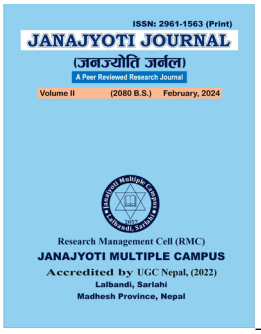

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Paradigm Shift in Mathematics Education

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Abstract

The purpose of this study is to investigate how learning theories and philosophical thought have changed from pre-modern to post-modern thought. A paradigm change is always essential to the development of a curriculum, education as well as nation. I used document analysis method to comprehensively analyze various philosophical and learning theories about mathematics, revealing the emergence of a new paradigm derived from mathematics education. It is critically investigated that the reform movement of the last century shared a common perspective on mathematics learning and knowledge. The postmodern paradigm has replaced the modern paradigm, and philosophy and theology will eventually evolve to reflect this shift. Social science as well as the humanities, management, literature, mathematics, and philosophy have all been influenced by postmodern ideas. The paradigm shift in mathematics education is a transition from passive memorization to critical thinking, problem-solving techniques, and active participation. In order to improve relevance and motivation, it entails embracing technology as a tool for inquiry and discovery, cultivating collaborative learning settings, and incorporating real-world applications. This change is a reflection of a

wider understanding of the need to give followers the adaptable abilities they need to prosper in a world that is changing quickly due to complexity and innovation.

Keywords: Learning theories, mathematics, modern, paradigm, philosophy, postmodern

Introduction

A paradigm is the world's views or comprehensive belief system about the nature of reality and knowledge, which are based on ontological, epistemological, and methodological assumptions. The paradigm is also the lens of the researcher through which researchers study some phenomena or problems. In other words, a paradigm means how we see the world and how we perceive the world. Kuhn's (1970) term paradigm controls the method, problems, and standards a community uses as well as the broader constellation of beliefs, values, and techniques.

On the basis of the scientific framework, particularly physics and astronomy, the history of western thought can be divided into three mega-paradigms: pre-modern, modern, and post-modern (Doll, 1993). In this frame, the Pre-Modern covers the span of time from recorded western history to the scientific and industrial revolutions of the seventeenth century. The modern paradigm especially relates to educational and curricular manifestations that have feared releasing the tautness of the string of control. Postmodernism helps us to see that nature itself consists of flexible order. Likewise, during this long time period, many smaller paradigms existed: primitive, Greek, Christian, Medieval, Renaissance, and Humanist (Doll, 1993). As different as these paradigms were, they all shared one distinguishing feature: a cosmological harmony that included an ecological, epistemological, and metaphysical sense of balance or proportion (Ernest, 1993). However, it is also true that such a worldview permeated Greek and western thought until the time of Galileo and Descartes. In this view, one works with and in nature. The Greeks developed an epistemology, a

metaphysics, and a cosmology where qualities such as good, evil, up/down, light/dark, and hot/cold could be conceived and defined only in terms of the union of these opposites (Fried, 2013). Reality and personal existence are made up of the struggle for or balance between these opposites. The Greeks viewed an educated person as one who possessed the wisdom harmony brings (Boyer & Merzbach, 2011). One is in tune with the universe and its forces. In this context they wrote four was considered the perfect number because it represented in its geometric form as a square, the balance of sides and angles. The modernist view that more is better represents the ancient Greek ideal of order, balanced, symmetrical, and purpose—an ideal that permeated the pre-modern paradigm of an earth-centered universe (Cooke, 2011). Still, the paradigm persisted, and the dominant patterns of astronomy, gentlemanly ideals, mathematics, metaphysics, poetry, and science in the 15th and 16th centuries were Greek, particularly in the Neo-platonic and Neo-Aristotelian forms adopted by the Renaissance (Doll, 1993).

Plato and Aristotle disagreed on the virtues of rational deduction versus empirical induction, but they agreed on the importance of balanced order. Conversely, a modernist technocrat emphasizes excessive knowledge in one area while paying less attention to how that knowledge fits into a more holistic balance or overall harmony (Hersh, 1997). Along with balance, the Greek concept of order also had a strong sense of closure and stasis. While Euclid was too much of a rationalist to accept mythology, he did favor the finite and the closed in his geometry (Kuhn, 1970). Additionally, geometry of closed circles and line segments, which Euclid reluctantly agreed could be extended to lines if desired (Doll, 1993). The modernist paradigm is now the contemporary one, and post-modernism is playing against it as it develops its own paradigm. The main objective of this study is too concise how pre modern era is replaced by postmodern era in mathematics education. The main objectives of a paradigm shift in mathematics education is to enhance students' critical thinking and problem-solving skills by emphasizing conceptual understanding over rote memorization.

Methods

I applied a document analysis method to conduct this study. I analyzed different journals, books, and published papers on different philosophical and learning theories about mathematics. In this context, I mainly based on text book a post-modern perspective on curriculum which is written by Doll, 1993 A. D. This method, which seeks to deconstruct conventional ideas of curriculum and reveals the variety of viewpoints and meanings ingrained in educational processes, which is consistent with the epistemological and ontological tenets of post-modernism. The review highlights concern over the suitability of data gathering techniques and the possible constraints in reflecting a range of perspectives within the discourse, even as the author exhibits a reflexive stance and a sophisticated comprehension of post-modern thought. Ultimately, the methodological evaluation identifies areas for additional methodological investigation and improvement while highlighting the book's contribution to the advancement of post-modern conceptions of curriculum. I made it more comprehensive in terms of the given literature. I have described the emergence of a new paradigm that has grown out of learning theories and philosophies.

Modern Paradigm Emphasizes Mathematical Reasoning

The term modern is derived from the Latin word modernus, which means "now" or "the contemporary age." According to Smart (1992), Habermas believes the term was first employed to distinguish an officially Christian present from a pagan past. The term "modern" was coined to refer to an extant epoch that dates back to antiquity. It means that the present differs greatly from former times in various ways. It refers to a break between now and before. We can state the following about the modern paradigm: historical consciousness, which refers to a knowledge of and concern for historical change, historical separation, which implies a degree of sameness and change. The primitive meaning of the world may apply to one phenomenon or many different sorts of phenomena, but all of them share a basic pattern or theme. This refers to what distinguishes our current society or culture from

all other modern or past versions of all other societies or cultures throughout human history. A current scientific paradigm is also known as a classic scientific paradigm. Newton characterized the universe in terms of principles in the late seventeenth century. Gravity was one of these laws that regulated planet orbits as well as the fall of an apple to the Earth. The planets in orbit and the apple descending obey the identical rules of a single uniformity that governs the entire cosmos. Nature's rules were eventually perceived as an attempt to establish control over nature (Doll, 1993). Because nature is governed by duties, it was thought that humans might rule the cosmos and control is really crucial in his paradigm.

Another aspect of the contemporary paradigm was the privileged position of mathematics and theoretic over observational and practical. Doll (1993) concurs that the individual's perception of competence and experience was diminished in favor of replicating or adapting the performances devised by others. The curriculum was designed with this set-performance paradigm in mind, and divergence from it is deemed illogical (Nardi, 2015). The concept of causality is a recent paradigm innovation that asserts that every effect must have a prior cause. It was thought that change did not occur naturally and that the same cause would have the same result. It became the driving idea of modern science.

A critical examination of the contemporary paradigm reveals that while it promised and offered much to society, it also failed to give solutions to a wide range of problems. The modern paradigm retained trust in human development, with results such as more prosperity, higher living standards, and social freedom of life.

Postmodern Paradigm is not Universally Accepted

Toulmin (1982) raises a pair of arguments here that are crucial to my understanding of the postmodern predicament. The first is that there is no single, comprehensive definition of postmodernism. The movement is too nascent to identify itself, and its branches are too diverse and dichotomous for anyone to be representative. Indeed, postmodernism has infiltrated the arts and humanities, literature, business, mathematics, philosophy, physics, social science, and theology.

In popular culture, the term has even become a "in" word, permeating our society. The second point made by Toulmin (1982) that science will be the central discipline around which the post-modern worldview will eventually emerge.

Again, we can say that, according to Griffin (1988), former students, post-modern thought "represents a critical reappraisal of modern modes of thought"; it questions "the rigid dichotomies modernity has created between objective reality and subjective experience, fact, and imagination, secular and sacred, public and private; it is an intellectual and moral reaction against the imposed" on ourselves (Waters, 1986, p. 113). Griffin (1988) defines a "post-modern paradigm" as "one that deconstructs or eliminates God, self, purpose, meaning in the real world, and truth as correspondence." In the late 19th and early 20th centuries, the struggle between dominant bourgeoisie values and those of the radical avant-garde (a struggle the avant-garde "continually waged but never won"), modernity achieved its greatest artistic and literary triumphs. What was modernism, as Levin (1966) writes? Says that in the fifty-year period between 1890 and 1940, modernism produced the most remarkable constellation of genius in the history of the west Habermas (1981) disagrees with Bell's neo-conservative call for a return to bourgeois values and perspectives. But he agrees with Bell that modernity has exhausted itself and, in this sense, "modernism is dead." These are major shifts. However, he feels this alternative must be put forth lest modernity slip into the neo-conservative trends of anti-modernity without so much as a whimper.

The first feature of the post-modern condition is a worry about Habermas's desire to finish the fulfillment project of modernity. Jencks (1987) says pluralism is the "ism" of our time... We must select and combine traditions selectively and eclectically, those aspects of the past and present that appear to be most relevant to the task at hand. The third feature of post-modernism, as Jencks (1987) sees it, is the concept of multilayers of interpretation. His word is "double-coding." The postmodern looks to the past to code past events and create future visions (Kuby, 2017). What one sees in a post-modern framework, thus, is a curious mix of two codes within one structural matrix. This matrix is at once paradoxical, dialectical, and challenging as a play of ideas.

The recognition of changing paradigms, not merely in science but in the humanities as well. This paradigm change appears to be a mega paradigm change, one bringing about new ideas in cosmology, epistemology, and metaphysics.

Results and Discussion

The paradigm shifts in mathematics education from the modern to the post-modern era signifies a deep shift in the way the field views information, instruction, and learning. Linear development, uniform curricula, and the transfer of mathematical knowledge from instructor to student are the main focuses of mathematics education in the current paradigm (Kuby, 2017). Comparing a person's competency to predefined standards is typically the main emphasis of assessment. Nevertheless, by emphasizing the contextual and social aspect of mathematical knowledge, the post-modern paradigm calls into question these presumptions (Ellis & Berry, 2005). It values a variety of mathematical techniques across cultural and socioeconomic contexts and acknowledges numerous ways of knowing.

Critical thinking, group problem-solving, and the investigation of mathematical concepts via practical applications and interdisciplinary linkages are all prioritized in post-modern mathematics education. In the post-modern paradigm, assessments frequently take the form of real-world assignments that gauge students' aptitude for using mathematical ideas in context and for having thoughtful conversations about their mathematical thinking (Walia, 2020). All things considered, the transition to a post-modern paradigm in mathematics education is a reflection of a larger rethinking of education as a dynamic, inclusive, and socially situated activity.

Being human, though, is not modeled simply by equating living systems with open, thermodynamic ones. Being human means going beyond both biological and dynamic structures. Purposiveness is a major part of being human and a desire for action toward closure, resolutions, and definitions (Lessani, Yunus, Baker & Khameneh, 2016). This human openness carries its own paradox, a desire for closure, resolution, and definiteness. The 20th century has been a century of disillusionment,

an age of uncertainty and anxiety (Hersh, 1979). We face the twenty-first century, a millennium gripped by strong elements of double and fear. We have faith, and I hope we do. It is faith-based on doubt, not on certainty.

In order to promote a greater knowledge of the interdependence of mathematical concepts and their relevance to society, post-modern mathematics education also promotes the integration of mathematics with other disciplines and real-world situations (Ernest,1993). All things considered, the framework that post-modern mathematics education rests on emphasizes diversity, reflexivity, and the ongoing negotiation of meaning in mathematical discourse. Additionally, post-modernism posits a quite different social, personal, and intellectual vision (Ellis & Berry, 2005). Intellectual vision is predicted not on positivistic certainty, but on pragmatic doubt, the doubt that comes from any decision based not on metanarrative themes but on human experience and local history (Jorgensen, 2014). At the same time, post-modernism strives for an electric yet local integration of subject/object, mind/body, curriculum/person, teacher/student, and us/others. This integration, thought is a living process, it is negotiated not preordained, created not found (Walia, 2020). And this integration depends in part on us and our actions we have a responsibility for our futures as well as for the futures of others. In this sense carrying out an open vision may well bring us to an ecological perspective and cosmology.

Descartes' World View Incorporates a Variety of Teaching and Learning Strategies

There are certain laws that God has so established in nature, this quotation reflects Descartes' method of "rightly conducting reason for seeking truth." Descartes' statement also reflects the enormity of the world view shift that accompanied Copernicus's positing of a sun-centric universe and future scientists' describing that the universe is lawful. By now, the very concept of nature itself has changed. The mega-paradigm shift from the pre-modern to the modern threw fear into the hearts of Europe's intellectual and power elite. On the one hand, these individuals were fascinated with the new and particular insights science and mathematics were bringing, which revolutionized astronomy, physics, medicine, commerce, and

transportation. On the other hand, they worried about the loss of natural harmony and order that the old paradigm posited. Control was now wrested from its natural place on earth and placed externally "out there." Newton and Descartes' groundbreaking innovations in mathematics education, including analytical geometry and calculus, revolutionized problem-solving, reasoning, and modern education by emphasizing systematic inquiry, abstraction, and mathematical modeling. The central theme of seventeenth-century Europe was a struggle for stability. Both Descartes and Newton contributed to the enhancement of this struggle, to rebuilding confidence in showing that coherence was not gone, nature indeed being "conformable to herself" even though the paradigm expressing this unity was changing. Descartes, just prior to the seventeenth century, found himself at an early age. "Saddled with so many doubts and errors" that he could ascertain nothing that was not in dispute. He longed for certainty in a world filled with uncertainty. First Rule: accept only that which presents itself to the mind “so clearly and distinctly” that its truth is self-evident. Second Rule: divide each difficulty “into as many parts as possible” for an easier solution. Third Rule: “think in an orderly fashion”, as did the geometers of old with their “long chains of reasoning, “always proceeding by gradual degrees, from that which is “simplest and easiest to understand” to the more complex. Fourth Rule: Review all the foregoing to be “certain that nothing is omitted” (Doll, 1993, p. 30).

What is interesting about these rules from a curricular viewpoint is (i) their closeness to both the modernist “scientific method” as well as to the Tyler rationale and (ii) the rule’s own allegiance to mathematical, especially Euclidean thought. Descartes was providing a skeletal foundation for the curricular methodology today’s schools use-moving from the well-conceived to the empirically valid. Descartes emphasized curriculum planning provided experiences for rightly conducting the reason and seeking truths in the science’s chosen purpose and evaluation rules are clear and distinct truth which are direct carryovers from self-evident geometric axioms.

The deductive steps are the long chains of reasoning proceeding by gradual degrees described by Descartes. The underlying premise of Descartes' and Euclid's

approaches is an external reality established by a logical, geometrical comprehension of God that is independent of our own thoughts and deeds.

At least in terms of Descartes' categorical separation of the objective from the subjective, humans, at least in terms of their senses, become a tangled bundle of secondary qualities. Personal feelings, intuitions, and experiences are not sources of knowledge. Knowledge exists "outside" immutable, unchangeable, residing within the great laws of nature. Knowledge could be discovered but not created. The system was closed.

Descartes bequeathed to modernist thought a method for discovering a pre-existent world, not a method for dealing with an emergent evolutionary one. In this metaphorical playing lies a powerful and trenchant critique of modernist epistemology, philosophy in the positivist vein, and science in the scientific vein have set themselves up as arbiters of the rules in the game of knowledge.

Newton's Stable Universe Contributions Remain Foundational for Building Block

Nature does nothing in vain for nature is pleased with simplicity. In principia Mathematica give a sense of Newton's meta-physical view about nature and its order. In this view nature is beautiful in the uniformity of its simple symmetry and buried within that symmetry is a set of necessary, linear, causative, relations accessible to exact mathematical description. Reality for Newton is both simple and observable. Ironically while this concept of nature as a set of necessary relationships is ultimately dependent on God's goodness, the translation of this concept into mathematical terms elevated mathematics to an exalted, God like position. Thus, Newton, a religious individual who saw in nature's beautiful symmetries God's design and who wrote as many theological as scientific tracts unwillingly provided the foundation for the separation of science from religion.

The real peculiarity of Newton's meta-physics though lies not so much in itself as in our whole sale acceptance of it as the natural order of the universe. It is

Newton's metaphysical and cosmological views not his scientific ones that have dominated modern thought so long providing a foundation in the social sciences for causative predictability linear ordering and closed methodology. In pre-modern paradigm there is no way to order the opposites for each has its own qualitative essence. There is no quantitative scale, no central norm to which all corresponds.

Newton's great contribution to this concept was in deriving one formula F= GMm/r2 for the mutual attraction of physical objects, a formula that measured the "force" holding the universe together. Newton proposed gravitational force as an alternative to Descartes Vertices. Educationally we have yet to realize the potentialities inherent in time as a frame for transformations. Methods of reflections, recognition and interactive play need to be part of our curriculum construction. These methods are congruent with the processes post-modern science tells us nature uses in bringing to actuality the creative potential inherent in the universe.

Another Newton's metaphysical concept that has had an influence on curriculum is that of individual atoms forming the ultimate reality or "building blocks" of nature. In the modernist paradigm the concept of curriculum as autonomous but interconnected units is ubiquitous. From the first grade on, curriculum is considered on terms of the number units covered mastered accumulated. Such a view does not facilitate considering curriculum as a transformative process, one composed of complex and spontaneous interactions.

Curriculum Carryover Supports the Integration of Knowledge and Abilities from Several Disciplines

Rational models are also known as classical, objective oriented, means-ends, and scientific models. Rational model prescribes certain predetermined and sequential steps for devising a curriculum in which curriculum development process begins from objectives and proceeds objective to content, content to method and finally method to evaluation. Thus, on this model, objective formulation plays crucial role for making decision about subsequent steps of curriculum development.

Tyler (1950) states that the selection of objectives is not only the first act of the curriculum planning but the key to the whole process. He does talk of "an acceptable educational philosophy which is to act as a screen in the selection. Tyler (1950) sees educational ends set prior to experience with learning a specifically intended, directed and controlled outcome one that can be measured. Tyler and his followers distinguish educational goals form curriculum goals. The Tyler (1950) found expression in school curricula through the behavioral objectives movement of 1960s, the competency-based education movement of 1970s. He points out that the "Scientific" tradition in curriculum is really a utilitarian orientation rooted in interest for "intellectual and technical control of the world".

Prigogine (1961, p. 3) defines thermodynamic closed systems as those which "exchange energy but no matter" – for example, water wheels or gears –while open systems "exchange both matter and energy" –for atomic reactors. He said that there are qualitative differences between closed and open systems. In closed systems which are usually mechanical in nature, only exchanges take place that are no transformation. Exchange (not transformation) is and has been a powerful curricular metaphor. In closed systems, stability, centers of balance and equilibrium are key ingredients. In open systems, on the other hand have moving vortices or spiraling swirls and are nature transformative; change not stability is their essence.

In term of curriculum, chaos-complexity theory and the study of turbulence have a variety of application. At the instructional level, the implications of chaos theory deal mostly with the concept of recursion in which the individual looks back on himself/herself and through this self-referential experience a sense of self and value emerges (Stephen, 1977). Overall, chaos complexity theory leads us to see that we have arrived at a major turning point in our relations with the world, nature and ourselves. A creative paradigm has the major implications for education and curriculum. The teaching-learning frame switches from a cause-effect one where learning is either a direct result of teaching or teaching is at least in a superior-inferior relationship with learning. The heart of Prigogine's cosmological argument is not only that dissipative structures are sources of orderly creation "order through

fluctuation" is the phrase he uses but that by their openness they are indeterminate. Thus, the future direction of any far from equilibrium system cannot be predicted. The essence of Prigogine's argument is that transformative change, involving basic restructuring dies not happen in a system at or near equilibrium. Prigogine suggests for post-modern curriculum as "dancing curriculum" one where the steps are patterned but unique, the result of interactions between two partners; teacher and text, teacher and student, student and text.

Along with the growth of representational process of childhood summarizes much of what he believes mind to be as well as his views on how mind can be developed. According to Brunner (1983, p. 201), the power of representation, especially in its higher more symbolic forms, the symbolic is higher than the iconic, itself higher than the inactive is what Brunner means by mind. Brunner calls mind "an idea we construct" to frame the remarkable powers humans have "to go beyond the information given." As such it is not a thing but a concept. This concept is a social interaction, a reciprocity with others that leads to ideas of both self and community has significant importance for learning. This he argues that educators, psychologists, even philosophers need to pay far more attention to this most important and unique human ability-learning from others. As Brunner sees it we need to develop curricular plans and instructional strategies that utilize student-student and student-teacher dialogic interaction.

While Brunner does not see children or beginning learners in such exalted terms, he does see all learners as constructors whose constructions improve through tool use, social interaction and recursive thought analogously, a curriculum based on (i) experience with symbol manipulation (ii) public dialogue (iii) private reflection can Brunner believes transform the learner from a copiers of others patterns to a generator of one's own.

Brunner accepts Piaget's notion that meaningful learning- learning that allows one to be generative with the material at hand, thus going beyond that presented is dependent on an individual's particular way of representing the world. Drawing on

Vygotsky's "zone of proximal development" Brunner (1986) believes there are areas just beyond an individual's generative competence where the learner can follow another's activities and thoughts without being able to construct these personally. Brunner (1986) pays so much attention to interaction as the way to overcome the dilemma of choosing between empirical, external experience and rational, internal maturation.

Brunner uses the example of a mother "cooking" with her child. This pay-full act has its cognitive aspects. In doing this the mother remains forever on the growing edge of the child's competence leading the child into areas not yet, but soon to be, mastered by himself or herself. The mother's actions are in the "Zone of Proximal development". Brunner encourages curricularists to use and develop a culture's artistic, metaphorical and intuitive modes in conjunction with the more dominant analytic mode. This is Brunner's famous "Spiral Curriculum" where school subjects are studied developmentally over a number of years with increasing levels of complexity. Brunner (1960) believes that it is quite possible to teach any subject effectively in some intellectually honest from to any child at any stage of development

Biology is a more heuristic model for curriculum generation than the mechanistic one we now use. Self-organization and it is essential attribute of biological mode. Curriculum materials are so structured that the "learning" students do is framed not in terms of their own self-organizing processes- which will have "gaps" but as the result of pre-set, logically designed, simply ordered and sequential steps. Piaget (1977) published writings-done as a teenager- were in biology (really zoology). He emphasized biological model of development and the role of process of equilibrium, especially formation and transformation of structures. The heart of Piaget's theory biological and cognitive lies within his intermediary concept of "phenocopy" (or genocopy, for it is the genes that actively do the "copying").

The central problem of biology and analogously and any epistemology interested in knowledge in terms of its development and not just its verification,

a genetic epistemology- is the interaction between the pressures the environment places on the organism and the reaction the organism has to those pressures. Piaget believes the psychological behaviorists such as those influence by B.F. Skinner with their strong emphasis on the effects of the environment. In fact, Piaget argues, the Neo-Darwinians have side stepped the issue of new trait production with their use of "natural selection." Natural selection is only post facto explanatory, it does nothing to help us understand what will emerge.

Moreover, Doll (1993) emphasizes that Piaget's paradigm shift in mathematics education emphasized cognitive development and constructivism, shifting focus from memorization to active engagement and exploration. This led to reevaluation of teaching methods, fostering reasoning, problem-solving, and critical analysis of mathematical concepts. Piaget proposes an equilibrium-disequilibrium- re-equilibrium model of individual development. Disequilibrium plays key role it is "the driving force of development" or the motor of evolution, to use a modernist and mechanist phrase (Doll 1993). In trying to overcome disequilibrium- here perturbations errors, mistakes, confusions the student reorganizes with more insight and on a higher level than previously attained. Along with the sense of enlightenment progress that Piaget assumes here, it is important to note that this disequilibrium must be deeply felt or "far-reaching" (Doll 1993). This is the area of post-modern teachers and curricularists will need to work on if they wish to generate practical curriculum procedures from Piaget equilibration model.

The idea of autonomous cognizing subject conveyed by constructivism was not suit on mathematics education (Radford, 2008a). Similarly learning theories and teaching psychology have been used in different educational systems around the world from modern to postmodern paradigm (Sriraman & English, 2005).

Conclusion

The paradigm changes over the time which is influenced education in the western world. The mega-paradigm shifted from the pre-modern to modern and

post-modernism threw fear into the hearts of Europe's intellectual and power elite. Despite the differences among them they all shared the cosmological harmony includes ecological, epistemological and metaphysical sense of balance and proportion. Cosmology and earth -centered Universe (Geocentric) seems to be the pre-modern thinking. In modern paradigm, the earth-centered cosmology was replaced by mathematical and mechanics cosmology during the period of sixteenth and seventeenth century.

Modern paradigm was largely built on scientific revolution of Europe that brought new views on intellectual, social and educational thought. Newton's law of stability of universe and Descartes' method of right reasoning played important role in establishing the modern paradigm. Modern paradigm has changed to post-modern paradigm eventually be matched by corresponding changed of philosophy and theology. Post-modern thought has pervaded the arts, humanities, literature, management, mathematics, philosophy, science as well as social sciences

Post-modern thought critiques modern modes of thought, highlighting the dichotomies between objective reality and subjective experiences. As we transition to a new paradigm, we must find new resources for a dynamic, progressive society. Modern society is integrating, homogenizing, and centralizing, while postmodernism emphasizes subjectivity, cultural diversity, openness, transparency, and individual uniqueness, promoting decentralization and localization.

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