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Résumé de l'article

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Formulating Questions is the 'Answer' for both Learning and Discovery: Probing a New Model for Education

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Abstract: We describe the importance of exploration and formulating questions to be explored rather than studying the answers of the past as a way to reform education based on ideas first formulated by Marshall McLuhan.

Key words: questions, answers, education, schools, classroom, learning, discovery, reform, McLuhan, figure, ground, Laws of Media, hypothesis, thesis, theory

The Question is the 'Answer'

Marshall McLuhan always maintained that it was the questions that were the best avenues for learning, discovery, and research as opposed to the answers. In other words in a certain sense **the question is the 'answer,'** the answer to what is the best way to learn. The focus on schooling should be on questions that the students formulate and explore and not on the answers to the questions of the past. By the same token a quest for discovery should start with questions and not a theory because a theory already provides the answers. Questions stimulate exploration and answers end exploration or even discourage exploration altogether. This focus on the questions rather than the answers formed the basis of McLuhan's methodology that led to his many breakthroughs and his understanding of media through his many books of which *The Gutenberg Galaxy* (McLuhan 1962) and *Understanding Media* (McLuhan 1964) are those that led to the field of media ecology. McLuhan always maintained that in his research he did not start with any particular theory because a theory is already a particular answer to former questions and not the question that arises from new observations. He maintained that he always started with observations and these observations led to new questions such as why am I observing what I have observed? It is the questions that leads to discoveries not a theory because a theory

already implicitly contains answers that automatically suggest explanations of one's observation of new phenomena. Better to start fresh.

McLuhan used his distinction between figure and ground to advocate for a change in education, for both K to 12 and even higher education, with a focus on questions serving as ground rather than on answers and instruction acting as figure. This fits the pattern of his constant reversal of figure and ground (Logan 2021). McLuhan suggested that more could be learned from formulating questions and discussing all possible answers to those questions rather than memorizing the canonical answers to the questions of the past. In his consideration of procedures in schools, he wrote, "We are entering the new age of education that is programmed for discovery rather than instruction (McLuhan 1964, x)."

This is not to say that learning the basic skills of literacy and numeracy are not important. They are absolutely essential but once the students have acquired these basic skills the focus should be on their acquiring the basic skills of research which is the ability to make observations and formulate questions based on those observations. Today's students have been born into an age of rapid and transforming change. Learning the lessons of the past are still important and there is a place for that but the real objective of education must be to prepare the student for the challenges of today and those of the future that are just around the corner. The impact of information overload, smart phones, social media, artificial intelligence are the pressing issues of today that the lessons of the past cannot address.

Not Just City as Classroom But Digital Media as Classroom

Marshall McLuhan pioneered the idea of changing the focus of education from the lessons of the past to the preparation of the challenges of today and the future. In an interview discussing his book *City as Classroom* co-authored with his son, Eric McLuhan and Kathryn Hutchon, McLuhan said,

The City as Classroom began out of Ivan Illich. *Deschooling Society* [1971] had challenged me. Illich was quite right in suggesting that we live in a new environment in which all the answers are now outside the school room and therefore he suggests, why don't we close the schools? I say, why not put the questions in the

classroom? If the answers are now outside, let's get the questions inside and set up a dialogue between the outside and the inside. So our book *The City as Classroom* [McLuhan M & E & Hutchon 1977] is really designed to get students in small teams to go outside, to study the setup of the situations that they live with every day and to discover what they're made of. I call it the figure-ground approach — to study sort of Ralph Nader style what is developing in this environment (<https://mcluhansnewsciences.com/mcluhan/2018/09/mcluhan-interview-on-the-city-as-classroom/>).

McLuhan's theory of education grew out of the methodology that he developed for his research to understand the effects of media. His method was to observe the effects of a medium and ask himself what is it was about a medium that led to these effects especially the unintended ones. He reversed cause and effect by starting with the effects and then worked backward to the causes. This is quite different than the methods of researchers before McLuhan who looked at media and identified what it was that they were intended to cause. McLuhan, on the other hand, looked at how a medium was actually used to identify its effects especially its unintended subliminal effects, not the effects that the user of the medium intended but the actual unintended effects that the communicator using the medium was, in most cases, oblivious to.

To update McLuhan's theory of education we suggest rather than "city as classroom" we should consider 'digital media as classroom' because it is digital media that are responsible for the rapid change are society is undergoing, changes that are even more profound than those of the electric mass media that he was trying to understand.

McLuhan's Writing Style

McLuhan's methodology was formulating questions that he explored through his writing which were not simple expositions of his findings but rather were the actual process of his act of discovery that these questions elicited. This explains why his text is so turgid. A student once asked McLuhan, "Why are your letters to the newspapers so plain and your other writings so difficult and obscure?" McLuhan's response revealed his question-based methodology of doing his research:

This question highlights the difference between exposition and exploration. Anything that I know I can explain quite simply and directly. I can package it. Nearly everything I write is concerned with areas of exploration in which I am actively engaged in discovery. That is why I say, —I have no point of view. Anyone engaged

in exploration uses every available approach, every available foothold, every accessible crevice to which to cling as he scales the unknown rockface. The actual process of dialogue and discovery is not compatible with packaging of familiar views. A person engaged in exposition has nothing new to say, and he cannot communicate the effects of participating in the process of discovery (McLuhan 1970).

In his book, *The Medium is the Massage* (co-authored with Quentin Fiore), McLuhan described his disdain for the ready-made answers to questions. He maintained that at electric speeds yesterday's answer have no relevance for today's questions. This observation of McLuhan's is even more pertinent for our Internet Age, an age McLuhan did not experience but one which he anticipated.

With Nose-counting, a cherished part of the eighteenth-century fragmentation process has rapidly become a cumbersome and ineffectual form of social assessment in an environment of instant electric speeds. The public, in the sense of a great consensus of separate and distinct viewpoints, is finished. Today, the mass audience (the successor to the "public") can be used as a creative, participating force. It is, instead, merely given packages of passive entertainment. Politics offers yesterday's answers to today's questions.

What McLuhan said about coping with electric speeds applies even more so with digital speeds which are an order of magnitude greater than electric speeds and since digital speeds are an order of magnitude greater than print speeds that means the digital speeds our young people are coping with are two orders of magnitude greater than the print speeds of the media at the heart of today's education system, namely textbooks. This is not to disparage textbooks as they still have a place in contemporary education but not the dominant place they had in the schools of the past. Put simply textbook based education is two media revolutions behind the times, the revolution of electric media and the revolution of digital media.

The only way for the education system to catch up with the electric and the digital revolutions is to switch the focus of school learning from studying the answers of the past to focus on questioning how the future will evolve given the transforming role of media especially digital media. Towards the end of his career McLuhan formulated what were the tools that allowed him to develop his insights known as the Laws of Media which were not actually laws, but four questions.

McLuhan's Laws of Media Formulated in Terms of Four Questions

A perfect example of the power of questions for McLuhan (1975, 1977 and 1988 {with son Eric}) was his formulation of his Laws of Media which he formulated in terms of the following four questions:

1. What does a medium or technology enhance?
2. What does a medium or technology obsolesce?
3. What does a medium or technology retrieve from the past?
4. What does a medium or technology when pushed far enough flip into?

These four questions, which he formulated towards the end of his career, formed the basis for McLuhan's research into and understanding of technology and media.

The Laws of Media for Questions

Let us apply McLuhan's methodology of the Laws of Media to the medium of "a question":

1. What does a question enhance?
A question enhances exploration and dialogue;
2. What does a question obsolesce?
It obsolesces previous knowledge and the simple trivial answers to the question;
3. What does a question retrieve from the past?
It retrieves critical thinking, discussion and the Platonic dialog;
4. What does a question when pushed far enough flip into?
It flips into new discoveries, new knowledge and still more questions.

And the additional questions that the original question flips into starts a new tetrad which involves still more questions, a never-ending process of exploration and discovery. This is why an educational model based on questions is so important for young people so that as they go

through life, they will formulate the questions that will help them understand the rapidly changing world they will encounter.

McLuhan's research methodology based on questions and questioning is the basis for his remark "I don't explain—I explore".

The Laws of Media for Answers:

Answers on the other hand end the discussion and hence end the process of discovery.

Applying the Laws of Media to answers yields the following:

1. What do the answers of the past enhance?

Answers of the past enhance the transmission of out-dated methodologies;

2. What do answers of the past obsolesce?

Answers of the past obsolesce exploration;

3. What do answers of the past retrieve?

Answers of the past retrieve traditional outdated theories;

4. What do answers of the past flip into?

Answers of the past flip into complacency

An Example of an Interesting Question That Led to an Exploration That Changed the World

It is said Columbus discovered America. That is not exactly true because America existed before Columbus. What he discovered was a new hemisphere where European maritime nations could exploit the new hemisphere's resources and its inhabitants. His discovery emerged from attempting to answer a question. The question was how could the European maritime nations get to China faster. Answering this question led to the European's discovery of the Western hemisphere which was a bonanza for the Europeans but it was a disaster for the indigenous peoples of the Americas. Millions of them died of the diseases that Columbus and those that followed him brought to the New World. But in the end, it also led to the following two positive things:

1. The foods of the Old World came to the New World and the foods of the New World came to the New World:

Foods that originated in the New World that found their way to the Old World included artichokes, avocados, beans (kidney and lima), black walnuts, blueberries, cacao (cocoa/chocolate), cashews, cassava, chestnuts, corn (maize), crab apples, cranberries, gourds, hickory nuts, papayas, peanuts, pecans, peppers (bell peppers, chili peppers), pineapples, plums, potatoes, pumpkins, raspberries, squash, strawberries, sunflowers, sweet potatoes, tobacco, tomatoes, turkey, vanilla, wild cherries, wild rice.

Foods that originated in the Old World that found their way to the New World included apples, bananas, beans (some varieties), beets, broccoli, carrots, cattle (beef), cauliflower, celery, cheese, cherries, chickens, chickpeas, cinnamon, coffee, cows, cucumbers, eggplant, garlic, ginger, grapes, honey (honey bees), lemons, lettuce, limes, mangos, oats, okra, olives, oranges, pasta, peaches, pears, peas, pigs, radishes, rice, sheep, spinach, tea, watermelon, wheat, yams. There also arrived some very useful animals, namely, horses, cattle, sheep, and goats.

2. The New World, in time, became the environment in which full-fledged democracy first emerged as a reaction to the oppressiveness of colonial powers. But sadly the indigenous peoples of the New World with some exceptions have not enjoyed the fruits of democracy. The question of why this is the case is a question ripe for new discoveries and is urgently in need of being addressed.

Hypothesis versus Thesis and Theory

Let us begin this discussion with the dictionary definitions of hypothesis, theory and thesis:

A hypothesis is defined as an assumption made before any research has been done. It is formed so that it can be tested to see if it might be true. (<https://www.google.com/search?client=firefox-b-d&q=etymology+of+hypothesis>, accessed March 15, 2023).

A theory is a principle formed to explain the things already shown in data. (<https://www.quora.com/What-is-the-difference-between-a-theory-model-paradigm-and-hypothesis-in-science-and-technology-studies-STS>, accessed March 15, 2023).

A thesis is a statement or theory that is put forward as a premise to be maintained or proved. (<https://www.quora.com/What-is-the-purpose-of-a-thesis>, accessed March 15, 2023).

An essential part of the scientific method is that every theory must be treated as a hypothesis. Although

a theory might explain all of the current observations made to date one must still keep open the possibility that a new observation of a phenomenon or phenomena might contradict the thesis or theses of a currently held theory. Newton's theory of mechanics worked for many years but proved to be violated as velocities approached and reached the velocity of light and was replaced with Einstein's Theory of Relativity.

One should therefore treat every hypothesis, thesis and theory as a probe that must be constantly tested by observations of the phenomena encompassed by these three classes of statements. Since starting with a hypothesis, thesis and theory might prejudice the observer, one should follow McLuhan's advice and not start with a theory but start with observations and questions. If one wants to understand a medium or a technology begin with the effects of that medium or a technology. Forget the theories and observe what happens when that technology or medium is used and compare that with what happened before that technology or medium came into existence. This is the heart of McLuhan's methodology. This is what one of us (RKL) did together with McLuhan in the study *Alphabet, Mother of Invention* (McLuhan & Logan 1977). McLuhan and Logan started with the observation of the differences in Western and Eastern cultures. Why did abstract science begin in the West despite the fact that so much technology was developed in China. Why did monotheism developed in the West and not the East despite the fact that Eastern cultures developed highly spiritual philosophies. Both East and West developed law, but why was Western law codified unlike Eastern law? McLuhan and Logan suggested it was the alphabet, the most abstract form of writing, and one that encourages codification as well that explains why Western culture evolved in a way that was different than the way Eastern culture evolved. They wrote:

Western thought patterns are highly abstract, compared with Eastern. There developed in the West, and only in the West, a group of innovations that constitute the basis of Western thought. These include (in addition to the alphabet) codified law, monotheism, abstract science, formal logic, and individualism. All of these innovations, including the alphabet, arose within the very narrow geographic zone between the Tigris-Euphrates river system and the Aegean Sea, and within the very narrow time frame between 2000 B.C. and 500 B.C. We do not consider this to be an accident (McLuhan and Logan 1977).

Conclusion

A hypothesis is a question in the sense that it is something to be tested that might be true. A theory is a thesis that has been tested to a certain degree and passed its tests to date but a scientist/scholar always must keep open the possibility that it could prove to not work in all cases. Newton's theory of mechanics being replaced by Einstein theory of relativity is just one example of many older theories that were replaced by a newer one.

Theories of education based on the spoken word worked for millennia without the existence of schools until the emergence of writing and then it changed radically with the emergence of schools and academies. The older form of oral education did not disappear totally and was preserved in the form of apprenticeship learning which survives to this day. The same with school-based education based on the written word that emerged with literacy and numeracy. Like apprenticeship learning it will survive but it will be transformed. Just as books provided a tool for self-education or auto-didactics so too will electric and especially digital media provide a medium for a more robust form of self-education and auto-didactics. Just as McLuhan said, "the medium is the message."

Questions lead to discovery and hence in education the focus should be on encouraging students to formulate questions rather than the exclusive current focus on the answers to the questions of the past. Questions also lead to discovery in research and scholarship and therefore a focus on observations that lead to the formulation of questions is the path to success. The hardest part of scholarship is asking a pertinent question and the easier part is answering those questions.

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should be aware that the pagination in other editions is different. To aid the reader in calibrating note that Chapter 1 The Medium is the Message begins on page 7 in the edition I have referenced.)

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