The Evolution of Empiricism:

Implications for Educational Theory

Robert Henman
Halifax, Nova Scotia
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INTRODUCTION

This article is an effort to set forth an hypothesis and proceed through various experiments in order to explore this hypothesis. The challenge is to investigate the hypothesis with a view to critiquing a premise of empiricism. The hypothesis may be stated in various forms as follows: Is the present view of empiricism open to evolution? Are there premises in scientific theory that are preventing the evolution of empiricism? Do new paradigms (Kuhn, 1970, McShane, 1980, pp.5-7) constitute an evolution in empiricism? Is the notion that what is real is what is "out there"(sensible experience) an absolute? The hypothesis is that evolution in empiricism is possible but is blocked by an unquestioned premise. That premise is an epistemological issue.

If the notion that what is real is what is "out there" is an absolute then a conflict exists in scientific method and social theory. The classical notion of absolutes was to have been dissolved by post-classical paradigms. If naive realism is held to be an absolute then post-classical theory has failed to account for one final absolute. If post-classical theory is correct in the abolishment of absolutes, how do we account for this single failure and maintain theoretical integrity in research and science in general? This article will present various experiments in an attempt to analyze the traditional premise that holds that what is real is what is "out there". In doing so it is hoped that integrity may be achieved in post-classical theory by dissolving completely the notion of absolutes. Just as in any research study the experiments are set up, conducted, and observed by the researcher. In this case I will set up the experiments and ask that my readers, conduct, and observe the experiments in an effort to eventually formulate conclusions.

A FIRST EXPERIMENT

The context for the first experiment is set by the following quotation.

What is the environment? The answer to this question comes promptly enough-the environment is "out there." It is this book, the walls of this room, the people passing to and fro; it is everything that is outside of us. This answer is of course a rational one, but it is founded upon an elaborate system of inferences developed through a lifetime of experiencing. If a forefinger is placed along the lower ridge of the eye socket so that its tip is against the nose and the other eye is covered, pressing the eyeball gently and moving it up and down will cause the environment to jump back and forth. Now this is manifestly unreasonable! Any force sufficient to shake the room would also have been felt as vibration. But what, then, is the explanation of this phenomenon? **(Osgood, 1953, p. 1)**

What is the explanation of this phenomenon? The answer to that question can only be reached by first carrying out the experiment. When this experiment is conducted do you experience the visible scene before you as rocking? I did and I assume you did. If the scene before us rocks and we felt no motion, what is actually rocking? The eye was being rocked by our fingertip. So, the only thing actually rocking is our eye and yet our visible scenery before us is rocking also. If two people stood in the same room and both carried out this experiment at the same time, neither person would feel any movement. So, what exactly is being moved? It can only be the image that is formed on the rods and cones of the individual's eye by lightrays that have passed through the retina. If we recall our early school classes in the study of the eye and how it functions, lightrays reflect off an object, are received by the eye and somehow reflect back to the image. The action of receiver and transmitter put the seen object out there beyond us. But, if the object was beyond us, could we move it merely by rocking the eyeball? Again, I assume you

answered 'No' as I have. If two people are rocking a room and neither is feeling any motion, then they must be rocking two different images. If they are rocking two different rooms and yet, apparently, standing in the same room, the conclusion that they are seeing or rocking the same room is unreasonable. What are they rocking? The only conclusion that is reasonable is that they are rocking their own image of a room. Lightrays do not reflect back out from the eye. The extroverted experience of images is how seen objects appear. Is there any other explanation of this phenomenon that is reasonable?

This raises the epistemological question of 'What is the real?' or 'What is reality?' or 'Is there anything "out there"(Lonergan, 1992, p. 605) beyond you and I that is 'real?' These are valid questions and require answers if our experiment is to be properly carried out and challenged. If there is no one single objective image "out there" beyond us how can we know anything? What happens to the view of correspondence? Let us move to a further experiment before attempting to answer these questions.

A SECOND EXPERIMENT

This experiment requires two people in the same place, room or whatever. One of you must wear glasses. One of you must remove your glasses for a moment. Once this has been done, notice what happens to your image or ask the other person what has happened to their image. The image becomes blurred. Why? Because the lightrays are not properly focusing on the rods and cones. They are either focusing just in front of the rods and cones or just behind them, the positioning of the lightrays determining whether the person is farsighted or nearsighted. Glasses are designed to focus the lightrays on the rods and cones. In either case certain images will appear blurred and for some people all images will be blurred depending on their particular eye distortion. Once it has

been established that one person sees a blurred room, ask the other person if they see a blurred room or advert to your image of the room if you do not wear glasses. Obviously NO. The removal of one person's glasses does not affect the other person's image of the room. So, where is this blurred image? It is on the rods and cones of the person who has removed their glasses just as the other person's image is on their rods and cones without distortion.

This experiment also manifests that there are two different images seen by two different people. We assume by talking and describing what we see that we see the same image or room. How can we come to the conclusion that what we see is the same when we are seeing an image that is on the rods and cones of our individual eyes?

A THIRD EXPERIMENT

Out third experiment consists of a puzzle. The puzzle is as follows.

A EF HI KLMN

BCD G J

The task is to find out why certain letters are on top of the line and others are on the bottom and then complete the alphabet. There is a law functioning in this distribution. The experiment consists just not in solving this puzzle but also to discover how you solve the puzzle or more pointedly, what are you doing when you are solving this puzzle? Are you puzzled? Do you have a question such as; 'Why are these letters positioned as they are?' What is the connection between having a puzzle and asking a question? This question may seem absurd. This question is relevant to our epistemological problem displayed by our two first experiments. One alternative to asking a question about our puzzle is to just stare at it. Does our staring or looking at the puzzle

contribute to solving the puzzle? It would seem not to assist us in anyway. So, why does a question assist us or does a question assist us in some way? Notice that I have made a distinction in two different modes of questioning. One is asking: 'What is the solution to the puzzle?' and the second mode is asking why we ask a question at all. There are two different questions functioning in this experiment. But both questions have us in a quested mode. If we want to solve the puzzle it would seem appropriate to ask a question. If we want to solve the puzzle of why we ask a question, we begin again with asking a question. This activity of asking questions would seem to have something to do with solving puzzles, or understanding experiences we do not understand. Let us reflect on the image of the puzzle and the 'image' of the question. Imagine the puzzle for a moment in your mind. You see the letters on top, the line below and the letters below. Now imagine your question: 'What is the solution to this puzzle?' The two images are completely different. You can see the puzzle and you can see my written question, but if you try to imagine your question, you have two options, the written letters that comprise your question or the experience of being curious. Can you experience your curiosity? And if these experiences are so different, then what is the connection between them? Is there any connection between them? They appear to be related, but not as images. How are they related? We spontaneously ask a question when we do not know something. It also seems that we are not taught this activity. Children begin this activity shortly after learning some speech and they can agitate an adult by the incessant activity of asking questions. (Henman, 1984, p.7) But they are not taught to ask questions, they just do.

This questioning must have something to do then with solving problems or understanding experiences we do not understand. Our staring seemed to get us nowhere. In other words, if we could not ask questions, would we ever solve anything or reach any understanding of anything?

The answers to these questions are part of the experiment just as they were in experiments One and Two. And note that again I am asking questions in order to initiate an understanding of the experiment. You may feel that I am cornering you in. Well, I have carried out the experiment just as a physicist would carry out the experiment before writing it up. Once the experiment has been completed, if the hypothesis was correct, the physicist writes it up in a manner that assists the reader in reaching the conclusion that the original researcher discovered. Any physicist reading the write up would read it critically just as I am asking you to read this article. If the hypothesis was wrong, and of no value to science, the researcher probably would not write it up and go back to the 'drawing board'. It is interesting to note that going back to the drawing board in this case would involve admitting there is an unknown and we would begin with a question in an attempt to develop a new hypothesis.

This third experiment has been an attempt to show a connection between experience and an activity of consciousness: questioning. In the first experiment I presented the strange notion that our seen images are on the rods and cones of our eyes. I raised various questions about this odd experience in an effort to assist you in following my experiment. In the second experiment I described the experience of blurred images to again show how our seen image is not only on the rods and cones but separate from every one else's image. Again I used questions as a way of assisting you in following the experiment. In this third experiment I attempted to actually focus on the very activity of questions and their relationship to experiences. A question directs our conscious attention towards understanding. In as much as our 'sense' of reality appears to direct the question towards the puzzle, it is actually an expression of a search for an insight that will manifest the law of distribution that determines where the letters are to be placed. This law is

latently present in the image of the puzzle. Looking or staring at the puzzle cannot discover it. A question adds to the experience. If you have had the insight that reveals the law then you have added something more to the experience. The insight is not 'in' the puzzle. It occurs in you and I. It would remain to add something further, which is verification. Is my insight correct? These 'elements' of consciousness can be specified and named. The list follows.

1) Experience (puzzle) 2) What questions: What is the law? 3) Insight (understanding)

4) Formulation of the insight 5) Is it so? Type questions 6) Indirect insight

7) Judgment as to the correctness of the insight (verification) 8) What-to-do? Type questions 9) Insight 10) Options 11) Is-it-to-be-done? Type questions 12) Insight

13) Decision and finally action. (Anderson, 1996, p.163)

There are 13 of these elements that occur in consciousness each time we work through a correct understanding of anything. Now we may not go through each and everyone for every instance of knowing. It would depend on the seriousness of the need to understand something correctly. So, in common sense knowing when deciding where to each lunch, we may simply say; 'Where will we eat? ' And someone says, 'MacDonalds' and we answer 'Sure, why not? ' When doing research or deciding whether we will move around the world, we would hopefully exercise the full 13 elements. These 13 elements also manifest different levels of meaning or reasons. (Lonergan, 1973, p. 9) The first level of meaning is attention. We attend to the experience of the puzzle. We look at it. But very quickly we move to a second level of meaning in the'What' question manifesting a level of intelligence. Consciousness spontaneously asks a question about an unknown. A third level of questioning: Is it so, manifests a level of being reasonable. It would seem only reasonable to attempt or desire to verify one's insight into the puzzle. We could be wrong. A

fourth level of meaning expressed in the 'What-to-do? type question manifests a level of value or responsibility. Now that I have understood the law governing the letters in this puzzle; 'What will I do with the puzzle?' I could pass it on to others, as a form of entertainment, or use it in my classrooms to assist students in noticing their 13 elements or I could forget it. These are options and the dynamic of the 13 elements is to complete the process.

This is an extension of this particular experiment. It is carried out by going through your own elements and noticing whether or not you do, in fact, follow these steps. If so, that affirmation is on the third level of meaning, verification, or being reasonable. Now, what will you do with that knowledge? I began this experiment with a puzzle to be solved. In reflecting on how we puzzle the experiment shifts to noticing activities that go on in you and I when we are solving something such as a puzzle. This experiment manifests that experience is given, but that it offers a latent or immanent intelligibility. These levels of meaning or 13 elements are not 'in' the puzzle. And yet we cannot solve a puzzle unless we go through these elements and these elements are acts of consciousness. They are additions to the original experience. There is an interdependence functioning within all these elements. If there is no experience, there is nothing to ask questions about. If there is no insight, there is nothing to verify. If there is no judgment or verification there is no need of any decision or action to be taken. The interdependence functions all along through the process.

A further observation in this particular experiment is that these 13 elements cannot be 'seen'. We can see a written question or judgment stated in print. But we cannot actually see these 13 elements functioning in a mind. And yet, no one would deny doing them. In, fact, to deny doing them would presuppose having reflected on one's conscious activities beginning with a question:

'Do I do this? ' and gradually move through the 13 elements in an effort to arrive at a verified conclusion about their 13 elements. In other words, the experiment of verifying whether one has, and if so also exercises, these 13 elements can only be accomplished by exercising our 13 elements. The process of carrying out the experiment verifies the experiment. The laboratory, in this experiment, is our own consciousness. We are the data and the researcher at one and the same time. I leave the puzzle for you to continue to refine the distinctions of these elements. The experiment, again, has a two-fold purpose expressed in these 2 questions: 1) What is the law functioning in this puzzle? ' and 2) What am I doing when I am solving this puzzle? '

CONCLUSIONS TO OUR EXPERIMENTS

I have laid out three experiments in this article in an effort to eradicate the one final absolute in classical and positivistic theory. That absolute is that the real is what is seen. It is stated in the notion that the real tree is the seen tree. These three experiments reveal that, not only is the seen tree not the real tree, but that the real tree is the correctly understood tree. In other words, the real tree is known when a correct judgment is made. The seen tree, or image, is an experience, a component of reality that is completed in further components that I have called 13 elements. I have carried out these 3 experiments for over 25 years privately and in my philosophy and ethics classes in an effort to assist students in developing a critical realist theory of knowledge. Whether the students catch on completely is not always relevant. Their struggle with these experiments still manifests their elements at work. Many do not reach the stage of verification, an affirmation that the real is a correctly understood experience expressed in a correct judgment. My efforts and results over these 25 years manifests the difficulty of overcoming our natural extroverted state, a naive realism that pervades our 'sense' of reality. This difficulty also manifests

the struggle for an evolution to occur in regards to empiricism. If scientific theory is to be consistent and have integrity this final absolute must be challenged. I believe these 3 experiments that I have presented do just that. It is necessary that other researchers carry out these experiments in order to make the same affirmation and in doing so make a leap of discovery that provides for their own research an integrity that manifests an evolution in our traditional notion of empiricism.[1] Researchers who require further evidence regarding the functioning of the eye may refer to texts on optometry or research in physics regarding the travel of light. It is worth reflecting on the fact that some of the light received to day from outer space originated from stars that no longer exist because of the time required for the light to reach our eyes. This is determined by the type of light received. Stars emit different forms of light and physicists can determine an approximate time remaining in the life of a star by the type of light that is received. The origin of the light may no longer exist, only its light emitted perhaps a billion years ago. And we are just seeing that light today. Where is the seen image of the star?

A further question to our experiments must be faced. If there is no objective standard 'out there'(Lonergan, 1992, p.605) how do we know anything correctly or what is objectivity? Objectivity is an objectification of our subjectivity. (Lonergan, 1992, pp399-409) That is a definition to be verified in your experience of doing the puzzle. If you managed to get the insight to the puzzle, how did you know you were correct? Or if you did not get the insight, how did you know any possible insights were incorrect. The Is-type question, verification, functions not only to prove a correct insight but also to prove a mistaken insight. The 13 elements are naturally reaching for an objectification, not only of themselves, but also of their content. Objectivity is reached when you can say I have the insight and it is correct. How would you verify your insight

into the puzzle? You could finish off the alphabet and then go back over your added part and compare it to the part I offered. Is there a pattern that is consistent in both? Eventually you might want to contact me because you may suspect there is more than one solution to this puzzle. As a clue, I am aware of only one solution, because the law governing the distribution, that I have "in mind", is quite specific. I encourage you to continue this experiment, as it will help in refining the distinctions I have outlined in these experiments.

These ongoing refinements should help in reaching a more secure understanding of just what objectivity is and open up my definition that objectivity is an objectification of our subjectivity. (Lonergan, 1992, p. 407) In a correct judgment we have objectified the elements of consciousness and the content of our knowing. The subjective nature of the elements, as originating within consciousness, is objectified in the judgment; "I am correct. The solution to the puzzle is....". You know you are correct. That 'correctness' was reached not by looking, but by exercising your 13 elements. The objective standard resides in correctly understood experiences, (McShane, 1975, p. 42) not in what is seen. What is seen, or experienced is only one component of knowing or of objectivity.[2] This affirmation resolves the epistemological problem that I mentioned in the Introduction. The real is known, not by looking, but by correctly understanding experiences. The 'looking' of verification is a 'looking' that is quested; 'Am I correct?' It is not a 'looking' restricted to 'seeing.' It is a reflective question concerning our insight. We are not asking if the image is correct, we are asking if our insight is correct. What is verified is an insight into the image. In this process objectivity is reached.

If I am attempting excessively to make a certain point regarding objectivity it is because I have found this point very difficult to establish in my 25 years of teaching. As much as it requires

an insight, which is a spontaneous occurrence, this particular insight manifests a change in our perspective on knowledge and reality that can at first be quite startling.[3] As much as it may appear as a new view, it is, in fact, how we have always been operating. It has not been adverted to and what is not conscious remains active but in the twilight of consciousness. (Lonergan, 1975, pp. 8-9) Knowing is an awareness[4] that something is known. So the 13 elements have always been operative, simply not acknowledged and this new awareness radically opens up our traditional notion of empiricism. It is this development that contributes to the evolution of empiricism. Just as the experience of sight is given, so are the acts of consciousness given. Understanding our visual data or the data of consciousness is the result of the operation of these 13 elements that go on within you and I. Experience and understanding are very different experiences. So to see a child differs very much from an understanding of a child. Or to see our puzzle is quite different from understanding the law of distribution that governs the pattern of the letters.

These experiments have been provided in an effort to dissolve the final absolute that was creating an inconsistency in post-classical theory.[5] It remains to say something on the implications of this development for educational theory.

EDUCATIONAL THEORY: Teaching Children Children

Why relate this advancement to the education of children? How is a development in empiricism relevant to the education of children? This section will attempt to answer these two questions. In doing so it will elaborate on the subtitle of this section regarding teaching children children. If these 13 elements are the structure of our cognition, a knowledge of these acts would set an entirely new criterion for teaching anyone anything. I indicated that these elements have an order. One does not form answers before asking questions. Children ask questions first in life.

(Henman, 1984, Ch. 2) They do not begin to speak with answers. Direct insights into experience occur before asking Is questions. In other words we try to understand something before we try to verify. For verification is about verifying an insight and we must have one before we can ask: 'Is it so? ' This order or structure of cognitional acts provides a basis for planning lessons and for how the material will be presented.

I will present an excellent of how this is accomplished. Our puzzle is such an example. How would you teach this puzzle? To begin we might reflect on what children bring to a classroom. They bring their lived experiences and their curiosity[6]. Based on our experiments it would seem that this curiosity is the foundation for future learning. The teacher's task is to provide experience and cultivate the child's question towards getting an insight into the topic or lesson. Helen Keller who was visually and hearing impaired was extremely frustrated with her experience of touch, smell and taste. Her teacher, Annie Sullivan, made various attempts to assist Helen in breaking through this barrier. What was the barrier? Helen had no idea what she was experiencing and lacked the insight that would get her across this barrier. She required one basic insight that would move her cognitionally from these experiences to meaning of these experiences. Only an insight would grant her this leap. Annie Sullivan used to provide experiences for Helen and then tap out touches on Helen's wrist as significations of the experience. At one point Annie had Helen wash her hands and then tapped out w-a-t-e-r on Helen's hand. This was done on March 5th of 1887. On April 7th Helen got an insight. This tapping out signified the experience she was feeling while washing her hands. Now Helen would not know she was washing her hands. It would be just an experience of something completely unknown to her. Once Helen got that first insight she went on to discover 20 or more words for experiences quite quickly. The initial insight was not just that w-

a-t-e-r stood for that particular experience of washing hands but also her insight was that these touches added 'her' to the experiences. That initial insight provided a leap for Helen that enabled her to begin to learn. Her natural cognitional structure began to function. Up to that time her curiosity was expressed as extreme frustration. Whereas a speaking child can learn to verbalize their curiosity, Helen had no way of expressing her curiosity the result being frustration. She was frustrated at not being able to be herself, to complete the natural reaching of her cognitional structure. Once she broke through with the initial insight, the frustration eased and her demeanor changed to one of excitement and desire to learn more.

Annie merely provided Helen with experiences, Helen's drive to understand provided her eventually with the insight required to move forward. Helen was learning language.[7] In the same manner a teacher presenting a lesson in class provides the experience, encourages the child's question towards getting the insight. In doing so the teacher is not violating the child's order of cognition. So when we teach, we not only teach a topic, but we teach children children, in other words, we teach them what they are, how they naturally operate cognitively. I believe most of our textbooks for schooling are written to the exclusion of that insight. It is assumed some will be curious enough to work it through and others just will not. The textbook should mirror the child's order of knowing. This does presuppose that the author of texts and teachers understand themselves as well as their topic. If we lack the insight required into a particular topic we cannot teach it properly or write about it intelligently.

There are then 2 presuppositions in teaching. One, that a teacher understand their own cognitive activity, and two, that they understand their topic. If the first is lacking, teachers have no guide of what order to teach a topic. If they lack the second they have nothing to teach and

memory may become the rule of thumb. The teacher could list the 13 elements but provide no insight into their functioning. To discuss even the 13 elements one requires examples of how these function. If a teacher lacks both, education simply does not occur. (Lonergan, 1993, pp91 ff)

So, again, when we teach any topic, we teach it in the order of the child's cognitive structure. The only way that can occur is to know our own structure. It also enables us to know at what level a child is at. Are they still puzzled, are they formulating their insight, are they seeking verification of their insight? Now much of this may seem obvious to some. We usually can notice if a child is still curious or if they have 'got it'. It is to become aware of our own dynamic to the point that the possibility of a violation of the order is reduced. Our self-knowledge as teachers also provides us with the required order of outlining a lesson plan. How will I teach this? Well, what question do the children need to get them to the insight that they will eventually formulate and verify? The teacher provides the experience and sometimes the question. It is helpful to even allow the child to search out his or her own question. This will cultivate their own curiosity. Insights cannot be given. (Lonergan, 1992, Ch. 1) One can explain a joke and then the person says oh, yea, I get it now. The insight still occurs in the listener's mind but the explanation tends to 'water down' the joke. When a student gets an insight on their own, there is an experience of excitement in that accomplishment as well as the insight becoming more incarnated in the child's cognitive development. When it is explained to us that excitement is not always present. There is a natural context of independence co-present to our cognitional structure that integrates new insights into our former knowledge. When that is violated too often that independence can shift to one of dependence and the child loses the desire to learn on their own.

Further implications for educational theory and practice are quite beyond this brief essay. I have tried to point out only a few. What is paramount is that the teacher work through my experiments and check for him or herself if they agree with my conclusions. I wrote a small text some 20 years ago titled *The Child as Quest*. The overall theme was that we are raising questions when growing or educating children. If we are unfamiliar with our own inner dynamics then we are trying to grow or educate something of which we have no knowledge. Children are not obvious. The seen child is not the real child just as the seen you is not the real you. An understanding of ourselves can eventually assist us in reaching some appreciation of ourselves and of children and of the task of growing and educating a child.

CONCLUSION: The Difficulty of Emergent Probability

The evolution of empiricism to a generalized empirical method (Lonergan, 1992, p. 95-96) has been attempted in this article. All human knowing, whether theoretical or common sense, (Lonergan, 1973, pp. 302-305) is the functioning of the 13 elements. That acknowledgment, or discovery, is a difficult shift as you may have experienced in working through the three experiments that I outlined. Evolution or emergent probability is, it would seem, always a difficult shift. The periodic table of 1869 took some time to be accepted. The alchemists held on for sometime. Eventually chemists realized that this table outlined 113 elements that required serious empirical work to establish the relationships between the elements and acknowledge that those relationships constituted the foundations required if chemistry was to be considered a science. The emergence of an understanding of our own 13 elements is no less a challenge. The implications for education and the social sciences are not only radical but also badly needed in our time as education struggles to prepare people for living in the world.

The first difficulty of this shift (McShane, 1976, Epilogue) is for educators to make the leap, a second difficulty is working out the methods of teaching that emerge from this self-knowledge, and thirdly the implementation of this method of teaching. This will be a long task. Naive realism has an overarching hold on our physical, psychic and intellectual development and as much as I may be convinced of this evolution and the need for this development, it is too easy to hold to a positivistic sense of reality. That holding is not a product of reason. There is a certain security in believing that the real is what we see even though we know reality in correct judgments. It is as if we live in two worlds. We do have to live in the world with others and our common 'sense' notion of reality can get us through life. But common sense cannot solve the problems of modern society. The world of theory provides a world, an horizon if you will, that goes beyond common sense to the theoretical. A doctor has an entirely different understanding of our anatomy than you or I who may know nothing of medicine. It is this understanding that the doctor has that enables the higher probability of patients being cured. The two views are two different worlds. Education has not made that leap from the seen person to the understood person.[8] An advertence to the acts of consciousness provides the possibility of that emergence and that event would set education on an entirely new path towards a more adequate cultivation of the human person and the human community. It is up to each individual to work through these or similar experiments, and decide[9] whether being attentive, intelligent, reasonable and responsible is the manner in which you know reality and solve problems or make decisions in living adequately.

There have emerged many different paradigms since the Enlightenment but more so in the past few decades. These paradigms have provided new contexts for positivistic theory. They have not successfully challenged the absolute addressed in this article. The ongoing emergence of new

paradigms and new contexts for theory are the result of postclassical theory's unquestioning stance towards this absolute.[10] New paradigms are encouraged by the inability to locate a foundation in theory.[11] The very meaning of foundation indicates a notion of absolutism. Paradigms emerge out of a reflection and reflection is the process of exercising our 13 elements. Therefore all paradigms are the result of the 13 elements. That being the case, the cognitive structure of consciousness is a foundational paradigm. This fact manifests that the traditional notion of paradigm is not foundational in character. They are usually new insights into inadequacies of former paradigms producing a new context for research. A new paradigm emerges but the foundation from which it emerges is further obscured. Until the awareness of consciousness is appreciated as the functioning of a larger view of empiricism a rigorous search for new paradigms will continue.

This ongoing search has extreme implications for education. These contexts and paradigms continue to influence educational methodology as the cognitive structure of the child continues to be neglected. The energy and time of researchers is expended in developing new methods of lesson planning to conform to new paradigms. The child becomes an experimental victim. An appreciation and understanding of the child's inner dynamics, their 13 elements, removes the experimental character of teaching and treats children as they are. In other words, we would be teaching children children.[12]

NOTES

1. Lonergan makes a case for the reversal of counter positions, those positions that are rooted in a naive realism. That reversal provides the possibility of an evolution in empiricism.

2. There are 3 forms of objectivity. Experiential objectivity pertains to theexperience, to data.(Lonergan, 1992, Ch. 13 & p. 605)

3. The ramifications of the reversal of the counter position of naive realism penetrate and radically revise the entire traditions of cognitional theory, epistemology and metaphysics.

4. See the index under consciousness in Insight for various references to explanations of the notion of consciousness and awareness.

5. See *Method in Theology* on undifferentiated consciousness. See differentiated consciousness as an emergence in history. Chapter 12.

6. We must appreciate that some students may bring emotional problems, which can inhibit their quested focus.

7. McShane, Philip: *A Brief History of Tongue: From Big Bang to Coloured Wholes*, Axial Press, Halifax, 1998, pp. 31-32.

8. The shift from common sense to theory is a shift from naming descriptively to explanation.

9. Note that this 'decision' is a product of the 13 elements we have been discussing throughout this article. Put in another manner a product of being, attentive, intelligent, reasonable and responsible.

10. McShane (1980) p. 5 discusses Margaret Masterman's "pro-Kuhn aggressiveness" in her criticism of Kuhn's notion of science. She speaks of them as 18th century divines pontificating their notion of science. Kuhn's notion of science as paradigmatic of contemporary normal metascience in lacking an analysis of interiority can hold that position because philosophers of science seldom spend much time doing science.

11. Post structuralism attempts to point towards no absolutes. From whence does that conclusion come? What is its premise? There is talk now of a post-post-structuralism. New paradigms emerge before the former one can be fully explored.

It is as if we are running ever faster away from ourselves, from interiority.

12. My thanks to Dr. Philip McShane for this phrasing. For almost 25 years we have been discussing the growth of the child and this coupling of the term 'children' expresses succinctly a theory of education when understood within the context of self-understanding.

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