

## Escaping Patterns; Reading in Thomas Kuhn Paradigm

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### Abstract

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It is said that a man learnt that there was an island inhabited by people with one eye in the forehead so he decided to bring one of them to his city so he could make profit from displaying that creature. Once the man stepped in the island, he was put into display and made profit from because he had two eyes. This story distinguishes between the common patterns of thinking, within a certain epistemological activity and social practices of the dominant events and their method of interpretation. Each man of this story thought according to the model that he understands or we can say according to his (pattern or example) as it is mentioned in Oxford dictionary. Paradigm is interpreted as (a thought pattern in any scientific discipline or other epistemological context). The origin of this term is related to the specialized use in the study of rhetoric language, especially in studying simile, even the Swiss linguist De Saussure used it when he differentiate between analogical linguistic elopements.

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### The Puzzle

Paradigm is like a puzzle. It displays the differences in patterned thinking which is like a joke while its solution is easy. This thinking leads to confusion. It is like this confused question Samira bin Suad, what is the name of Samira's mother ? Or is the giraffe taller than tiger or tiger faster than giraffe? Or when you ask someone about the remaining number of birds and there is no bird on the tree after the hunter shot his rifle? It is like challenging a safe unlock expert to unlock a safe that you have unlocked so he can not unlock it by putting him in a situation that he can not expect. It is the zero point field<sup>(1)</sup>, which is the moment of meeting between sensory and physical experiences and the way of dealing with them.

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A man's way of dealing with the world is based upon the pattern and example which he knows. For example, reading is useful but lazy people say reading hurt your eye. Mobile phone is useful in communicating with others but the scientific researches indicate that it harms brain. Smoking harms human health but those addicted to smoking claim that it helps them concentrate. Those examples specify the common thought pattern where debate does not reach a final result as everyone looks to the world from their prospective.

It is the cognitive reference as the mind is linked to a certain model. When someone is called as James Dean, the fifties Hollywood star, the mind reference suggests that this man is handsome. How shocked you will be when you find that this man is an ordinary looking one. The same thing applies when the fans of such a star are shocked at his misbehaving. As the fans have in their mind a certain model of that movie star. It is the same image of the elegant romantic groom who is suddenly turned into a complaining, angry and not elegant person after marriage.

That is the paradigm which the minds hold over a traditional saying or a certain idea. It is like when you say, in those Arabic proverbs, (He who asks for prominence has to live upstairs) instead of (He who asks for prominence has to exert efforts and stay up late) and (He who does not reach the grapes tree is a short man) instead of (he who does not reach the grapes tree would say the grapes are sour), (if your friend is in outrage, avoid dressing a red shirt) instead of (if your friend is in outrage, try to calm him down). It is the use of tricks in order to evade a strict monitoring system and it is like when we justify *Heraclitus saying* (No man ever steps in the same river twice) <sup>(2)</sup>as because the flow of water constantly changes. The Danish philosopher Kierkegaard interpreted this saying <sup>(3)</sup> as human practice can not be repeated. It is the sustainability which can not be set back according to the French philosopher *Bergson* <sup>(4)</sup>.

Paradigm is a set of laws, views, perceptions, rules, values of a scientific theory, practiced by a group of scientists and researchers in a certain field or specialty called (normal science) which can not be compared where incommensurability between a pattern and others. It is a paradigm revolution done by the new pattern which sets its terminology, practices and concepts separating itself from the old one. As anomalous results build up <sup>(5)</sup>, science reaches a crisis, at which point a new paradigm, which subsumes the old results along with the anomalous results into one framework, is accepted. This is termed revolutionary science.

The paradigm, argued by Thomas Kuhn, can not be separated from the world. It does not separate phenomena. It recognizes that there is a parallelism between the scientific and human phenomenon by monitoring the crisis occurring within a certain field. Such crisis would exacerbate as the system can not resolve it. Here comes the role of social elite who look for staging a revolution by adopting new visions called the new system in the political, social, and economic fields while it is called the new paradigm in the scientific field. This will lead to the occurrence of a new pattern in relations, thinking, practices and traditions developing into a grave crisis which would call for a **new revolution**<sup>(6)</sup>. Thus science can only be developed by paradigm according to Thomas Kuhn.

It is a representation for the abundance of experiments that are never stopped by a certain incident; on the contrary it would always be added by other experiments and experiences, it is the specification that makes a certain model be effective in a phenomena's ability of observation and criticism. It's ability to create significant and deep queries, searching the possibilities of interpreting a certain scientific incident, available means to accomplish a scientific experiment, an experiment that a certain approach was put to agreement accordingly. It is a widespread model, by which reality is interpreted, and the possible future scientific work that lies ahead through implementing applicable generalized concepts, where the leading scientific mindset is dominant throughout the process of research.

At the same time it sets the standards and bases of advocating a certain trend. Especially that linked to financing the scientific research, or the acknowledgement required by certain research centers and well known universities, to advocate a new scientific branch. A paradigm is a representation of intellectual vision that was anonymously agreed upon, thus became well accepted by the society, by this it expresses the pattern of function based upon it being its theoretical ground that specifies the general mindset and practice.

### **Science as a Tale**

How could the method of looking at science be described? Ancient and modern Science, would there be a barrier between the two and is it possible to look at Science as one Unit considering the logic of accumulation.

Meaning that the modern Science would not be able to perform its discoveries without relying upon the hypothesis and theories offered by the ancient Science. This approach falls under the common and usual. When we concentrate on the theories offered by the Greek Scientists in regard of their thoughts of the World for example, we would discover the inconsistency and contradiction between the commonly known and popular ancient theory of the Centrism of Earth which was founded by Aristotle explaining that Earth is fixed in position and the sun, the moon and other planets circulate around it. Ptolemy developed such theory towards emphasizing the Geo-centrism Theory. Then came the Copernican Revolution in the year 1543 which negated the Theory of Centrism of Earth and affirmed with scientific evidence that Earth is a planet circulating the sun. This was the greatest breakthrough in the history of science. It changed the approach towards the Universe and the World. It paved the way to the appearance of Generation of Scientific Revolution such as the Scientist Kepler (1630) who had the opportunity to develop his Theory of the Centrism of the Sun. He proposed his three existing Laws: The first points towards the heliocentric, not the circular, laws of planetary motion; the second Law states that the line between a planet and the sun forms equal areas in equal times. The third Law is based on the concept that the squares of the periodic times are to each other as the cubes of the mean distances. Then Galileo Galilee came in 1643 to confirm the circular motion of the Earth based on precise mathematical calculations. Then Newton provided in 1727 the Science of Dynamics with the three Laws of Motion: The first Law is based on the passiveness of an object and its lack of motion for the still one and the continuation of movement until an outside force changes its status; the second Law relates to the acceleration which is based on the effect of outside force on an object is equal to the change of motion in relation to the time; and the third Law relates to the action and reaction: Each action has a reaction equal in force and opposing in direction.

Where to would take us the direct comparison between the Ancient and Modern Science models? If Science is not based on the accumulative knowledge, due to the stages of knowledge which develop *as the time advances*; especially when a major upheaval occurs such as the Copernican Revolution which negated the previous hypotheses before it. However, in this case, one can not strip the scientific characteristics of the ancient scientific products and describe it as foolish and mythical. The case here opens a greater question related to the essence of Science itself<sup>(7)</sup>, which produced both: the Ancient as well as the Modern Science Models. Science therefore stays as essentially the same.

It is the treatment of the details of Science that changes. Therefore, Science does not produce myths, Furthermore, one can not drop the scientific character from the Ancient Science just because it was replaced with new Science. Thomas Kuhn suggests to treat such a controversy by affirming that Science does not represent an accumulative process but it is *a product of the development of stages of knowledge and examples based on renewal which replaces the older Model without eradicating it* <sup>(8)</sup>

### **The History of Science and Query**

The value of the question becomes evident as it gives the ability of examining the common relationships. It is not related only to asking the question, but also relates to the making and the ability of presenting the question. The question here is not about finding answers as much as concentrating on creating the new question which is far from being typical and common. Therefore, the question looks forwards to discover the hidden aspects of the scientific field. Because the search for a new base stands due to (the unity of Science within a limited time frame), <sup>(9)</sup>. A direction seeks to explain the phenomenon according to the Era when it appeared without falling into the maze of historical omission. It is the search of the Era where the Theory appeared and the circumstances governing it, the commonly used criteria and measurements, as well as the available possibilities. It is not possible to compare the scientific efforts of Ptolemy with what Kepler offered in regard of the way of looking at Astronomy.

There is no doubt that the questions posed by Stephen Hawking, the British physicist and mathematics scientist are different from those which were in Einstein's head. So is the case of posing a question whose original function is the desire to know the Truth and Meaning. Therefore, the old question (Socratic – Contrives) was the result of its own Era and the product of its relations as well as the dominating forces at the time. It was a product of the regenerating relationship where a question leads to another seeking the desired satisfaction through the interrogation and seeking the knowledge. On the other hand, the modern question represented by (Kant – Criticism) <sup>(10)</sup> is based on criticizing the essence of knowledge; a question investigating the possibilities on which the mind and its limitations stand.

We fall here into a curious historical controversy, when we undertake to compare the thoughts of Newton with the present day science. The reality points towards the importance of studying the thoughts of Newton according to his scientific environment which lead him to produce his theories. This condition would lead to the appearance of unexpected results, taking in consideration the conditions of the existing intervention in the method of treating the program. The controversy is based on two factors based on **(the perception, the Practice)**. Each field has its own conception and look at the World; the ones agreed upon by the specialists of a given field in order to formulate the package of directions, preferences, outlooks, directions and interests within a given Era. Kuhn calls this (the Scientific Unit of a given time)<sup>(11)</sup>. The **contrived question** in regard of the fall of the apple lead to the importance of taking care of the apple tree and watching the season of harvest as well as the continuation of such thing in order to gain the benefits and improve the product; however, the **questioning of the contrive** produced the Law of Gravity.

### **The Practice**

The relationship links within the **(Scientific Unit)** are strengthened according to the basis, proves and balances agreed upon in regard to the outlook towards Science. These relationships provide the answers elated to the explanation of the World; the ones ready for direct application using the existing mechanisms which can direct the scientific process and provide explanation. It is a model capable to face the emerging questions and shake the fixed believes and professional traditions on which the Scientific Group or Unit is based on. The emerging question starts moving with steady steps and soon starts to contradict with the basics of practice. It proceeds to pose its new forms upon the ancient Scientific System. This is called by Kuhn as **(the Ordinary Science)**. Through having a **(Scientific Revolution)**, it strives to offer new professional relationships, which soon dominated the reality. Bachelard pointed to (the scientific reality is the historical correction of a long lasting mistake)<sup>(12)</sup>

Thomas Kuhn guesses that it is not possible to identify the characteristics of the scientific revolution without obtaining the **(Scientific Unit)** existing around it. It is necessary to search its essence, components and its ability to create the change in the method and field in which the revolution occurred within a specialized field. Therefore, the revolution does not stop at producing a new knowledge as much as what it contains, the importance of reviewing the previous scientific theory.

## The Normal Science

The Paradigm represents the completed mold and model. This Model exists within the conditions of success, strength and influence considering the satisfaction of the scientific Unit with it by giving the satisfying answers to solve the problems. From here, the stand of the scientists of the Model becomes appearing towards the new theories which attempt to leave the normal way the Model handles things. Furthermore, the ambition tends towards containing such theories which attempt to work outside the usual approach and tries to re-instate them to fit the mold of the dominating Model. However, the increasing controversy becomes evident when the Paradigm is unable to provide the answers to satisfy the challenging questions. At this point, the scientists tend to treat *the questions* according to a different **(conduct and outlook)** from the dominating Model. Such conditions appear from the ordinary science (which contains in its makeup the mechanisms which reduce the severity of limitation and restrictions),<sup>(13)</sup>. Kuhn explains the definition of the normal science as the real science which is well known. This way he draws the characteristics of the Paradigm. It is not drawn as shaping and forming as much as a systematic method through which the movement and interaction take place within the field or zone. He does not doubt the science and its importance, neither he gives preference to the new science at the cost of the ancient science. He rather believes that science is the invented science which is based on the option of choice which gives the opportunity to the researcher *to work* within the science. From this stand, he gives basic elements on which the normal science – the real and dominating is based on:

1. The type of **problems** solved by the Paradigm.
2. The level of **prediction** possible when the Paradigm is applied.
3. The ability to characterize the field with clarity and the handling of mystery.

## The Query Solver

Often the high education students face a preferred question when they work on their Master's and Doctoral degrees: What is new the thesis will investigate? The scientific field seeks to discover the essence, depth and *new of the subject matter*. However, the depth of traditions related to the handling of the research problem and the will of the science challenger to seek the results he is looking for, make the normal and usual scientific research to be based on **(realization of the expected with a new method)** as explained by Kuhn.

The researcher seeks to find solutions to all queries, dilemmas the given research field is investigating. This means the researcher has to become a member within the Scientific Unit which complies with the concepts, definitions, traditions, and relationships posed by the Paradigm.

The Science looks forward towards realizing the **benefit** through the work to solve a problem and provide the ability to comply with Nature. It is the mean through to **discover** the new circumstances of Nature, reality and relationship<sup>(14)</sup>. The compliance with a limited system of relationships, outlooks and concepts has the ability to test all ideas which exist within the Model. In spite of the strength and solidity of relationships within the normal science which is based on **(benefit, discovery; system, test)**; the appearance of a single scientific workers whose quest is to solve a query or a problem within the field, where no one else within the scientific unit found a solution for, would be the key to create the change.

### **The Positivistic and the Interpretive**

Each science owns its Paradigms which derive the entire practices, relationships, and applications acceptable by the scientific unit. However, the Paradigm cannot be identified or directly pinpointed because it circulates between the **(positivistic and interpretive)**. Whereby, it becomes clear in the implementation of science, traditions, programs, experiments research paper writings and the teaching methods. However, the major role stays in interaction by the Paradigm within the essence of the scientific field; even when the action is not clearly defined<sup>(15)</sup>. This is called the origin of reasons depend on the work of Paradigm; the difficulty appears by the method of discovering the basics which lead it; the new theory is not announced unless it is accompanied with its respective application; the Paradigm which leads the World is based upon the ideal picture and theoretical basics; and the scientific revolution is originated by a small group or a member of the scientific unit.

### **The Discovery and the Total Adaptation**

The field of knowledge looks forwards to implement its skills and traditions through the work on which the Scientific Unit is based on, because the goal is to broaden the horizons of knowledge. However, the amazing thing is the new theories do not originate from a void; they originate from the core of the knowledge fields and specializations.



It is the way of handling the dominating rules, to seek the adaptation of new rules and develop the method of practicing them. The separation here depends upon the rules, which define the ways to separate between the ancient and modern Models.

It is the duality which is based on (**the Discovery and the Adaptation**): the discovery as the means through which it is realized that the Paradigm is not capable to treat problems outside the expected; where the adaptation plays the role of providing the scientist a new view which transforms the non-expected into existence. This is done through the total adaptation of the scientific incident with new view and conception.

At this point, Thomas Kuhn lurks the moment of the birth of the Paradigm through the components based on (Conscience, Comprehension, Change)<sup>(16)</sup> to identify the emerging problems which the dominating Scientific Model is no more able to treat. The comprehension through observation and conception which dominate the specialized field and the change which does not appear suddenly; as much as facing more denial and doubting as well as the need to additional proves, instances, evidences and time.

### **The Establishment of the New Theory**

When does the Paradigm change? The response is direct: it is manifested in a new discovery. When could the discovery become real and dominate the scene? It becomes real when the old ways, conception, procedures, and practices are not valid anymore and the adaptation of the new practices and conceptions. It is the transition in the way of theoretical thinking within the field, which leads to the ingenuity and innovation through thinking about unusual questions and answers. The Paradigm would be directly affected as long as new theories appear, due to its failures of its basis. Thomas Kuhn sums up the entire thing when he commented saying: (**the amazing success of the scientific theory is not a complete success**)<sup>(17)</sup>. The failure of the Paradigm to provide solutions of the shelved problems paves the way to change the dominating Paradigm and seek a new one. This is in addition to the influence of historical, cultural and social factors as supporting factors for success or failure as well as the importance of seeking the comprehension of the new Model.

## Footnote

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