind spots to the expected problem results.
- ¥ Phase 3- Relation of blind spots to the expected problem outcome.
- ¥ Phase 4- The new way of thinking that the blind spot is creating

- ¥ Phase 5- The sustained competitive legacy that the discovery blind spot creates.

In order to explore the blind spots at any time in our life, we need to increase our active engagement with the field or the sources of Curiosity. Thus we need to start with the field visits, as shown in Figure (7-1). By interacting with the field, we could start seeing the opportunities. These opportunities can be tested or optimised by different means. For example, today that opportunities are optimised through gamification and networking. The surveys also found to help in developing our Curious reflections. Based on the field visit and the collected observations, our blind spots exploration attempts would be more straightforward. These steps altogether help to target the right solution.

Figure (7-1) Sources of Curiosity in Dealing with Blind-Spots

To identify the problem of increasing high talents leaving the police forces, for example, after they get their higher educations, a star program was started to identify the experts in each field. Each type of expert was identified not only by his speciality, but also by stars where those of 3 to 5 stars would be given external and internal government projects and would ensure effective

supervision of the government projects closure. The 'police experts star' helped to not only to maintain many police knowledge experts and reduce their turnover ratio, but also enhance their interaction with the public-community projects, while also extracted their security expertise before the government project closure. Thus, by using the constructs of Curiosity cycle the problem of police officers' turnover was mitigated to a minimum and more police expertise was recognised and maintained.

CHAPTER 8

Curious Minds & Visualisation of Breakthroughs

How Visualisation Occurs in the presence of Curiosity?

Before we dwell in the importance of visualisation for differentiating Curiosity, we need to understand the importance of visualisation to a human being and how they occur. A visualisation is a form of mental representation for improving the persistence in the behaviour and usually requires high involvement that leads to creating better capacity after the behaviours are challenged.

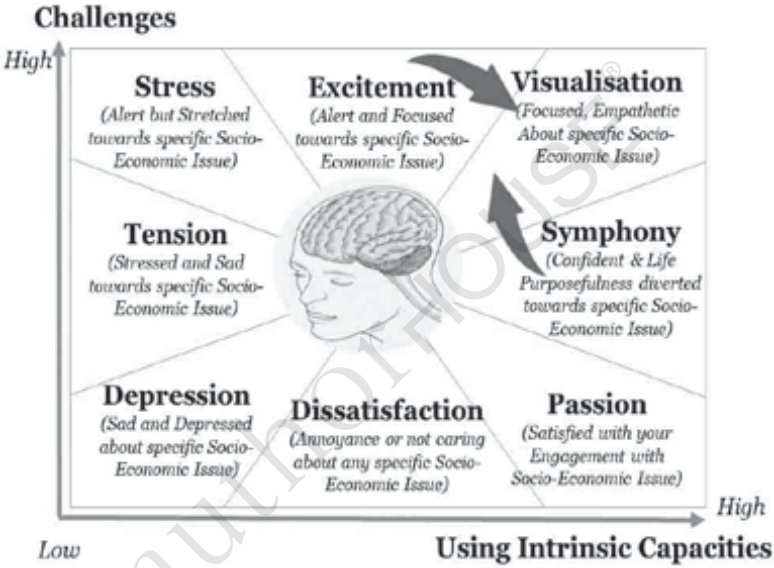
In this book, we discuss how Curiosity + Focus = Visualisation, i.e. if we want to have better clear visualisation we need have a high level of Curiosity, regardless of the types mentioned in the second chapter. Then, also we need to have crystal focus attempts which come from Figure (1-3), in chapter one. Say that if we need a robust 'Curiosity Code' we need to define proper humbleness, focus and clearly defined scope of the area of Curiosity. Hence, the more we are humble in accepting new ideas, thoughts or insights and the more we deploy it to a specific scope, the more focused we are.

In order to reach the realisation stage, visualisation is a requirement. Visualisation is very influential for Curiosity as it increases our feelings of competency and engagement. As with Curiosity and focus our visualisation would be differentiated. Curiosity would play a vital role in creating: attentional processes, retention processes, production processes and self-motivational processes.

Visualisation means we need to be both focused and empathetic about specific socio-economic issues. When visualisation occurs, we would be more passionate and would be satisfied with our engagement with these socio-economic issues. Before we reach the stage of visualisation, as shown in Figure (8-1), we reach the excitement stage where people would be alert and focused towards the specific socio-economic issue. Curiosity is considered like a precious 'inspiration currency' that cannot be sustained by

materialistic issues but 'challenging demands' as visualisation. The presence of Curiosity would help us to learn and unlearn, like the feeling of a symphony, i.e. where we become more confident with life purposefulness devoted towards a specific issue.

Figure (8-1) Shows how Visualisation Occurs in the presence of Curiosity



How Visualisation raise Curiosity?

When we visualise things, we make a picture in our mind. In general, most of us have their mindsets wheeled in chairs, i.e. straining themselves from proper visualisation. From experience, visualisation helps to raise Curiosity through a structural approach, where the analogy of the visualisation is balanced against the reality of the problem. The visualisation also helps

to trigger the spirit of discovery for the opportunities inside the problem investigated. Through the continuation of visualisation, we can develop a situational approach that helps to transform challenges into success stories.

If others tell you that you cannot reach your dream, you should directly know that they have weakness in both Curiosity and visualisation. When we explore intrinsic opportunities, we raise our visualisation. The visualised expected results raises a series of sequences of explorations that lead to positive outcomes.

Visualisation differentiates and limits our Curiosity towards classical change, i.e. change that ends when we leave this world. This means visualisation would limit our focus on fame, family, money, stable welfare, etc. Visualisation pushes our Curiosity towards more advanced change, i.e. change that do not end-up when our circumstance change. However, the best Curiosity, as shown in Figure (8-2) brings in sustained change which would help us to create change that is not affected by death or circumstances.

Figure (8-2) Role of Visualisation and Curiosity in Creating Change

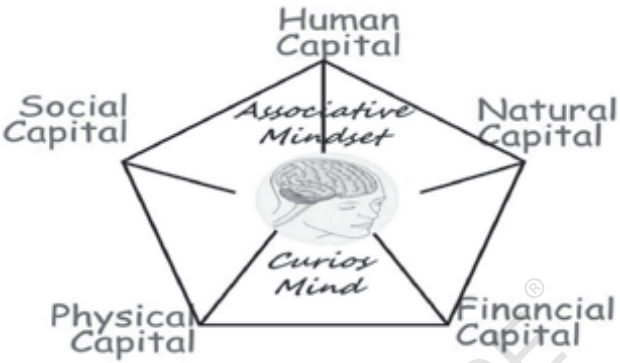
Optimising Curiosity through Reviewing Assets Wealth

The best way to optimise our visualisation is to involve our assets as part of our Curiosity drive. Curiosity can design our life when it is utilised to optimise our livelihood assets utilisation. When we are Curious on utilising of our capitals, or assets in life we can be more independent of extrinsic resources. However, this requires us to check always about the "availability" of these assets in the right time and place, besides being in the right condition.

Our Curiosity about how to improve a Moroccan Barbarian Village condition made us see the alternative assets of many poor females working as farmers, with very low-income margin. In order to redesign the life of these village girls, our Curiosity focused at the beginning of the human capital and their rights. These assets can be described in the village at that time to be of labour capacity, with no education, and limited skills. The natural capital of the village is the land and access to common property resources. When we evaluated the financial capital or asset, we found that they have no income, only a few senior women are on low social allowance wages. These females have no access to the credit system to start their own business.

Our Curiosity extended to the physical capital/assets where poor water supply, poor housing has alarmed the problem. The focus shifted then on the social capital/assets where the females and especially the girls have low social status, where clear discrimination in relevance to the boys, however, they have stronger links with family and friends, and with the traditional communication network. Figure (8-3) represent the type of capital assets that are used in directing our Curiosity towards more effective assessment and potential life designs.

Figure (8-3) Role of Capital Assets in Optimising Curiosity



With Curiosity, the wealth of asset is evaluated from different angles where opportunities are captured based on the type of intention and type of speciality that can be generated based on the asset potential wealth. This potential wealth, also called in Buheji (2016) inspiration currency, bring in a type of intercultural network and help to build a suitable big picture (the high value). The Curious mindset would start to question what do we want to happen to have these assets available? (i.e. What are scenarios of utilising these assets or this wealth, once identified?). Then, our Curiosity would question, why the proposed story is a good idea in relevance to thinking and cognitive mindset. Then, our Curiosity would question, what are the challenges that can be turned into opportunities? As illustrated in Figure (8-4).

Figure (8-4) Show the Role of Curious Mind in Identifying Opportunities

Role of Education in Building a Visualising Curious Mindset

We live in an era where questioning things came from academics' desires and carrier to all new and coming generations trait. In, the Handbook of Youth Economy, many examples were mentioned on how the trend of youth contribution to the society is different from any other era, due to their differentiated mind-openness and their eagerness to look for clear answers for questions that are not addressed before, or they are not convinced about. Buheji (2018).

Till today, many developing countries see that innovation can be achieved by copying innovation programs of developed countries. However, the basic formula that differentiates any country, in reality, is education. With education, we can trigger and differentiate any human Curiosity to the utmost. Tell me what the level of Curiosity in youth and higher education students in any country is, and I could tell you what this country could be in 10 years from now.

Curiosity is the very basis of any meaningful education that targets to build a life- purposefulness for each citizen in the community. This life-purposefulness increase the potential for

effective visualisation and prepare a strong medium environment for effective education. Today, in many countries and especially in developing countries, the medium environment of education does not carry any influences towards building Curious culture. Thus, education curriculum and its related practices need to establish Curiosity medium that starts with observations that stimulate the attention of the learner. Attention, in the same while, would help the learner to continue to stimulate the Curiosity appropriately and to lengthen the absorption time. Thus, effective education need to trigger Curiosity which leads to early learning and that would lead to better attention, or to focus and this lead to better absorption that would enhance our reflections and exploration journey.

Applying the Curiosity cycle to the education means that students would build experiences besides knowledge which shift the education outcome and transform it from 'enthusiasm' to 'profound knowledge'. This type of educational situation builds increased contribution and self-control.

Education that targets to build Curious minds engage its people with community problems and move them towards re-establishing, or re-inventing their social values. This education makes each of the community members to have a more change of realising their essence of existence. Once this mindset is developed, it would shift our assumptions from a world of scarcity of resources to assumptions that see the abundance in the world. This mindset, if developed through challenges, it would develop a legacy-driven mind that targets to make sustained social impact that creates consistent influence, with minimal resources. Active repetition of practices helps in identifying key ideas in inspiring the socio-economical setting, thus building bridges between the new practices and the existing practices.

Hogan and Greenberger (1969) found a moderate, but a persistent correlation of Curiosity with academic achievement. Therefore, Toffler (1970) has suggested that changes to be made in the educational system in order to better assist students in developing more flexible and open minds, which would enable than to react more appropriately in a complex and rapidly changing technological environment. Elias and Elias (1976) have indicated that Curiosity engenders exploration as well as exposure to diversity, both of which are important in the development of flexibility and open-mindedness. Gross (1975) emphasise that such education brings in Curious minds that evoke images of thought, exploration, probing and interest.

Curiosity and Life-purposefulness

You rarely find any Curious person in history without clear meaning about the reason for their existence. Therefore, their Curiosity is always linked to the search for discovering more and more about that meaning in their life journey. Therefore, the life of a curious person that has meaning is far from being routine or boring. It is full of excitements, challenges, attempts, besides pauses for reflections and learnings. It is a life that is always full of insights and ideas to be tested or investigated, or problem to be explored, or visualised hidden possibilities to be discovered.

Curiosity once built would make us see that our choices in life are endless and we can go deeper into many things around us in order to see its true significance. Realizing this power is the first step to living a fulfilling and happy life.

Curiosity and Multi-Discipline Approach

Curiosity is a multi-dimensional and multi-discipline concept that overlaps extensively with related concepts as creativity. Curiosity help us to deal with ambiguity which ignite us towards new exposure and outcomes. Thus, curiosity is approached through focussed, or exploratory quests that inspire 'the self' to connect with what we don't know, to what we do know.

Curiosity help to stimulates innovation and builds links to creativity that leads to divergent thinking. Through reading we open our mind to new possibilities, ideas and new worlds, or life we did not experience. This reading open for us a multi-discipline Curiosity that make us like to explore.

Curiosity as a Breakthrough Factor

To create a breakthrough, we need to assume initially that the problem, or the opportunity we are going to confront is different from all others and thus no earlier solution would fit easily to create a realised outcome. Breakthrough thinking, drive us towards attaining 'solution-finding' mindset, and this makes us unique in being 'solution-locus'. The 'solution-finding locus', therefore, create three major Curiosity factors that are related to the development of solution-outcome real content view (where? and why?), then the communication view (who?), and followed finally by the time view (when?). These 'Curiosity factors' are used in all the cases that are related to complex socio-economic problem-solving.

Gino (2018) mentioned how most of the breakthroughs throughout history had been driven by Curiosity. The HBR report by Gino shows that Curiosity is now seen more as a

critical organisation performance indicator which ensures the people would be resilient to uncertain market conditions and any unexpected pressures. Curiosity found to create waves of inspiration through the collaborative creative solutions. Thus improving the design of Curiosity in any organisation or culture would ease the flow of Curiosity amongst its human capital assets, and would thus, differentiate its outcomes. Gino INSEAD study proven that every one unit of Curiosity creates a value in creativity capacity.

In his best seller book 'Blink' (The Power of Thinking Without Thinking), Malcolm Gladwell proposed that in the age of information overload, and in order to bring together selective diverse elements when creating a decision regarding a specific problem, we need to limit these decisions to be based on limited information. Research shows that what Gladwell concluded is often, as good as, or better than decisions made with deep critical thinking and accumulated information. This practice of blinking while attempting to manage or handle problems is considered one of the most advanced Curiosity techniques and one of the new creativity paths in the age of huge information. Without blinking, our Curiosity would be controlled more with adaptive unconscious power that makes effective decisions based on personal likes and dislikes and stereotypes.

CHAPTER 9

Curiosity Design Measurement

Mohamed Buheji

Measuring Curiosity – an Introduction

Since the development of neurosciences and behavioural economics, more Curiosity measurement research have been increasing. We can see specifically that since the beginning of the new millennium, more well-established research is trying to develop a significant gap in the body of knowledge. (Reio et al., 2010).

Some researchers have seen that Curiosity can be measured from different perspectives and through a holistic approach. For example, Reio et al. (2010) seen that Curiosity could be measured from the level they make thrill seeking: cognitively, physically and socially. Olson (1986) seen that Curiosity could be measured by what support the developments. Other see that Curiosity could be measured by empirical research which focuses on exploring the meaningful Curiosity-related outcomes. Other Curiosity measurements focus now on theory building that is focused on how and why Curiosity can lead to optimal human functioning.

Langevin (1971) has, also, suggested that measures of Curiosity can be classified into two categories: (1) Curiosity as a motivational state and (2) Curiosity as a personality trait. Curiosity as a motivational state can be measured by free exploration time, selective attention, verbal expressions of preference, or interest in complexity, novelty, incongruity, number of questions asked, and physiological indicators (Langevin, 1971). Today, and so far, most popular Curiosity measurement is through labs. Where the participant would be given a series of stimuli that vary in complexity and where the subject reactions to each stimulus are recorded. Then, based on the obtained data, the level of Curiosity is inferred.

Maw and Maw (1962) indicated how when we were children; we exhibited Curiosity through reacting positively to new, incongruous, or mysterious elements by exploration and manipulation. This over time developed in us the needs or the desires to know more about ourselves and our environment. This led us to scan our surroundings seeking new experiences while examining and exploring the external stimuli.

Thus, numerous different methods and techniques have been used to measure Curiosity. Vidler (1977) followed by Oslon (1986) has indicated that these wide varieties of methods and techniques used to measure Curiosity has, in part, been caused by the relative difficulty in studying Curiosity itself. However, the measures used still need to be tailored to the type of functioning of the individuals, and the need to take into account the practical restrictions of the situation.

Types of Curiosity Measurement and Dimensions

Outside of the laboratory, Curiosity is usually measured as a personality trait, reflecting presumably stable individual differences in preferences for novelty and complexity through personality questionnaires or self-reports and peer ratings (Henderson & Moore, 1979).

Daniel Berlyne (1954) who is considered to be one of the earliest researcher on Curiosity, defined four dimensions for it. All subsequent Curiosity models are considered only improvements to Berlyne innovative model. Berlyne saw that these four dimensions of Curiosity could be measured and which differ according to the situations we face. The first dimension is called 'epistemic Curiosity' which is the Curiosity to explore more new information and knowledge. The second dimension

is the 'perceptual Curiosity' which explore novel objects in their immediate environment. The third dimension 'specific Curiosity' which confine our Curiosity to a particular piece of knowledge. The last and fourth dimension is the 'divertive Curiosity' which is less directed, i.e. more of divergent thinking related, which helps to seek new sources of inspiration or stimulation that lead to another development stage.

Many researchers show that these dimensions are inter-related and we can grow in one dimension, but without losing the other. All four dimensions also help to support the theory of convergent and divergent thinking styles and modes which play a great role in the process of Curiosity. These four dimensions brought the 'cycle of Curiosity' model of Thomas Reio (2013, 2006, 1997). Reio identified three components of Curiosity: 'cognitive Curiosity' which is again about seeking information and knowledge, 'physical Curiosity' which is about exploring the field and 'social sensory Curiosity' where the primary intent is to experience new thrills and sensations.

All the researchers, in the end, see that Curiosity can come in different dimensions and all these dimensions whatever their name is, are dependent on exploration. This is due that when we seek out novel or challenging situations through exploration, we are seeking to transform to the 'absorption stage', where we become fully engaged in a situation.

This justifies why a success story in furniture like IKEA see Curiosity as the wellspring of their differentiated creativity. IKEA mentioned the role of Curiosity in most of its literature in the last decade. Through Curiosity-string IKEA managed to build unique collaboration that developed its competitiveness. The playful research projects in IKEA called SPACE10 is full of Curiosity and spark excitement beside calls for engaging the general public

to explore with Curiosity. It is a method of exploration that brings in IKEA collaborators and IKEA co-workers, beyond the commercial framework, which opens the way to stimulate Curiosity and to see things from other perspectives before the final solution is designed. What IKEA is doing is highly expected to be a trend in the future.

Curiosity is found to flout when the left brain meets the right. Therefore, dimensions of Curiosity are triggered when we start capturing the events around us in structured stories by telling them visually and making them more memorable and shareable.

Curiosity and the 'Marshmallow Lab'

The marshmallow lab is a Curiosity challenge setting that helps to develop idea generation, collaboration, creativity, and teamwork. It is a simple experiential learning and a Curiosity triggering exercise where teams of participants are given a challenge related to marshmallow, such as not to eat it or to build the tallest freestanding structure that will support the weight of one marshmallow.

The marshmallow lab enables us to measure through discussion the Curiosity drive and level during the challenge of dealing with the marshmallow. The idea of the lab is to identify some of the key challenges and benefits of dealing with Curiosity in life and the key steps required to complete this activity successfully and the key Curiosity-related behaviours required to create a successful outcome. Through reflecting in the lab experience, we would understand what we might do differently next time our Curiosity is triggered.

The other measure of the marshmallow lab is focused on the level of social Curiosity. For example, our curios abilities to really listen

to other's ideas, or manage prior experience and knowledge, or utilize the trial and error experiential learning are considered one of the basic returns of marshmallow lab. Through such lab we can curiously learn from our mistakes while being playful and without too much planning. Yes, this lab gives us a great opportunity to measure our Curiosity objectives and how to move it towards a specific goal, in a specific time in the field.

Curiosity Measurement and Social Development

Various measures have been developed in previous research to assess aspects of social Curiosity, such as social exploration and interpersonal Curiosity for social psychology give more emphasis on the contextual factors that promote exploratory social behaviours. For instance, Swann et al. (1981) showed that less curios individuals demands more pre-information to an interview than those more curios. Therefore, Green and Campbell (2000) developed a social exploration index that assess how likely people are to join new social circles.

Renner (2007) carried a study to measure social Curiosity that focused on acquiring new information and knowledge about the social world and determining how this motivates exploratory behaviours. Renner tried to see how Curiosity helps social development by developing a scale that covers experts and graduate students to assess a broad interest in the acquisition of new information about how other people behave, think, and feel, which then motivates social exploratory behaviours. Renner included in the scale a measure about independent experts, psychology graduates and authors to determine whether they referred to an interest in acquiring new interpersonal information. Renner emphasised on the importance of openness to experience that help to develop our social Curiosity.

In a study about social Curiosity development across the UK, 73% of the population had a minimum measure of Curiosity. The average Curiosity in, Wales was 80%, and the average Curiosity in Scotland was 66%. Cities were ranked for Curiosity, with Cardiff at the head of the Curiosity rankings, and where York came at the bottom. So far, no clear studies that would justify this regional difference in Curiosity. However, one common thread that made certain cities higher than others was based on the three T's: talent, tolerance and technological infrastructure.

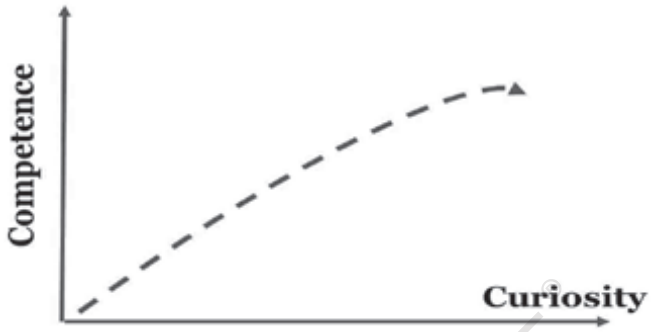
Kruskall-Wallis did an analysis of Curiosity type by gender, and the analysis showed one significant difference where women have shown more perceptual Curiosity than men. This finding is consonant with previous research on attention in men and women, such as that used by advertisers to target adverts at each gender. For example, men are supposed to be 'selective processors', who look for very salient information, while women are 'comprehensive processors', who like to synthesise a wide variety of information before making a judgement.

Curiosity Correlations

Since Curiosity is difficult to define, its relationship and correlation to other variables are still challenging to define. However, in general, Curiosity has been found to be negatively influenced by anxiety, as well as fear. If Curiosity evolved as a beneficial trait to motivate our ancestors to explore their environment and the world around them, fear might have created the counter-emotions.

Recent studies show that competence is highly correlated with Curiosity, be it Curiosity of individuals, organisations and communities, Gino (2018). Figure (9-1) shows a summary of the relation between Curiosity vs competence.

Figure (9-1) Relation between Curiosity vs. Competence



Curiosity, a "knowledge emotion", has been linked to other emotions such as anger and a lack of Curiosity has been observed among people who are depressed or suffer from Alzheimer's. Curiosity has also been found to be a predictor of longevity. In a study by Swan and Carmelli (1996) among older people, higher Curiosity levels were correlated with a higher five-year survival rate. Some researchers even suggest that diminished Curiosity may be one of the earliest signs of abnormal ageing of the central nervous system as experienced with Alzheimer's disease.

Characteristics of Curious People

Gough (1960) mentioned 30 adjectives characteristic of the curious child, however, the most repeated characteristics are the following six: active, adventurous, energetic, enthusiastic, imaginative, and interests-driven (Hogan & Greenberger, 1969; Gough and Heilbrun, 1965).

In 1964, Maw and Maw reported that the most indicative words of curious individuals were: explorer, discoverer, adventurous,

and questioning and the words that were related to the next most as indicative of the curious individual: ventures, scouting, thinking, and propping. Maw and Maw (1961, 1962, 1964).

Curiosity has also been linked to a range of other personal characteristics, such as loyalty, reliability, a sense of personal worth, and, perhaps unsurprisingly, tolerance for ambiguity, as well as active coping strategies. The results of some studies suggest that Curiosity is higher in men than in women, but in other surveys, women score higher in perceptual Curiosity.

Curiosity sustains our interest and motivates us to inquire or explore. Intrinsic motivation is thought to be stimulated by Curiosity; a pattern of interacting with the world that is developed in childhood and stays with us in adulthood. Reeve (1992) proposed a Curiosity model based on the intrinsic motivation process. The model illustrates how children decide if something novel or interesting and when to encounter them. These children Curiosity are described to be piqued and exploratory, investigatory, and based on manipulatory behaviours.

Gino (2018) shown that Curiosity is the best predictor of leadership characteristics, since through Curiosity we measure the leader capacity for creating: results orientation, strategic orientation, collaboration and influence, team leadership, developing organizational capabilities, management of change and market understanding.

More generally, there appears to be a correlation between Curiosity, creativity, and intelligence; and some studies have already explored this relationship. Curiosity has been called the genesis of creativity and even controlling for intelligence, one study found that people who score highly on Curiosity scales can also score highly on creativity measures.

Curiosity in Grit

Key components of innovation are creativity and intelligence, divergent and convergent thinking, and a concept described by Angela Duckworth as "grit" which requires sustained interest and intrinsic motivation to persist with effort. As we have seen, Curiosity is closely related to all of these components.

Working on to exploit grit of youth in Bosnian Capital Sarajevo made us develop projects within Sarajevo High Schools to encourage their high engagement with specific sports activities and followed by entrepreneurial projects program. This scheme targeted to keep away youth living in surrounding areas of old Sarajevo from being on the streets at specific afternoon hours, where drugs dealers in the area could utilise them. The Curiosity design in the scheme made many of these high school youth see their role in building students 'life purposefulness programs' and while also building preventive measures against being utilised, or abused by the gangs in the capital. Figure (9-2) give a summary of the scheme.

Figure (9-2) Illustrates the Curiosity Design of Youth Drug Prevention Program

CHAPTER 10

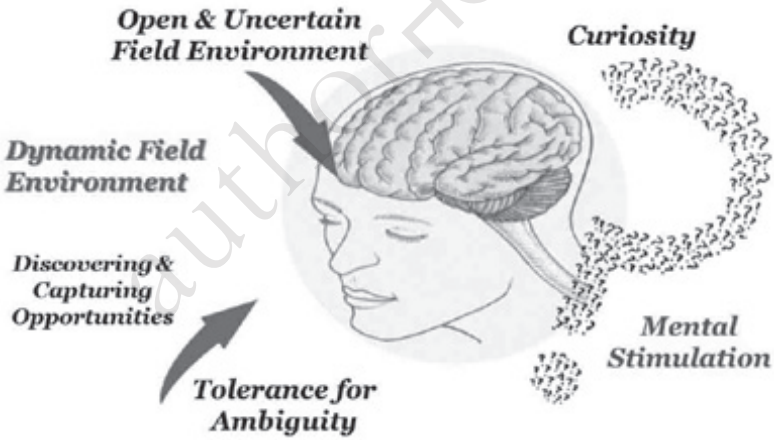
Curiosity Design in Complex Environment

Curiosity in Dynamic Field Environment

Curiosity helps to overcome problem complexity by dealing with its unintended consequences and the ability to make sense of a situation. In a complex environment, even small decisions can have surprising effects.

Curiosity learning requires open and uncertain field environment where the dynamic fields help for more discovery and capturing of more opportunities. With Curiosity, our tolerance for dealing with ambiguity become dependent on our mental stimulation. Figure (10-1) shows how Curiosity plays a role in a dynamic field environment.

Figure (10-1) Role of Curiosity in a Dynamic Field



The environment of Curiosity is considered to be one of the sources of self-realisation. i.e. through Curiosity, we build the desire for knowledge and understanding of our experiences. Curiosity sensory help us to establish a clear impact on products and services.

The complexity of organisations in this Curiosity based environment is not difficult to manage. Curiosity helps us to imagine how these complex systems or organisations would interact in unexpected ways. Despite the fact that it is hard to make sense of things, our Curiosity would help to overcome such complexity effect and to go beyond our cognitive limits.

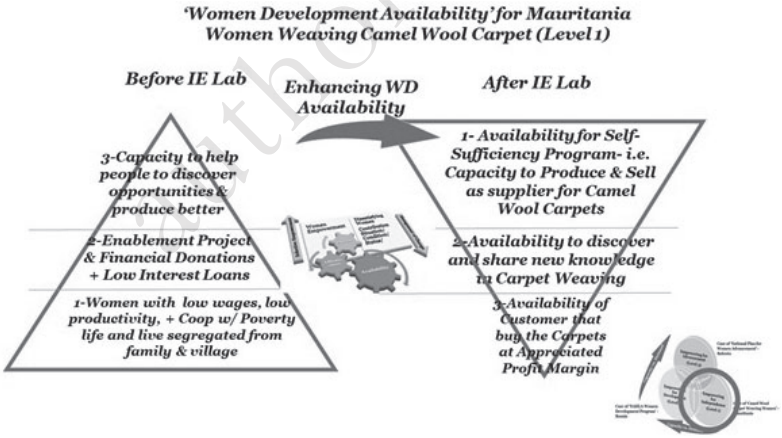
Curiosity through Living 'Availability' – Case of Women Development

Most of the problems in life could be solved if they had enough Curiosity availability at the right time and place. This is what we mean by adopting 'pull mindset'. If our Curiosity has enough availability, we can reduce any complex problem. With this simplicity, we would have an effective judgement. Therefore, one of the most important techniques to deal with complex socio-economic problems is innovating in the way that opportunities are exploited from observations that leads to improving availability around things. Being Curious about what could be available for many issues in life could mitigate its risks or solve its sources of problems. For example, raising the availability of water could reduce or eliminate migration, poverty, famine and even diseases related to this water scarcity.

Take another specific example of Curiosity on the availability of real 'Women Development' in a project in Mauritania, for women that are weaving camel wool carpets (CWP). As shown in Figure (10-2), we considered the situation to be even below the basic level of women rights for dignity and empowerment. The field visit showed that these Mauritanian women were given low wages. Thus they end-up with low productivity and had to coop with poverty life; besides living for most of the year segregated from family and their village due to the factory being in the capital city.

Most of women empowerment projects showed enablement for financial donations with low-interest loans. The other projects focused on raising the capacity to help people to discover opportunities and effectively produce value-added services. In order to enhance women development availability, our Curiosity focused on the availability of self-sufficiency programs, i.e. capacity of the women to produce and sell as suppliers for Camel Wool Carpets. Thus our curiously focused on creating more availability of sources that would ensure that these women would be able to discover and share new knowledge in Carpet Weaving with its related production and later packing. Last but not least, we focused on the availability of customers interests to buy the carpets at an appreciated profit margin. i.e. Customers that appreciated hand-made wool carpets and the story behind it.

Figure (10-2) Transformation of Curiosity for effective 'Women Empowerment'

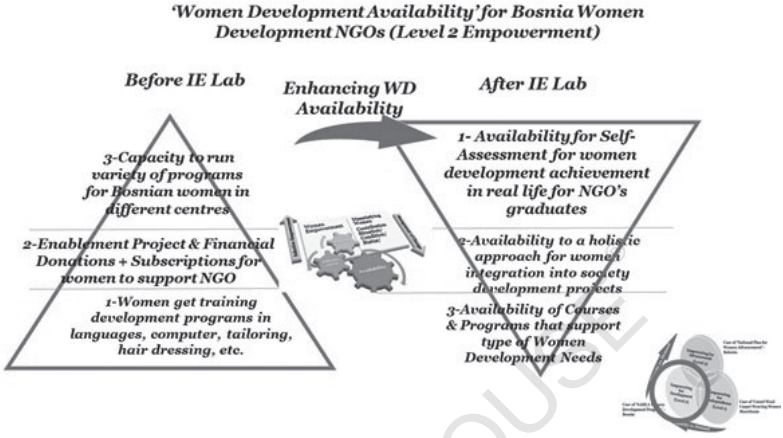


The outcome of such Curiosity is higher availability of good high-quality carpets and better availability of women within their families which would lead to better family stability. This

raises the need for a collaborative and sharing economy model that focuses on creating collaborative availability of scarce hands weavers amongst the women production cells. Also, it raised the availability of the power of choice for both factories and women.

Another level of women development availability can be seen in the case of the Bosnian Women Development NGOs (Level 2 Empowerment), as shown in Figure (10-3). The services provided by the NGO were focused on Bosnian women training development programs in languages, computer, tailoring, hairdressing, etc. The NGO was getting many financial donations under the name of 'women development', and these funds were used mainly to enhance the NGO capacity to run a variety of programs for Bosnian women in different centres. Seeing the gap between real women development and women empowerment, our Curiosity focused on raising the NGO availability for periodic self-assessment that targets to realise the actual achievements of women developments in real life of the NGO's graduates. Thus, the Curiosity was directed towards creating a holistic approach for high availability of women integration into specific society's development projects and programs.

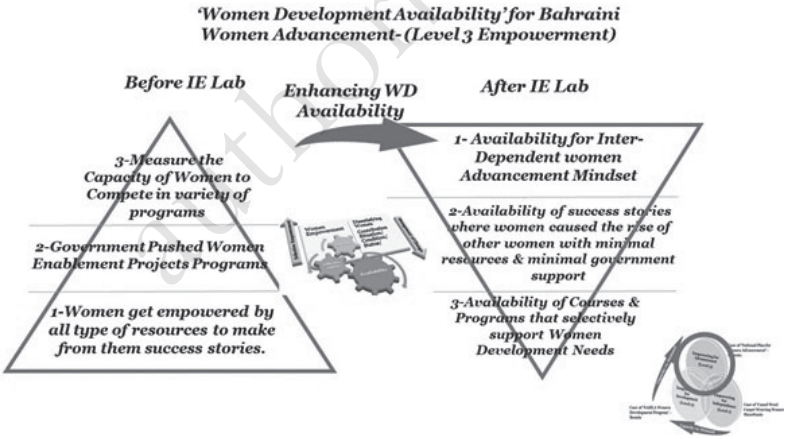
Figure (10-3) Transformation of Curiosity for effective 'Women Development'



In order to shift towards realised women advancement, we need a Curiosity that ensures their higher availability in relevant to socio-economic challenges. Therefore when we focus on transforming towards more advanced women development this mean we need to highly increase the women capacity to meet the socio-economic demands, i.e. her unemployment, poverty, etc. The Curiosity here should focus on taking the cases of women who are really empowered today--as the case of Bahrain--towards another stage of availability. Bahrain has been one of the leading developing countries in the issues of women empowerment and development. The Bahraini women get empowerment through many types of clusters and incubation resources to make from them 'success stories'. The Bahraini government pushed many 'women enablement projects' and programs. The programs targeted to develop the capacity of women to compete in variety of jobs and family programs.

Despite all these successes, in order to exploit Bahraini women towards a stage of advancement, i.e. a stage beyond empowerment and development, further steps of availability were followed. As shown in Figure (10-4) our Curiosity focused on the creation of an interdependent woman advancement mindset. This means we need to be more focused on creating success stories caused by the rise of women with minimal resources and minimal government support. This means more availability of courses and programs that selectively support women development needs while encouraging her differentiated legacy, or influence on the society socio-economic outcome. The goal here is to move our Curiosity towards types of availability that would enhance the outcomes of women empowerment, not only results.

Figure (10-4) Transformation of Curiosity for effective 'Women Advancement'



Mohamed Buheji

Curiosity and the Art of Reasoning

The economist Frederic Bastiat (1825) said that there is only one difference between a bad economist and a good one. The lousy economist, as per Bastiat, confines himself to the visible effects, while the good economist takes into account both the 'effect that can be seen' and those 'effects that must be foreseen'. Art of reasoning is one of the main techniques in inspiration engineering and problem-solving. With reasoning, we can correlate the problem opportunities and foresight the future to many thought-provoking ideas and bundle them together.

With abductive reasoning, or inference explanation our Curiosity, we could extrapolate a set of given data through reverse thinking, to infer a hypothesis. For example, when we notice that the streets in a hot, dry country are wet. Our Curious search for an explanation for this observation should help us build the most likely hypothesis. One hypothesis may be that the public service municipality keeps the roads wet to ease the dry heat, or there is a hidden, unseen groundwater leakage. Such abductive reasoning is thought to trigger Curiosity that moves the neurotransmitters in the mind to create waves that lead to another further attempt to generate an explanation of the phenomena. When thinking of reasoning, we move from collecting observations about the problem under study to the best explanation of those observations, until they are investigated or tested.

Experiencing community problems can raise reasoning and Curiosity about issues in the quality of communication. Reasoning problems in relevance to communication ineffectiveness should lead us to investigate issues in relevance to policies, procedures, or processes. Therefore, our reasoning could help us to explore a variety of solutions and paths. These communication paths can be through sharing reflections after collecting observations,

codifications of the problem, gamification mechanisms and other challenges that can raise Curiosity. This Curiosity should help to develop strategies that can be applied through different collaborations. For example, when encountered with cases of 'unequal income distribution' among the cities and rural citizens among the explored population, the reasoning might lead us to see the potentials of 'hidden discrimination' that lead to the gap between the rich and the poor. This communication helps to retrieve more information about the socio-economic status and way of living that lead to 'high illiteracy among women' in the villages.

Government Role in Creating Curiosity

Government challenging models usually are built around cognitive rationality that reduces risk and uncertainty. The target of government models is to identify systematic biases in a specific area. Thus the models are meant to improve the government Curiosity towards using scientific approaches that would develop testable hypotheses and predict socio-economic behaviours that establish qualified leads. The curious investigative minds of the outcome-driven government are expected to continuously work on simplifying the complexity of communication and thus to start to visualise more the hidden opportunities.

The comparative data used shows by Curious governments to ensure the effectiveness of the sequence of the field experiments and observations helps to keep up the spirit of 'being Curious'. Such government challenge the established facts and renew the available knowledge. The implementation of socio-economic issues in government also found to raise more government Curiosity and to create a positive spirit that is eager to find solutions or to explore more opportunities through making

people more engaged in developing government outcome, Buheji (2018d). That, of course, can only be seen in a few leading and truly democratic countries.

Curiosity and Stories Building

We live today in an open environment, where people like to listen to stories of each other. It is an era where you cannot build your inspiring story unless you learn to listen to others stories. Being Curious about the depth of our stories is very important to what differentiation we are going to make in this part of history.

The storyboards can help us visualise our concept from start to finish. By plotting the elements of challenges, opportunities, failures and leads of the different issues of the socio-economic journey and solution attempts, we can start to build up a story that can always be refined by Curiosity and could be respected, as a model of reference, due to its originality. However, we do not have to storyboard the entire journey if it is too long. Even we may find it useful to test a component of our Curious idea, like an interaction by putting it on a story framework. The more we spend time reviewing the Curiosity in the story we build, the more insights we will have about the concept targeted or the outcome solutions explored.

Curiosity help to create a common reference point of the different angles of the story. Long before starting an exploration for the final solution, we would try to create a storyboard for each opportunity scenario. The storyboard helps us to be confident of the next sequence of explorations and how we could build more classification, or stratification, or synthesis of the available information. Once the opportunities are explored, the final storyboard would be tested or piloted.

In order to build an effective story, we need to specify first the exploration framework for the identified problem tracks. Then we need to establish the most suitable assumptions/hypotheses to start the exploration journey. However, this is more achievable if we clear the old information and build new ones. Once the Curiosity options elements are laid out, we can start managing the story outcome and extract its values.

Gamification and Curiosity

Gamification is defined as the utilisation of 'game mechanics' and 'game thinking' that would lead to a curious mindset, in a non-game setting or context. This concept was developed as games in nature found to create a user-unique environment that provides urgent optimism with an immediate desire to overcome a challenge. Therefore, games today are not only utilised to provide fun, but to change the mindset through utilising the eagerness to have a sense of achievement in a simulated high productivity environment.

Recent neuroscience studies show that having games on the internet and in social media helped to build social bonds between different diverse humans' background and helped to build long term relationships. Through games, people today are more capable to activate their Curiosity through tools that address their urge for exploring and building measured meanings of their life achievements.

Gamification has proven to be useful in the generation of ideas and tracking goals, yet it is still mainly applied to a full extent in the digital design world, while it is still weakly applied in service or production industry. Gamification found to help in raising Curiosity and perseverance in dealing with complex challenges and restatement of the problems once its potentials are realised.

Gamification helps to develop the necessary learning opportunities that maximise the engagement of the investigators thus inspiring them to continue curiously exploring with the same level of excitement. This is especially important when investigating socio-economic issues where changing a community behaviour most probably would be part of the solution.

Many socio-economic problems were solved through the Curiosity that came as a result of the value added mechanics of Gamification. For example, the codification of the patients' emergency cases which is a gamification technique, led to drastically improving the patients' discharge status and encouraged the spirit of competition between the healthcare stakeholders to ensure effective beds management in the hospitals. This type of gamification tool was also applied in areas as education, energy generation, police services, municipalities, etc.

Through gamification mindset, we would start curiously with a pre-defined boundary for the issue to be investigated. For example, gamification was used as part of the efforts of reducing poisonous food incidences and identifying those food restaurants that are poisonous free, for more than three years, with a green label. Restaurants that needed more time to get the green label were given focused training programs instead of: more violation tickets, or closure penalties like used to be before.

Psychologically, gamification can play an important role in creating insights and waves in the brain and the heart that build life purposefulness, while we are trying to solve a community-problems. Gaming is the tool to inspire people towards being curiously engaged in their socio-economic problem-solving, with better Curiosity. This Curiosity can be raised by coding, or stars of the level of achievement which would lead to more interaction and desires for better discovery.

Gamification is used in problem-solving to correct the behaviour towards a social problem. When we are curious, we can create meaningful, unique more stimulation of best solutions through gamification techniques. The repetition of Curiosity through the spirit of gamification helps to drive out fear which helps to improve the problem solver insights.

Since gamification has different reasons for its basis of design, so does its utilisation in a socio-economic problem. Table (10-1) shows the different gamification types used for the different socio-economic issues that raise our Curiosity. For example, we see that some issues would have a gamification design that would enhance the rewards-based and loyalty enhancement interaction, while others would help to develop the more effective decision making towards a realised outcome. Some gamification would also build social engagement, or better achievement recognition, or more effective data collection, or develop more focused marketing. Other advanced gamification would help to develop the core strategy, or the behavioural management, or the system and structure development of the socio-economic issue. However, the most important parts of gamification are its strengths in creating effective change management, model and prototype testing, while building multi-disciplinary approaches, or Studying emotions and establishing deeper synthesis and analysis of the problem investigated.

Table (10-1) Represent Role of Gamification Practices in Managing Curiosity of Solving Socio-Economic Problems

Socio-Economic Issue	**Type of Gamification Used**
1- Improving the 'Quality of Life' of the Elderly in 'Geriatric Care' Homes through re-exploiting their intrinsic powers ability	Study Emotions + Behaviour Management

2. Inspiring the capacity of the 'Productive Family Program' to be more self-independent and attractive for more family members to join as full-time employees/ owners until they reach a stable 'Family Business'.	Data Collection + Model and Prototype Testing
3- Building stronger family businesses that have higher Return on Capital Employed (ROCE).	Social Engagement + Core Strategy
4- Enhance the return from 'Elderly Homecare Production'	Rewards-based and Loyalty enhancement + Marketing
5- Enhance the quality of 'People with Disabilities' Production	Establish Deeper Synthesis and Analysis + Change Management
6- Early detection of Psycho-Sematic in relevance to Anxiety in Health Centre.	Study Emotions + Establish Deeper Synthesis and Analysis
7- Increase the Health centres readiness for Emergency Cases	System and Structure Development + Build Multi-Disciplinary Approaches
8. Establishing 'Intelligent Inspection' that minimize the rate of poisonous calls or low hygiene fines by 90% with fewer manpower resources & trustworthiness enhancement.	Establish Deeper Synthesis and Analysis + Decision Making driven

The spirit of reward that the gamification in problem-solving helps to establish incentives to concerned community members. For example, Curiosity raised by gamification techniques relevant to solving a socio-economic issue rewards could include recognition, status, colour badges of progress and better access. The spirit of gamification in any problem means we would have data trackings, such as the percentage of reduction of crime, or enhancement of bed turnover ratio. In conclusion, gamification aids a better understanding of the problem and Curious learning from the opportunities it offers.

The repetition of Curiosity through the spirit of gamification helps to drive out fear which helps to improve the problem solver insights. With Curiosity, we can improve lateral thinking techniques and problem-solving skills. We can increase the Curiosity economy through communication improvement. Gamification, in fact, brings a Curiosity that enhances the understanding of socio-economic problem needs through completing the ideas and building synergy.

Psychologically, gamification can play an essential role in creating insights and waves in the brain and the heart that build life purposefulness while we are trying to solve a problem. Gaming is the tool to inspire people towards being engaged in their socio-economic problem-solving with better Curiosity. This Curiosity can be raised by coding or stars of the level of achievement which would lead to even more interaction and desires for better discovery.

Gamification can be considered as thinking that keeps us involved in solving problems, formulating inferences and calculating likelihoods. Gamification creates critical thinking that carries high importance for specific issues as it focuses on a community desired outcome. If complex cases as poverty and obesity are

tackled with the spirit of gamification, it would be indeed the interest of many people that would be excited to engage with its solutions.

As modern societies are becoming more complex with information becoming highly available and changing more rapidly, these all create demands on the problem solver to rethink, switch directions, and change problem-solving gamification strategies constantly. Gamification designs raise the capacity of the problem solver for accurate judgments while dealing with complex socio-economic problem-solving opportunities, as it raises the ability to step back and think about how real-life problems are solved. This cognitive exercise builds psychological feelings, which enhances the Curiosity for a problem solver. Gamification, in turn, raises the capacity of interpretation of the socio-economic issue through focused analysis and synthesis that lead to better deep discussions and final judgement.

Through gamification design embedded in problem solution, we can transform the average group behaviour. To uncover the forces that inhibit and constrain behaviour, we need to be curiously engaged in four forms of gamification actions: (a) describing (What needs to be done now?), (b) informing (What does the problem carries of new meanings and values?), (c) confronting (How can we overcome the current situation?), and (d) reconstructing (How we might deal with this issue differently in the next attempt?).

Gamification is about the use of games techniques to enhance the engagement and the motivation of the mind and indirectly influence our behaviour about specific actions, or activities. Hence, gamification can be considered to be as an outreach tool for both social, or behavioural change. Using games and gamification techniques can help in getting more people engaged with the

problem of investigation. Gamification raises the Curiosity of the different generations especially in the three last decade and would continue to grow more and more to be a scientifically respected discipline. Designing a game-based Curious process is more appreciated today as a goodwill value, since it is seen as a change promoting tool that benefits the individuals and society. The uniqueness of gamification is that it addresses Curiosity from multi-discipline, specifically from science, psychology and humanities with a focus on storytelling.

CHAPTER 11

Curiosity Economy. "The Action Chapter"

Mohamed Buheji

Curiosity Economy

Curiosity always has been linked to both inspiration insights and life-journey. With Curiosity, the socio-economic issues can see practices that do creation, communication and commercialisation of meaningful, unique ideas.

When organisations and societies become curious, they create meaningful, unique and diverse stimulus. The repetition of Curiosity helps to drive out fear which helps to improve insights and turn it to be economically feasible projects.

The economy of Curiosity makes us easily learn new things and utilise this learning to boost our outcome. We can see the extent of Curiosity economy in Einstein where he expressed his legacy by being continuously curious.

Lately, the economic importance of Curiosity has been more appreciated by the knowledge community and leading industries. For example, HBR presented a study about 'why Curiosity matters?' by Gino (2018). Gino shown that Curiosity has an economic effect, thus suggested to start fostering Curiosity in organisations. In the meanwhile, Google now identifies natural curious people through designed question-based interviews that shows whether the interviewee is eager about persistence learning. While IDEO, also known for recruiting Curious people, focus on integrating Curiosity economy in the cycle of design and consulting by seeking to hire "T-shaped" employees that have deep skills and with the capacity to contribute to the creative process with multi-disciplined approaches.

Hence, in order to realise ways to nurture Curiosity economy, more focus should be directed towards making model cultures that encourage and appreciate associating things and questioning

possibilities. The Curiosity economy focuses on organisations that build their goals and targets a performance program around how to show genuine interest in people life development and values. For example, Google designs its culture more and more today through encouraging it to read and discuss with authors and geeks. It is a unique way of raising Curiosity in its people through making their mindset to step back and ask themselves what they are missing. This is really the essence of Curiosity economy. These assumptions shack-up Google staff more and make them more curious about the rest of the world. Thus, their economic value is much higher than the staff of any other company, as they are more excited to do a new adventure and expose themselves to more uncertainty.

Curiosity of Future Foresight

Curiosity can be designed based on future foresight developments. What triggers our Curiosity in the past and today should not necessarily build our Curiosity in the future. The more we want to have renewed insights, the more we should be engaged and Curious in the future. Seeking to understand new, or coming experiences, future knowledge, with openness to change is part of future foresight.

According to neurobiologists Dr. William Calvin and Dr. David Ingvar, our drive to tell stories about our future is built-in our system. Our brains naturally drive our Curiosity to consider, imagine and even plan for the future. Studies show that unlike other creatures who can plan based on hormonal and seasonal patterns, the humans are capable of planning decades ahead. (Schwartz, 1991).

The Curiosity about future support by the extraordinary ability of our neurological connections helps us to use our imagination

to develop our foresight and potential outcomes. Curiosity about the future triggers our imagination to reflect on some possible scenarios that come from novel approaches, data and a sense of imagination.

When we are curious, we could always generate and play with future ideas. Our foresight capability can help us to try new things and acquire new experiences constantly. Our future drive makes us always eager to know different people, and connected to patterns that other people cannot see. Future foresight makes us more persistent; because we want to get to achieve something unforeseen and with no pieces of evidence. This type of future foresight Curiosity drives us to a higher sense of mission, purpose, and meaning.

Visualisation of Curiosity Spots

Sketching and writing what might fascinate you, developing your life and creating an influence on the world is not a joke, it is the way that brought to us most of the life influencers. With visualisation, we identify our Curiosity spots and specific objectives towards achieving them in a specific time and means.

Our desire to achieve our visualisation starts with piloting the life around the Curiosity spots. This visualisation helps to enhance our Curiosity and also would help to minimise the failures ahead. The more we write our visualisations and work for it, the more we sharpen our Curiosity. Once we have our visualisation written, we could experience different spirit and Curiosity and thus could go deeper into exploring the function and the evolution of life and in understanding the mechanism of lead to the development targeted.

Visualising our Curiosity spots help us to realise deep quality relationships. Like Dale Carnegie said, you can make more friends in two months by becoming interested in other people, than you can in two years by trying to get other people interested in you.

Build Your Curiosity Transducers

Curiosity needs a transmitting medium. These transmitting mediums we call them, for analogy, transducers. If we manage to build 'Curiosity transducers', we'll find life to be more interesting. We will enjoy life as we can increase our levels of Curiosity absorption. Simulating transducers in life for Curiosity would help us to be always excited as there are always too many things to do and to get familiar with. Having Curious transducers means we can be interested in so many books to read, so many different topics to study, so many items to analyse, so many people to talk to and so many different questions to ask or answer. With Curiosity transducers built in our life wherever we go, there is always something to observe, study or experience.

With simulating transducers for Curiosity, we can increase our understanding, empathy, knowledge and general competence, thus our capacity to learn and experience new things. These transducers make us more interesting people with exciting exploration life. Curious transducers build a purpose life through connecting the dots between what we believe, after knowing who we are and we do, or want to do. We can solve any problem in our life when we accept it and when we are willing to live it, in the beginning, to mitigate its impact and then start to re-invent it to see more meaning for life from overcoming it. That's the role of the Curiosity transducers which each one of us can build in his life.

Position a 'Curiosity Officer'

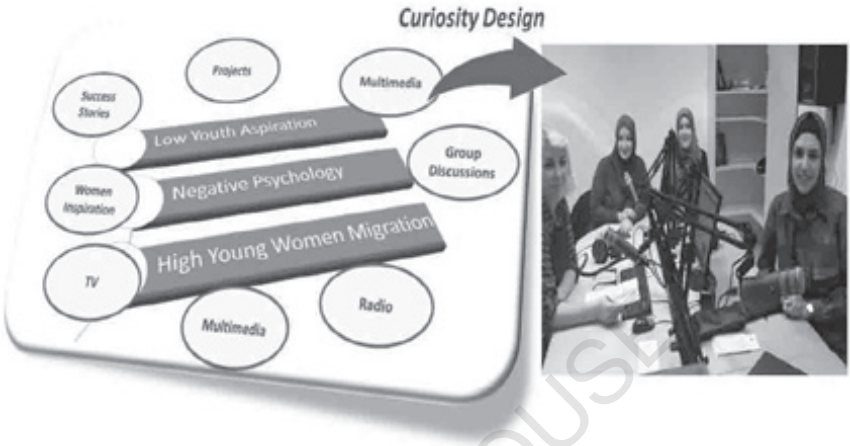
If your organisation is planning to setup a culture like Google, or your community like the Finnish or the Japanese Culture, then you have to establish a position for 'Curiosity Officer'. The position of for 'Curiosity Officer' is beyond the research and the development departments, or teams available in leading organisations, or prime minister's cabinets of leading countries. This is a position for integrating reality with Curiosity.

The Curiosity officer would always study why specific Curiosity matters for the organisation's business landscape. This offer would work on promoting different exploration projects, along with trial and error experimentation and field labs. The role of the Curiosity officer is to build the foresight and futurism capability within the organization and also experiment with a lot of very cutting-edge data collection and foresight.

Case of Bosnia Youth Aspiration Program

In order to raise the Curiosity of youth in managing change in their community and raising the positiveness in the Bosnian culture; a youth success stories program was started in both Radio and TV in the northern Bosnia station. The program focused on designing the Curiosity of youth while raising their aspiration. The design of Curiosity in the programs helped to shift focus on how youth can create positive change in their communities, including change for complex issues, as young women migration, as illustrated in Figure (11-1). The program made a great success as it managed to raise the Curiosity of youth and helped them to see or explore their role in the community. The outcome of this model-based project is that more youth had developed more aspiration in the Northern part of Bosnia.

Figure (11-1) Model of Curiosity Designed in Bosnian Media



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APPENDIX (1) LEVEL OF CURIOSITY IN PROBLEM SOLVING

Introduction

Curiosity has a major role in the way socio-economic problems are solved. Many socio-economic problems would be solved based on resources and would be considered only (growth) due the scarcity of Curiosity. However, when Curiosity is highly available in the spirit and the mind of the problem solvers, it is highly possible that they would come up with original outcome solutions that are not only unique, but which are self-sustained or based on collaborative models.

Curiosity Challenge: In order to discover the importance of Curiosity to any problem, please weigh at least five random issues in the Table (A-1). The selected socio-economic problem should score at least 9 out 14. Only the ticks in the (yes) column would be counted.

Table (A-1) Level of Curiosity for Socio-Economic Problem

Socio-Economic Problem: Case No.:		
Type of Curiosity Raised	**(Yes)**	**(No)**
1- Help to characterize the successive changes that are necessary		
2- Help to stimulate continuous learning		
3- Contributes to the quality of life		
4- Increases capital knowledge		
5- Create excitement and direction of behaviour		
6- Interact positively with new elements		
7- Often seek new experiences		
8- Help in dealing with ambiguity of the situations		
9- Planning more focused exploration		
10- Continuous realization of the stimuli		
11- Enhancing the overall impact by (perceptual Curiosity).		
12- Balancing between sensory Curiosity and cognitive Curiosity.		
13- Stimulating the learner's environment (especially when it is deficient and inconsistent).		
14- Raising focused attempts to find the intrinsic opportunities inside the problem		
Score (out of 14 points)		

BRIEF ABOUT THE AUTHOR

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