

The Foundational View of Knowledge and Ignorance in the Education System

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Abstract

Finding solutions to societal problems turns most difficult if not impossible when the society loses its connection to its foundation. Deficient societal structures often originate in ignored and misunderstood foundations in both the present and the past. Every society, in its transitions, loses the memory of part of its previous knowledge. The loss of historical memory is a serious deficiency that currently permeates every society and prevents a deeper understanding of current behaviors that have their origin in the knowledge of the past. From this perspective, the currently accepted view of the education system lacks a foundational anchor. Lack of awareness of foundational knowledge engenders a malfunctioning education system and a misunderstood psychology of human individual, adversely affecting societal existence. This article focuses on the societal foundation as a composite of knowledge and ignorance, demonstrating its management crucial for societal well-being and existence. It attempts to provide an integrated view of the foundational structure of human societies, especially through effective management of knowledge and ignorance.

Keywords: Foundational Knowledge; Ignorance Management; Education System; Hauntology; Psychology; Philosophy; Ignorance Economy; Knowledge Economy

Introduction

The twenty-first century is described as domain of existing or aspiring knowledge economies. On the surface, the knowledge economy seems competing with the traditional economy characterized with machinery, equipment and buildings than knowledge. Psychology, education, business, and politics have to understand this transition if they are to remain relevant to human needs and well-being. In general, not understanding the knowledge economy would lead to societal failures that manifest as crises. When following the general definition of knowledge economy as an economy based on production, distribution and use of knowledge and information, a clear understanding may not be possible because from a foundational point of view, whether the product is a webpage or a toaster, they both originate at knowledge and information that humans have. If so, what distinguishes one from the other? The education system, human psychology, business structure, and political system have to understand and manage the difference.

The education system is a selective *life-complex* that affects humans differently by capability, race, class, gender, and disability. While it directs some to Ivy League schools, it puts others on the school-to-prison path [1]. Without a foundational view of the edu-

cation system, the individual's capability development would follow the hierarchy of the society's privilege structure. Economic factors, the most common definer of "privilege," socially condition humans to make education decisions based on the potential for gaining privilege [2]. Along the same type of misdirection, when searching for foundational factors, today's education system often ends up in assessment programs checking compliance with performance targets. This transforms the education system into a life-complex run by politicians that control the allocation of societal resources. The politicians in turn are advised by businessmen that contribute to politicians. This creates a one-size-fits-all, factory-like mode of instruction, convenient for teachers and administrators but not for students [3].

Every composite of humans and human-made things creates a life-complex. Prominent examples are government and business. Mundane examples are a human wearing clothes or a human driving a car [4]. Every life-complex has a lifecycle. No different than human individual, life-complexes die when their lifecycle is completed. Every human, every life-complex is a creator and user of "knowledge-packets," combinations of earth material with what humans know. The most common and well-known knowl-

edge-packets are the goods and services the societal life-complexes create and distribute for daily human needs.

Everything humans and life-complexes make and use, even ideas, are “knowledge-packets.” They are combinations of earth material with what humans know. Even a *thought* is an artifact created from what human knows. It uses the earth material in the form of the human brain, making it a subtle combination of earth material and human knowledge [5]. In aggregate, every aspect of human existence takes shape in a “world of knowledge-packets” [6]. If everything in human life is in the form of knowledge-packets, and therefore, humans live in a “world of knowledge-packets,” do we have a foundational understanding of the knowledge-packets when dealing with educational, psychological, business, and political challenges in human life?

In dealing with the knowledge-packets, the most overlooked fact is that every knowledge-packet uses “word” as its key ingredient. It is easy to miss the fact that everything humans make and use is largely a combination of words with earth material. Words are the core component in computer, house, airplane, political situation, economic activity, or education system. Seeing a human-made thing like a toaster is easy, but seeing the words that have gone into making it, most difficult. It is often not realized that if words are removed from any human-made thing, it would only leave behind a pile of earth material [7]. Words are the foundational glue that holds together every knowledge-packet and in turn every life-complex.

In dealing with words as a foundational aspect of human existence, one needs a good model of what a word is and does. One effective model of “word” defines it as a suitcase, a thin shell, empty inside. A word’s suitcase, when empty, carries little knowledge—as there is little meaning in its shell alone. Higher levels of knowledge and meaning come from what is placed in the suitcase [8]. In a reverse view of this model, as emptiness in a word’s suitcase increases, it becomes more “abstract.” When totally empty, the only central feature of the word is its shell. At that level, detailed knowledge is taken out of the suitcase and omitted [9].

Consider the words “communication device.” The meaning in its empty suitcase is not clear. Is it a phone, a letter, a pigeon, a news program? If the words “cellular phone” are placed in its suitcase, its knowledge content increases. If we empty the “communication device” by taking out the words “cellular phone,” it returns to being abstract, communicating mostly ignorance and little knowledge. Its empty suitcase no longer has a direct connection to the cellular phone, computer, letter, or any other piece of knowledge. Similarly, the words “having fun” create an abstract, high-ignorance-content knowledge-packet. Adding into its suitcase the words “playing basketball” gives it a higher knowledge content. It becomes abstract, an empty suitcase, if playing basketball is taken out of its suitcase [9]. The same can be observed in any other word used as an empty suitcase. Most common, “I love you.” How is the suitcase of “love” filled? It is always hoped that the person at whom this expression is directed would do the filling with what the individual likes. Otherwise it is a communication high in ignorance.

The word, as an empty suitcase, is a highly abstract representa-

tion. What one puts into the suitcase of a word, and how it gets combined with earth material, leads to creation of varying forms of knowledge-packets. This makes the shell’s empty space act like ignorance (what humans do not know) and the shell and the things placed in it functioning as knowledge (what humans know). This picture is essential for human understanding of life because, without exception, it makes every word, and thus every knowledge-packet and every life-complex a “composite of knowledge and ignorance,” a composite of what humans know and do not know. It declares every word a device for managing both knowledge and ignorance [8]. Without this foundational knowledge, it would be very difficult, if not impossible, to effectively manage ignorance in the world of knowledge-packets that humans create for their existence.

Managing knowledge and ignorance at the foundation

It is a foundational observation that every word is a composite of *knowledge*—what humans know, and *ignorance*—what humans do not know. It makes every human, at the core, a *converter of ignorance to knowledge* [10]. It is the human that continuously and incrementally turns what human does not know into what human knows. The conversion of ignorance to knowledge is a never-ending aspect of human existence. It never finishes. Every knowledge-packet will always have its “ignorance content” [11]. Without this foundational view, it is impossible to recognize the significance of managing words in human life. Without this foundational view, it is impossible to see that the management of the composite of knowledge and ignorance is deeply embedded in educational, psychological, economic, political, and any other aspect of societal existence.

The most overlooked aspect of a word is that it is an “artifact” [12]. Humans are the makers and users of words. Not only words, but everything that humans make and use as combination of words with earth material is also an artifact. Words are the main artifact in making other artifacts like the computer, the house, the airplane, education system, a political situation, or any other aspect of human existence. Humans see the obvious artifact, like a house, yet are incapable of noticing the words that have gone into making it. Without words, every artifact that humans make and use would become a pile of earth material. Words are the glue that holds the world and human life together and defines every aspect of human existence. Yet the “word-glue” always comes with its “ignorance content,” things that humans do not know. The ignorance content cannot be kept out of the process of making and using any artifact.

All goods and services have their origin in ignorance that has been converted to knowledge. The business world continually seeks to convert more of the “ignorance content” in its goods and services to knowledge. If not aware of words as suitcases—as mixtures of knowledge and ignorance—it is quite likely that certain activities would be conducted in high ignorance than high knowledge. Enchanted by the ease of stringing together the empty suitcases, it can readily obviate the hard work of seeking knowledge in order to fill the empty suitcase of words.

Given that everything humans make and use comes from mixing words with earth material, the “ignorance content” is a feature of anything and everything that humans make and use. A twenty-year-old car little resembles the new car from which it originated.

The transformation from brand new to broken down and useless is caused by car's ignorance content—things humans do not know. And it is important to note that in making the new car, the business world would always diligently focus on using the highest knowledge content available. Yet, nonetheless, over time, the ignorance content would tear the car apart. The foundational lesson here is that the ignorance content should be seen as a *life destroyer* while knowledge content functions as a *life builder*.

If unaware of words as carriers of knowledge and ignorance, humans, for short-term gains, would resort to using high-ignorance-content words. For example, the car manufacturer that has relied heavily on high knowledge content when building the car, returns to dishing out high ignorance when selling it. Its communication becomes a string of empty suitcases like “the heartbeat of America,” or “precision crafted performance” that function as the sales pitch in the commercials. Why use the high-ignorance-content communication to sell a high-knowledge-content good or service? What do the advertisers gain from throwing the empty suitcase of “heartbeat” or “precision crafted” at the masses of consumers?

Knowing words as suitcases containing both knowledge and ignorance can explain the behavior that relies on ignorance than knowledge in order to reach a desired target. The ignorance-based method of ensnaring a customer relies on the fact that every human is a “converter of ignorance to knowledge.” The high-ignorance-content words like “heartbeat” or “precision crafted” look for those inclined to place their own knowledge into the suitcase of those words. Anyone that fills the suitcase of the commercial's words, in doing so pays more attention to the product, thus creating a higher chance for buying it. The only problem with this approach is that it uses and relies on a “life destroying” mechanism. The ignorance-filled, life-destroying commercials are used to promote an otherwise “life building,” high-knowledge-content aspect of the society, namely the making and use of cars to serve the daily human needs for transportation.

The use of high-ignorance-content words is equally popular in politics. The business world contributes to the politician's ignorance-filled behavior through allocation of resources via lobbying. The business world does so because it knows that the high-knowledge-content aspects of legislation would get discussed and analyzed behind closed doors in favor of the business world. The public only hears the politicians' empty-suitcase words and is totally unaware of what goes on behind the closed doors. Unlike the business commercials whose prime purpose is to hook a human into buying a product, the prime purpose of the political high-ignorance-content words is to “distract.” The politician relies on empty-suitcase words to cause distraction from what the politician is actually doing, thus not allowing the masses to develop a real view of the societal management of knowledge and ignorance.

Ignorant of what the life-complexes do, humans are often surprised by the path that a life-complex, as an aggregate of humans and human-made things, takes in its lifecycle. As an example, consider the psychological concepts that were developed pre-1940 in Britain through the life-complex of National Institute of Industrial Psychology (NIIP), a ‘not for profit’ organization set up in 1921. NIIP, a societal life-complex, promoted practical applications of

psychology by directly interfacing with the business world. It saw itself not only dedicated to the pursuit of greater efficiency in the business world but also to improving the work conditions for the workers, in short, dedicated to improving the business world's life-complex [13].

Every life-complex exists on the base of the resources it controls. As a not-for-profit organization, NIIP relied on member contributions and donations for getting the resources it needed. This resulted in a resource-deficient structure that could not sustain the life-complex. By 1977 the NIIP life-complex was dead and its functions and services were absorbed into other societal life-complexes. This outcome is bemoaned by some. It is depicted as the result of unjust neglect of an otherwise societally useful life-complex that had humanistic orientation in applied psychology where the “[d]ehumanizing notions of people were comprehensively rejected” [13].

Following the death of the NIIP life-complex, it was observed that the later generations of psychologists were largely unaware of NIIP's influence and values. The material captured in textbooks and journals did not, and could not, recreate a complete view of the life-complex that was gone. Given that every life-complex is an agent of socialization, it is important to maintain knowledge flow continuity as life-complexes come into existence, change, and die. Otherwise, the discontinuity can arbitrarily assign labels of good to one life-complex and bad to another. The empty suitcases of the words good and bad signal the absence of a foundational anchor for all life-complexes. In discontinuity, each life-complex would try to exist independent of others. The surviving memories of a past life-complex, instead of being a base for current and future life-complexes, might trap current life-complexes in finger pointing and accusing each other of wrongdoing, for example, by denouncing the non-psychologists that teach psychology under the umbrella of organizational behavior [13]. Such disjointed relationships would not be beneficial to the society as collective of life-complexes.

As maker and user of artifacts, side taking is inherent to human individual and life-complexes. Not anchored to the societal foundation, for each that takes one side, there would be another taking the other side. In this oppositional process, striving to be on the right, to be seen reasonable, to appear scientific, is always driven by possibilities for higher levels of privilege and status. The focus on privilege and greater wealth-making opportunities can undermine the focus on conversion of ignorance to knowledge [14]. This directs attention to another foundational feature of human existence.

In addition to being a converter of ignorance to knowledge, every human, by nature, is also a “resource taker.” Every human must take the resources of earth and others in order to satisfy personal and organizational needs in daily life. The worker takes the resources of business in salary, the business takes the resources of customers through price, and the customer takes the resources of business in the form of goods and services. The same pattern exists in individuals and life-complexes active in education, psychology, politics, and every other human activity. No human would survive if one ceases to act as taker of resources of earth and others [15]. In such setting, the challenge remains in maintenance of balance between resource taking and converting ignorance to knowledge.

Both individuals and life-complexes are “resource takers.” Both seek to position themselves for greater resource taking and wealth-making opportunities. As a specific example, NIIP was in competition with other life-complexes, especially the ones coming to existence in the United States. Given the competition, it is not surprising that the winning life-complex’s textbooks would mention the work of certain group more than others, or they would place greater emphasis on reliance on laboratory and experimentation, ways that would better suit the winning life-complex’s resources and capabilities, or that the majority of top psychology journals would be in the winning life-complex’s country [13]. Any expression of surprise in how a life-complex behaves would have its origin in lack of understanding the foundational drivers of human existence.

Deeper Understanding of the Education System

From the foundational point of view, what is the education that the masses ought to have? What are the current models of education? Krstić claims that today’s education lacks *self-reflection* [16]. How would Krstić fill the suitcase of “self-reflection”? He defines it as the “ability to notice something immediate when considering things, regardless of the contextual ‘collective mechanisms’ in which we are embedded.” What does that mean? Not clear because the suggestion comes with empty suitcases of ability, notice, something, immediate, considering, things, collective mechanisms, etc. The only reason for offering this knowledge-packet as solution, without recognizing its ignorance content, is because every society’s education system lacks an understanding of the ignorance content of the knowledge-packets created and used by humans.

Compulsory mass education attempts to cover almost everyone on earth. In the same breath that one can interpret this as “humanity’s progress” one can also recognize that “the very meaning of the terms ‘humanity’ and ‘progress’ stay ambiguous and subject to interpretation” [16]. This view, at least, partially recognizes the presence of the empty suitcases and the ignorance content in the words humanity and progress. It contrasts the total absence of a similar recognition for “self-reflect.” This demonstrates that, unaware of the fact that every word is a composite of knowledge and ignorance, the recognition of ignorance content becomes selective and does not remain systematic. Similarly, rather than recognizing that the purpose of education is to teach and develop ignorance-to-knowledge-conversion skills, the reason for educating the individual of the masses gets expressed in terms such as creating “better individuals” or “happier society” without any recognition that such empty suitcases cannot possibly deliver the knowledge of why humans go to school and get educated. Such words only add another layer of ignorance to activities and life-complexes already mired in ignorance.

If education to create “enlightened citizens” is compared to education to “create professionals,” what is being compared and what is the result? The enlightened citizen is a high-ignorance-content artifact. Its suitcases can be filled in many ways. The “professional” can be described—its suitcase filled—as dedicated to specialized flow of knowledge in production and distribution of goods and services for daily human needs. Thus any comparison of words always depends on how one decides to fill the suitcases. Consider a way of doing so that would involve two strategies of knowledge processing. In the first strategy—the enlightened human—the fo-

cus would be on conversion of ignorance to knowledge. In this strategy, the human focus in life, is to convert as much ignorance into knowledge as possible. In the second strategy—the professional human—the focus would be on certain types of conversion of ignorance to knowledge that satisfies the daily human needs for existence and well-being. The society that uses education to deliver professional knowledge, with the promise of better job opportunities, is the one that has focused on maximizing the production and distribution of goods and services through resource taking and wealth-making incentives. It is not focused on just converting ignorance to knowledge.

Humans, in varying degree, are continuously engaged in conversion of ignorance to knowledge. The intensity is high when facing something new or threatening, and low when performing routine and habitual acts. Nevertheless, at the foundation, the human individual remains a “knowledge processor” and a “converter of ignorance to knowledge.” If one is not aware of this foundation of human existence, how would one observe and describe human behavior and action in terms of knowledge and ignorance? Krstić offers one example from Aristotle.

According to Krstić, Aristotle sees engaging in conversion of ignorance to knowledge as something optional [17]. It is deemed “better” if human does so [18]. This interpretation is partial in that Aristotle distinguishes two types of conversion of ignorance to knowledge. First, the conversion of ignorance to knowledge in order to take care of the daily necessities of human life. The other, the conversion of ignorance to knowledge for its own sake, especially to search for foundational principles and causes of human existence. It is this kind of ignorance to knowledge conversion that not only Aristotle sees as optional but also conditional on whether one has completed the ignorance to knowledge conversion needed in order to provide for daily necessities of human life [19]. Aristotle thus treats the knowledge required for necessities (type 1), and for other conversions of ignorance to knowledge (type 2), as two separate categories.

There is another competing view of how the conversion of ignorance to knowledge should be characterized and managed. In this other view, originating at the Sermon on the Mount, human life would achieve its optimum condition if all conversions of ignorance to knowledge, whether for necessities or other, are integrated into a continuous awareness of all knowledge deficiencies—all ignorance contents—to be converted into knowledge. This approach is deemed most rewarding because it allows everyone and every organization to recognize and see instances of intense ignorance that result in massive societal pain and suffering, as evident in poverty and war [20].

In another approach, emphasizing lifelong learning, the education system and human psychology are grouped into formal, non-formal, and informal segments. The formal learning is structured, happens in an education institution, and leads to some form of certification that improves one’s resource taking and wealth-making opportunities. Non-formal learning is structured, but it happens outside of the education institutions, and its resource taking opportunities are limited as it comes with no formal recognition of its value such as a certification. Finally, the informal learning has no structure, and can happen in the process of work, family, or

other activities [21]. This type of categorization of learning views education in terms of changes in “knowledge content” and not the “ignorance content.”

From this point of view, Eneroth declares formal, non-formal and informal learning as different kinds of realities, each demanding different kinds of knowledge [21]. In a sense, this method of modeling the education system is no different than saying that a society splits into business, religion, and government life-complexes, where each life-complex represents its own “reality,” and each reality has its own form of knowledge. Note that in this mode of artifact making, the suitcase of the word “reality” is left empty, thus a high-ignorance-content artifact.

Eneroth tells us that formal knowledge is a “thought knowledge,” and it can be expressed in words. Then comes the surprise. We are told that the non-formal and informal knowledge “are in no way knowledge, not even tacit knowledge,” and it is impossible to formulate them in words. Furthermore, it is declared that informal learning is “no more than casual accidents, negligible casualties, meaningless incidents, in other words unfortunate disturbances.” This view then expands to say that the “incidental events constitute a specific learning setting where one must learn ignorance, systematic blindness and intentional not-seeing” [21].

Armed with foundational knowledge one would be amazed at the artifact that Eneroth has delivered for the structure and operations of the education system. On one hand it is the best propaganda for paying tens of thousands of dollars per year to a formal education institution in order to get a certification. On the other, it offers a superb example of how different humans can be in construction of artifacts, in this case about the education system.

Eneroth’s model rejects, or at best only partially recognizes, the human as “maker of mental artifacts” who externalizes mental artifacts into physical artifacts—the spoken and written words being the most prominent among externalized physical artifacts [22]. Every human, with or without attending a formal education institution, learns to be an externalizer of mental artifacts and thus a “word maker.” Clearly the notion that “word making” is only possible if one pays a formal education institution and receives certification is false. Most of the knowledge flow in human life happens through words created, used, and managed in the non-formal and informal settings. Since every human is a “choice maker,” the non-formal and informal are the domains where choice-making shines while in comparison, the formal education institution is where the human’s choice-making is most constrained in order to force the human individual into specialties that the societal life-complexes need and demand [23].

The Eneroth model of the education institution is the best indicator of the need to have a foundational view of the human individual and life-complexes before engaging in the production and use of any artifact.

Deeper understanding of the psychological condition

The conversion of ignorance to knowledge can improve or destroy human life. The ignorance to knowledge conversion is “artifact making.” The artifact can be the food that nourishes the individual or a nuclear weapon that vaporizes everyone. These are choices

made by human as artifact maker. One can portray this as a battle of knowledge and ignorance; ignorance winning when the society shows preference for artifacts that destroy than build human life. This would lead to conclusions such as observed by Krstić that “[k]nowledge renders unhappy, weighs upon life, thrusts into depression, leads to the loss of reliable standpoint and disorientation, while ignorance, in contrast, is blissful” [24]. This is not a modern observation and one can add the ancients saying, “For in much wisdom is much grief: and he that increaseth knowledge increaseth sorrow” (Ecclesiastes 1: 18). Whether humans create food or poison should be seen as a reflection of the human as “choice maker” and not as a problem with conversion of ignorance to knowledge [25].

When not seeing the human as “choice maker” and “converter of ignorance to knowledge,” it is easy to fall into the trap of oppositional dualities. For example one can see the human life’s educational and psychological challenge only in balancing and managing extremes such as “mere training to survive in our time” and “willing abdication of truth” [26]. On one side the human engages in conversion of ignorance to knowledge to become a machine that obediently serves the societal life-complexes, and on the other side, human chooses to not pursue the conversion of ignorance to knowledge in order to stay at lower—and supposedly more comfortable—levels of knowledge.

When human is not seen as a choice maker and converter of ignorance to knowledge, the convenient alternative for describing the human is through playing with words whose suitcase is empty. The human who has already satisfied the necessities of life, and is thinking beyond the routines, will play with words to arrive at observations like those made by Nietzsche who says: “Suppose we want truth: *why not rather* untruth? and uncertainty? even ignorance” [27]? It sounds “deep,” yet to see any value in that statement one has to know words as suitcases. Stringing together the empty suitcases of truth, untruth, uncertainty and ignorance only creates a high-ignorance-content artifact that can be interpreted in infinite number of ways depending on what one chooses to place in each word’s suitcase.

What Nietzsche is saying is a challenge to the human as converter of ignorance to knowledge. Human must excel in managing knowledge and ignorance and not get trapped in either ignorance or absolute knowledge. In ignorance trap, human ceases to convert ignorance to knowledge. In absolute knowledge trap, human is stuck in a knowledge-packet that has been declared absolute—an illusion of pure knowledge that has no “ignorance content,” and thus no longer in need of converting ignorance to knowledge.

When the foundational view of human as converter of ignorance to knowledge is absent, when the knowledge of word as composite of knowledge and ignorance is absent, then there would be confusion as to how to fill the suitcase of the word “ignorance.” From a foundational point of view, the focus of managing ignorance should be on ignorance content of knowledge-packets and its incremental conversion into knowledge. But, instead, ignorance management can become the management of *not knowing* about existence of certain already-made artifacts. Thus, in that mindset, ignorance becomes “lack of knowledge” and “lack of information” than conversion of ignorance to knowledge [28].

The extant education system is primarily focused on reducing the “lack of knowledge” and not on teaching to enhance the human capability to convert ignorance to knowledge. The student mostly learns about already-existing knowledge-packets and little about seeing and understanding the knowledge-packets through the lens of converting ignorance to knowledge. That is also why most classrooms are one-sided flow from teacher to student than interactive. The teacher tells students about the knowledge-packets but there is no interactive analysis and understanding of how the conversion of ignorance to knowledge created that certain knowledge-packet and what is the current understanding and position for addressing that knowledge-packet’s ignorance content.

Consider the following definition of knowledge. “Primarily, knowledge is concerned with the facts, information, and skills obtained through experience or education” [28]. Note that in this definition there is no recognition of human as artifact maker, and no recognition of artifacts as knowledge-packets that combine knowledge and ignorance. There is no recognition of ignorance (what humans do not know) embedded in whatever humans make and use. There is no recognition that, in human life, knowledge and ignorance are the two sides of the same coin of “artifact making”.

When the presence of ignorance in every artifact is not known, its manifestation is often viewed as failure in artifact making. Such behavior can be seen in psychiatry. Psychiatry is rooted in the assumption that mental illness has a physical substrate. This assumption is an artifact with its own ignorance content. Lack of awareness of ignorance content can lead to the interpretation that psychiatry *has failed* to understand the physical basics of human’s mental illness. Those searching for the psychiatry profession’s driver can thus conclude that, “Ignorance is the consistent driving force behind the history of American psychiatry. The resilience of psychiatry is a testament to its more or less successful management of its basic ignorance, its ability to mitigate its effects and stave off a final reckoning” [29]. If instead of psychiatry, the subject matter was the automobile manufacturing, and how the automobile continually breaks down, then we could use the previous statement as a template and say that the driving force behind the automobile industry actions is ignorance and the automobile industry’s resilience reflects its successful management of its ignorance, thus staving off a final reckoning of the unceasing automobile breakdowns. Does that sound right?

Instead of seeing psychiatry as failure, it is more accurate to say that in the process of incrementally converting the ignorance to knowledge, the psychiatrists “have simply reimaged that relationship between the diseased mind and body” [30]. Along the same line of observation, the most revealing statements about psychiatry’s failure are the two concluding sentences in “Introduction” chapter of the book *On the Heels of Ignorance: Psychiatry and the Politics of Not Knowing*. The first sentence says, “In other words, I reveal a profession that is decidedly and tragically human.” The second sentence says, “As are we who enable it” [31]. These concluding sentences would have looked much better if restated from a foundational point of view. They would have said, the psychiatry profession is one example of human individual and life-complexes acting as converter of ignorance to knowledge. Since every artifact that psychiatry makes and uses is a composite of ignorance and

knowledge, the challenge of ignorance to knowledge conversion is unceasing in whatever psychiatry does. This is no different than all other individuals and life-complexes set up to serve the daily needs of others for goods and services.

Consider another instance that originates at not having a foundational view of life. For example, how should one respond to the question of what is or is not “philosophy”? Hall provides a comparative view of two philosophers, Max Horkheimer and Bertrand Russell responding to the question [32]. Horkheimer takes the position that no version of philosophy should be modeled after the sciences because philosophy’s task, “even if unwelcome or unappreciated by society,” is to critique the things that society takes for granted [33]. Along the same mode of reasoning, Bertrand Russell states that the philosophy’s task is to dwell in uncertainty, asking questions that provide insights for the meaning of human existence while mired in uncertainty [34].

Both views are essentially saying that “philosophy” takes shape at the shores of the ocean of ignorance, dealing with high-ignorance-content artifacts and in doing so cannot move away from the shore and venture into the domain of the high-knowledge-content artifacts with which science deals. The philosophical focus on high-ignorance-content aspects of artifacts would also bring attention to forgotten “ignorance content” in fixated artifacts that society has chosen to create. It would shine a light on things that society is no longer spending time and energy to convert ignorance to knowledge. The philosopher would point at those fixated artifacts and demand conversion of ignorance to knowledge even when the society shows no interest in doing so. The foundational view of conversion of ignorance to knowledge at the shores of the ocean of ignorance can better explain the domain of philosophy and the philosopher’s role in creation and use of artifacts.

Hall voices concern with a current trend where philosophers turn to evolutionary psychology to find answers to philosophical problems. She takes the position that “reliance on evolutionary psychology is best understood as an epistemology of ignorance that contributes to a climate of hostility and intolerance regarding feminist insights about gender, identity, and the body” [32]. What is she saying here? To support her view, she points at Susan Oyama who claims that psychology, “turning biological,” would privilege the brain and ignore the whole person [35]. The challenge posed here is not in psychology looking into biology for insights, which is a good and normal behavior, but in how that process occurs. To delineate the problem, Hall points at the following aspects of psychology turning biological [32]:

1. a heavy reliance on evolutionary psychology’s understanding of human nature
2. gene-centered thinking about human nature
3. an assumption of a biological basis for an innate, universal human nature
4. a tendency to understand the self as essentially the brain, and
5. the assumption that brain-imaging technologies provide evidence of an underlying human nature

From a foundational point of view, a debate on Hall’s statements would center on two words whose suitcases are kept empty. They are: human nature, and self. The concern she expresses is about ways of filling the suitcase of those words. She gives no definition

for those two words. A definition would imply an agreed-upon way of filling the suitcase. Her argument thus is not about what the suitcase should contain, but what it should not. Thus, putting evolutionary psychology, gene-centered and universal biological basis into the suitcase of “human nature” is deemed to provide a bad view of “person,” another word whose suitcase remains empty. All words with empty suitcases—in this example the human nature, self, and person—are high-ignorance-content artifacts. Any suggestions as to what should or should not go into the suitcase of these words are essentially pointers at how the “ignorance content” of these words should or should not be converted into knowledge. Consider the word “self.” What should we put into its suitcase to increase its knowledge content? We could choose to increase its knowledge content by adding that “self is essentially the brain, for it is the brain that perceives, experiences, and gives meaning to the world and our relationships to and with others.” Or, one can choose to include in the suitcase of self the knowledge that “brain can be and certainly is an object of scientific knowledge” with proviso that “it does not make sense to say that the experience one has of one’s self is an experience of one’s self as one’s brain” [32]. Both ways of filling the self’s suitcase are artifacts, each with its own ignorance content which has not yet been converted to knowledge. This is no different than filling the suitcase of the word “transportation” in two different ways, one with Ford and another with Honda. Which one is better? Which one is more correct? Which one is more appropriate for life? In many ways, filling the suitcase of the word self with two different knowledge-packets carries similar characteristics. If we were aware of artifacts as composites of knowledge and ignorance, one would be in a better position to develop arguments as to how to address the “ignorance content” in anything and everything which humans make and use. But without the foundational view, arguments will point at artifacts that have no common foundational anchor and thus only reflect the artifact maker’s preference for one or the other.

The foundational view would provide a better base for development of knowledge-packets, and better possibilities of analysis when dealing with different words. For example, consider the two words human and person. How should we respond to the statement that if we think about “human,” then we would be forgetting the “person” [36]? First, thinking about human and forgetting the person is a knowledge-packet, an artifact that tries to establish a relationship between the empty suitcases of two high-ignorance-content artifacts. If we are not aware of the words human and person as high-ignorance-content artifacts, then the knowledge-packet “to think human would forget person” may sound a reasonable construct—implying that the knowledge-packet just created has a good knowledge content. It would create the illusion that the two suitcases are interconnected. That filling the suitcase of one would affect what is or might be in the suitcase of the other. From a foundational point of view, this is largely an exercise in wasting time and resources when comparing high-ignorance-content artifacts. Unless one chooses to do so through a foundational understanding of words as containers of knowledge and ignorance, and words with empty suitcases as high-knowledge-content artifacts, little will be gained. Thus one should exercise care as to how one is managing ignorance, and not presume the illusion of high knowledge content when dealing with high-ignorance-content artifacts.

Playing with knowledge economy

What is *Knowledge Economy*? How is the suitcase of words *knowledge* and *economy* filled? Consider the claim that knowledge economy is taking shape—is being created; it is materializing—in the advanced countries. What does that mean? Have advanced countries found new and different ways of converting ignorance to knowledge? We are told that the knowledge economy challenges the basic economic principle of scarcity because knowledge, once consumed, does not disappear. It remains and can be used in further development of knowledge [28]. This sounds novel and different until we remember that every artifact is a composite of words with earth material. In consuming an artifact, the earth material may change and the artifact disappear (like a hamburger being eaten) but the words that created the hamburger remain and continue to make more hamburgers. From this perspective, the so-called knowledge economy is no different than the traditional economy. So what else is different in the artifact “knowledge economy” compared to traditional economy?

The logic that declares the knowledge economy as different adds that in knowledge economy “the consumption or use of knowledge is non-rivalrous and may be non-excludable” [28]. Given that any knowledge-packet is made entirely through “words” mixing with earth material, and words, as given in the dictionary, are non-rivalrous and almost entirely non-excludable, then the same phenomenon is happening in the traditional economy, and therefore, the uniqueness of knowledge economy must lie in something else.

Perhaps the first sign of a difference can be gleaned in the statement that in knowledge economy “knowledge is more important as an input to the production process than in previous types of economy” [28]. Said differently, the knowledge economy uses *more words* in its artifacts than does the traditional economy. This is like comparing a book to a loaf of bread. The book uses many more words than the words used in making the loaf of bread. When the book is consumed (read), it remains as it was previously, with all of its words intact, to be read (consumed) by someone else. For the loaf of bread, even when totally consumed and no crumbs left for anyone, the words used by the baker remain and are used to make more loaves of bread. Is that then the key difference between knowledge economy and traditional economy—the knowledge economy having a higher concentration of reusable words?

The argument continues that the knowledge economy is different in that it changes the definition of knowledge to “application and productive use of information” So we now have the addition of the word “information” as an empty suitcase. We know that knowledge is what human knows. If information is also a thing that human knows, how does it differ from knowledge? It seems that in comparison to a loaf of bread, information refers to “word-rich artifacts” when bread would be a “word-poor artifact.” So the so-called knowledge economy refers to structures and life-complexes made of word-rich artifacts.

In knowledge economy we have an abundance of artifacts that act as “communication devices.” They are like large streams of words flowing among humans and their artifacts. This alone should make the understanding of words as composites of knowledge and ignorance critical to human well-being in the knowledge economy. The

more the flow of words is amplified, not only it amplifies the flow of knowledge, *it also amplifies the flow of ignorance*. If humans remain unaware of this foundational aspects of their existence, they may be later shocked when learning that they have created a world of artifacts in which everyone is drowning in ignorance that has gone unnoticed.

The key lesson in knowledge economy is that, through foundational knowledge humans convert ignorance to knowledge. Every artifact is a composite of earth material with words, and every word is a composite of knowledge and ignorance. That makes it easier to understand the meaning of “knowledge economy” as a collection of word-rich artifacts. Without foundational understanding, humans would continue to see the knowledge economy as something that is not emerging from “production techniques, resource availability, market demand and supply conditions” but from “significant improvement in access to knowledge through the widespread application of Information and Communication Technologies (ICTs), which facilitate the acceleration of new knowledge production and with it the rate of technological change and innovation” [28]. Does that kind of explanation and elaboration offer the same degree of clarity that comes from saying, the knowledge economy uses a higher percentage of words in its artifacts than done previously in making and using artifacts?

From a foundational picture we learn that in knowledge economy there will be a greater need for people skilled in the use of words. Yet, without a foundational view, even for people skilled in word use, it is easy to get lost in high-ignorance-content artifacts. As examples, consider the following observations [28]:

- unlike the knowledge economy, the ignorance economy is not, or at least not yet, a common expression used amongst economists, managers, and policymakers.
- the knowledge economy is precisely rooted in the production, distribution, and consumption of ignorance and lack of information.
- the knowledge economy is one wherein the production and use of knowledge also imply the creation and exploitation of ignorance.

The above statements see “ignorance economy” as something separate from “knowledge economy” because they lack an understanding of artifacts as composites of knowledge and ignorance. They do not recognize that the word-amplified artifacts already come with their “ignorance content.” So, what is the artifact “ignorance economy”? And what do the above statements mean by knowledge economy being rooted in ignorance economy and the two being strongly interlinked? Is this an indirect recognition of “ignorance to knowledge conversion” as foundation of human life and existence?

Even if one does not have a complete understanding of knowledge economy, would one be in position to see and comprehend its modes of failure? Engelbrecht claims that the knowledge economy is intimately related to a feature of human life that can be described as “not knowing,” “unknown” or “ignorance”. From this point of view the following observations are made [37]:

- The creation of knowledge replaces some unknown.
- One cannot say that the knowledge economy reduces the col-

lective unknown. This presumes that the more is known, in parallel, the more will be found to be unknown.

- New knowledge depreciates, destroys, or neglects part of existing knowledge.

Do these observations bring us closer to a foundational understanding of knowledge economy? Is Engelbrecht correct in claiming that these observations will demonstrate that “the knowledge economy is precisely rooted in the production, distribution, and consumption of ignorance and lack of information”? Is knowledge economy also the “ignorance economy”?

The meaning assigned to “ignorance economy” by Roberts & Armitage—the way they fill the suitcase of “ignorance economy”—is not related to human as converter of ignorance to knowledge, nor to words as carriers of knowledge and ignorance [28]. However, it offers insightful observations about human individual and life-complexes as resource takers, knowledge processors, and managers of knowledge-packets. The first aspect of ignorance economy is specialization. The more specialized certain groups of humans become, the more ignorant the others become as to what the specialized humans are doing. The specialization in knowledge economy thus creates many that are relatively ignorant of specialized fields of knowledge. These humans, in aggregate, can be relegated to the ignorance economy.

Specialization is an inherent aspect of artifact making in any economy. Humans and life-complexes, by focusing their knowledge processing capabilities into narrow domains, develop higher levels of efficiency in production and distribution of goods and services. Despite its benefits, specialization can also have a dark side. Here is Adam Smith describing the negative aspect of specialization [38]:

The man whose whole life is spent in performing a few simple operations, of which the effects too are, perhaps, always the same, or very nearly the same, has no occasion to exert his understanding, or to exercise his invention in finding out expedients for removing difficulties which never occur. He naturally loses, therefore, the habit of such exertion, and generally becomes as stupid and ignorant as it is possible for a human creature to become.

One can interpret this observation in terms of a life-complex’s need for machine-like humans in production and distribution of goods and services. By its design, the life-complex creates humans as specialized machines ignorant of other specialized aspects of life, thus contributing to ignorance economy. However, one can also observe this phenomenon from the point of view of the human individual developing a specialty. Here, the human individual has two choices. The individual can choose to become the “machine” within and outside the production life-complex. Or, one can choose to become a machine inside the production life-complex, and a shining converter of ignorance to knowledge outside the production life-complex. The production life-complex wants Aristotle’s type 1 behavior in knowledge processing, where human remains focused on providing for necessities. One can argue that as a “choice maker,” it is the human individual’s responsibility not to see the type 1 behavior as all that there is in life, and take on the hardship of behaving according to Aristotle’s type 2 behavior,

remaining an active converter of ignorance to knowledge outside the production life-complex. Thus the contribution to ignorance economy through specialization begins at the life-complex that demands such behavior at the workplace, but ends with human individual continuing or not continuing the workplace behavior outside the workplace.

It is also important to note that every aspect of human life comes into existence through sharing of specialized capabilities by millions of humans. Consider the production of a water bottle as a simple example of the “*societal capability sharing system*” [39]. What is the number of specialized capabilities that must be shared in order to create one bottle of water for the human needing it? Intuitively the answer would be in the range of a few to a few hundred, depending on one’s view of the number of workers at the bottling plant and those at the grocery store stocking and selling the bottled water. That, however, is the wrong answer. To see the shared specialties beyond the bottling plant one can start with the “*machinery*” at the bottling plant. The specialized humans that made the machinery have part of their capabilities flowing into the bottled water. The machinery is made of metal, therefore uncounted specialized humans in the mining industry, metal processing and manufacturing have part of their capabilities flowing into the bottle of water.

The bottled water produced at the plant has to be transported to the grocery store in a truck. Thus, part of the capabilities of specialized humans in auto manufacturing also flows into the bottle of water. Without fuel, the truck cannot deliver the bottled water to the grocery store, thus the whole oil industry, the refineries and the gas stations share in specialized capabilities that flow to the bottled water. The truck could not function without roads, thus the capabilities of road builders and constructors flow into the bottled water. The bottling plant cannot operate without electricity and natural gas, thus part of the specialized capabilities of all those in electric power plants, transmission and distribution lines, and natural gas pipelines flows into the bottle of water. All the people so far identified sharing their capabilities to create the bottled water have to be fed if they are to be capable of sharing. So, part of the capabilities of all those specializing as farmers and ranchers flows into the bottled water. Then, they all have to be sheltered, educated, and taken care of when sick. Thus, part of the capabilities of all those specialized as doctors, home builders, and teachers flows into the bottled water. On top of that, today, the extent of such capability sharing has gone global. In short, millions of specialized humans have to share their capabilities so that an individual would satisfy the need for one bottled water.

What is most important in drawing this picture of capability sharing is the fact that the argument could have used any artifact. Instead of the water bottle one could start with an automobile, a roll of toilet paper, or even a thought, and the answer on specialized shared capabilities would be the same. To create anything for human individual, the specialized capabilities of millions must be developed and shared. Without such capability sharing the human individual ceases to exist. The recognition of this foundational condition is not something new. About two hundred years ago Adam Smith made the same observation [40]:

Every part of his cloathing, utensils, and food has been produced

by the joint labour of an infinite number of hands.

He used the terminology of “joint labor” instead of “capability sharing” and in place of “millions” he used “infinite number of hands,” but the message is the same. Every economic, political, educational, and psychological system, as well as all other life-complexes, take shape and exist within the societal capability sharing system. Nothing can exist outside the network of humans developing and sharing their specialized capabilities in order to provide for the daily needs of everyone.

One can choose to look at specialization through the lens of “ignorance economy.” As generator of ignorance in others, specialization comes at the expense of others that remain largely ignorant as to what the specialized people know and do. This can happen at individual and life-complex levels. It becomes worst when both remain ignorant of the societal capability sharing system. On one hand specialization gives rise to relative ignorance, but on the other hand, it creates an efficient societal capability sharing system that serves the daily needs of all. Again, in doing so, who would be responsible for managing the level of ignorance, especially at the individual level? From the foundational point of view:

1. every human should keep full awareness of self as a converter of ignorance to knowledge, and
2. every human should also keep full awareness of the fact that all other humans are capability sharers that at minimum maintain the processes that convert ignorance to knowledge to create knowledge-packets, especially the goods and services that sustain everyone’s daily life.

Yet, doing so is hard when one is not aware of the human as “converter of ignorance to knowledge.” Without that awareness, the human individual can succumb to the ease of behaving like a machine that serves one of the society’s life-complexes. Such human becomes a permanent member of the ignorance economy.

Given that all individuals and life-complexes are resource takers, ignorance can also become a tool for resource taking. According to Roberts & Armitage this happens as life-complexes create an increasing number of word-amplified products about which the consumer lacks knowledge for proper and effective use and maintenance [28]. This creates resource taking opportunities as the life-complex can now manage the consumer ignorance through services and repairs, thus turning the consumer ignorance into resource taking opportunities through seemingly legitimate commercial products and services.

This phenomenon is aligned with the trend for extensive flow of words into products and services, making it harder for the individual to keep up with the growth of the societal knowledgebase. It is like previously the individual had to read one pamphlet on how to repair a car. Now the same individual would have to go through multiple thick manuals, none of which is readily available. Is this “ignorance creation”? Or, is it expanding “not knowing” at the individual level while increasing “knowing” at the life-complex level?

Roberts & Armitage’s concern is that the knowledge economy creates resource taking opportunities for the life-complex at the expense of the individual. If the life-complex acts as a self-ab-

sorbed resource taker, it will not pay attention to situations where its activities undermine the human individual's life and well-being. Yet this should be seen as a "problem of the individual," as every life-complex is designed, created and maintained by individuals. If individuals lose control, and the life-complex becomes totally self-serving, as imagined in the science fiction movie *Terminator* where an artificial intelligence network known as *Skynet* becomes self-aware, it is the individuals as artifact makers that are at fault. In real life, the same loss of control can be observed in the artifact "nuclear weapons." Billions of humans have no control on the life-complex that creates and maintains nuclear weapons. That life-complex will decide the time of explosion of those weapons over human cities. The life-complex that would vaporize humankind is not at fault, the billions of humans are. Yet the human individual's direct responsibility for artifact making is often overlooked or ignored.

In the same manner that Adam Smith worried about the machine-like worker doing routine specialized work, the same concern exists with specialization of the so-called "knowledge workers" who excel in putting together word-rich artifacts. They may be highly paid but the life-complex uses them for great lengths of time, no different than the assembly line workers of a century ago. So occupied with the work they are, they have to rely on low-skilled workers to walk the dog or tend the garden. Both the knowledge worker and the low-skilled worker are machines created by the production life-complex in order to perform Aristotle type 1 conversion of ignorance to knowledge. Both are focused on providing for necessities; one operates at the word-rich level, the other at the word-poor level. Roberts & Armitage see this duality evolving into a societal behavior pattern where word-rich workers have more autonomous working environments while the word-poor workers face greater surveillance in what they do [28].

In managing "ignorance economy" as gradations of specialization, the "ignorance economy" is a shadow cast by "specialization economy." The human individual sits at the interface created by individual uniqueness and the design of societal life-complexes. It is from this perspective that Roberts & Armitage raise the question of importance of developing a deeper understanding of concepts like forgetting, not knowing, and the need to know [28]. The key to better understanding of these concepts is the relationship between the individual and the societal capability sharing system. If I forget to put gas in the tank, does the car, an artifact created and maintained by the societal capability sharing system, remember and remind me by turning on a warning light? If I do not know how to change my car's starter motor, does a life-complex in the societal capability sharing system know how to do that?

Thus the importance of forgetting, not knowing, and need to know at the individual level is determined by the knowledge accumulated and maintained at the life-complex level. This also highlights the fact that, what a life-complex knows originates at the human individual acting as converter of ignorance to knowledge. It is most important to human life, and thus a key aspect of human psychology, education system, political structure, and every other life-complex, that the shared capabilities not fail in serving the individual and if they do, knowing that the life-complexes would have to return to individuals to convert ignorance to knowledge to prevent the occurrence of current and future failures.

Can we see the new words and their ignorance content?

The human is an artifact maker. Humans combine earth material with knowledge and ignorance to create infinite possibilities for artifacts. Regardless of one's knowledge level, human can construct artifacts about anything and everything. When in doing so the artifact's ignorance content is high, some can choose to label it as "bullshit". The meaning of the word bullshit is determined by what is placed in its suitcase. For example one can fill the suitcase of bullshit with "a person's obligations or opportunities to speak about some topic exceed his knowledge of the facts that are relevant to that topic" [41]. Yet that creates a hierarchy of possibilities. Anyone that knows more can declare the artifacts made by someone that knows less as "bullshit." Such labeling comes to exist because we lack a foundational view of human as converter of ignorance to knowledge, and maker and user of knowledge-packets.

It is often overlooked that all challenges faced in human psychology, education system, political structure, and every other life-complex take shape through "words." Unless the individual and the society excel in word management, problems will remain and amplify. It is also important to recognize that words can be made and used in variety of forms. It is easier to see this in languages spoken by different nations, but it is hard to see the same in languages created and spoken through specialization in artifact making. In recent times, the most challenging and the most difficult to see are word-forms that take shape as "data." When facing datafication, instead of seeing it as a word management challenge, especially in education system, it is easier to study how the teaching profession would be affected by data-driven practices [42]. The effort to understand the teaching profession's redefinition through datafication is different from understanding datafication through a foundational understanding of words as knowledge-packets humans make and use.

Today every society is increasingly defined by data. Datafication is the process of making the societal structure and operations "machine-readable" by giving them a digital format [43-45]. What is "data"? It is a certain type of word used in certain language spoken by specialized humans, manifesting in societal life-complexes such as Google, Amazon, Facebook, and Twitter, each offering an endless variety of artifacts to humans and life-complexes. Education is where humans learn word management and artifact making. How does datafication affect education? Or equally, how does education affect datafication?

Traditional knowledge has always included an element of specialization. The language used by certain trade could not be readily understood by others. The same is happening now, but at an amplified pace. Data is a form of words. Yet they are primarily words of a language spoken and used by a small group, even though, societally, the artifacts they produce are used by many quite widely. How are the educational, psychological, political and other aspects of such words to be managed? It is a mistake to look at data and not see words and artifacts originating at a specific specialized language. It would only be a partial view if such production and use of artifacts is characterized as "governance by numbers" [46].

Better understanding of data as words and artifacts—thus better understanding as carriers of knowledge and ignorance—is critical for education system, human psychology, political structure, and

all other life-complexes because the word-rich mode of creation and use of knowledge-packets is getting increasingly incorporated into the societal infrastructure and operations. Those suggesting that the educational system should resist these developments by focusing on “democratic, engaged, creative, and sustainable practices” not only do not comprehend the human as artifact maker and converter of ignorance to knowledge, but have no understanding that the empty suitcase of words like democratic, engaged, etc. is only communicating high levels of ignorance. They are of little value for managing the world of artifacts that is using a new genre of words in the form of data [47].

Unaware of words as artifacts that carry knowledge and ignorance, it is easy to see the education system’s problems, and the corresponding solutions, in terms of a single word or a select group of words. Consider the word “evidence.” How is it related to education system? It enters the education system through “evidence-based policy making” [48-49]. What does that mean? What is placed in the suitcase of “evidence-based”? We are told that the word evidence is filled with “assessment and evaluation tests.” Does this say that the problems and solutions in education system only originate in how the education system’s activities are assessed and evaluated? Instead of understanding the education system’s foundational problems, the assessment approach would only bring focus on development of assessment and evaluation instruments in order to satisfy the empty suitcase of other words like “quality assurance” [49]. By design it is a circular process mired in ignorance and thus cannot be a solution provider.

Education and psychology in relation to haunting

The notion of “haunting” is used to point at the continuity and relevance of the flow of knowledge between the past, present, and future zones of human existence. If knowledge of past is ignored, present, as characterized by Jacques Derrida, would become a “dis-jointed or disadjusted now” [50]. In going forward, it is important to have a view of the road already travelled, thus the application of Derrida’s theory of “hauntology” which, as an example, uses Marxism as an ignored past influencing today’s capitalism [51].

Today’s psychology and education system are deficient in integrated and holistic management of the knowledge of present, past, and future. This behavior is not limited to psychology and education as all disciplines are reluctant to trace their history to ancient sources. This is reinforced by the observation that, giving homage to certain ancient sources can become inflated or misdirected [52]. Today’s individuals and societies are primarily now-focused. That is why the future knowledge, with global warming as a prime example, is turned into a ghost, and the knowledge of the distant past has even become a bigger ghost that at present haunts the human societies. It is critical to note that the ghost of the knowledge of the distant past is under continual threat of dying out, leaving humankind’s knowledge position totally deficient.

The best way to demonstrate and understand the degree of significance of past knowledge haunting today’s societies is through a real example. From that perspective, the best example is the knowledge of the glacial earth. The story of the glacial earth’s knowledge haunting today’s societies begins with the fact that it is not common knowledge that earth comes in two versions. The first, named glacial, lasts about 85,000 years, the second, named

interglacial, lasts about 15,000 years. Together, the glacial and interglacial create a 100,000 year cycle that repeats regularly. Science has detailed records of the past eight cycles [53-54]. Since the last glacial earth ended around 15,000 years ago, the current interglacial earth will soon transition into the glacial earth, making the knowledge of the glacial earth crucial for societal existence and survival.

The current scientific understanding of the earth’s two versions sets the difference primarily in the extent and intensity of earth’s ice sheets [55]. As an example, toward the end of the last glacial, all of Canada and all of the northern states of the United States were under mile-high ice sheets. As a more specific view, in Ohio, most of the land and all of today’s population centres were under mile-high ice sheets [56]. None of the key societal life-complexes such as the psychology community, the education system, the business world, the science community, or the political system currently shines any light on behavioural guidelines to be deployed by today’s societies before the glacial earth arrives. Without preparation, in facing the glacial earth’s conditions, the result would be utter psychological shock in total absence of solutions that would provide goods and services for daily human needs. Thus, the prevalence of conditions that would destroy the individual and the society.

The simplest and longest-lasting form of haunting performed by past knowledge is through the “sacred texts.” In all the sacred texts, in addition to strands of knowledge addressing human behaviour in relation to others and possible views of the creator of universe, each contains a strand that addresses the knowledge of the glacial earth. Highlighting this knowledgebase is the warning—psychological, educational, political, and every other possible dimension—about the glacial earth’s unbridled shock to unprepared human and society. It says that the current earth—the interglacial earth—will end, replaced by a radically different earth—the glacial earth—and humans must prepare for that radical change, for otherwise they would face the possibility of not surviving the new conditions [57]. That warning should engender all sorts of educational activities, psychological inquiries, political considerations, and business analysis as to how the individuals and societies should and could manage the situation, yet none of that has happened even though the sacred texts have been available for thousands of years and the scientific knowledge of the glacial-interglacial cycle for about a century and a half.

It is indisputable that the only actual views of the glacial earth originate at ancient populations that observed the earth under glacial-interglacial conditions. The ancient populations were humans under tremendous psychological pressure, toiling in the worst of possible environments that squeezed humans, plants, and animals together into limited refugia [58-63]. Nonetheless, they survived their experience and responded and adapted to radical change in glacial-interglacial transitions [64-65]. In glacial-interglacial transitions, on one hand the interglacial climate would substantially expand the viable zone for human populations, favoring sedentism, population growth, and with it, the formation of village and the beginnings of agriculture [63]. In contrast, the glacial conditions would bring climatic deterioration that altered the availability of plant and animal resources and caused the environmentally-forced transformations that would readily destroy the unprepared [65-66].

The ancient population's transmission of key features of the glacial-interglacial cycle's knowledge to future generations and to geographic neighbours, and from there, all the way to current times reflects humans under tremendous psychological, societal, and behavioural pressure to pass on their knowledge to others in order to help them better cope with the challenges of such transitions. This pressure for knowledge transmission was fueled by the biggest threat to human existence, namely food production. Even without the full knowledge of the glacial earth, it is easy to surmise the level and intensity of psychological and political pressure when there is no food to eat. As it turns out, and it will be shown in more detail in the following, none of today's rain-based agricultural technologies would have relevance and value in the glacial earth. This aspect of the glacial earth and managing it become the greatest educational and political challenge to maintaining psychological health.

As an example of key knowledge transmission from distant past about the glacial earth, Herodotus reports that an ancient population, the Egyptians, had observed and recorded four reversals in the direction of sunrise and sunset in a time period having a duration of about 14,000 years before present [67]. This model of the glacial-interglacial cycle is simple and concise. It specifies the time period, the event type, and the number of events, thus quite precise as to what is happening in a time period that corresponds to the last glacial-interglacial transition. How should today's psychologists, politicians, business executives, and education system orient themselves toward this piece of knowledge? It is important to note that, at best, the sunrise and sunset reversal is a faint ghost that barely haunts those that manage the societal life-complexes. Why should they pay any attention to such rapidly-fading ghost of the past?

It is not that there is a scientific problem with explaining the sunrise and sunset reversal phenomenon. To the contrary, the science of the reversal of the direction of sunrise and sunset is relatively simple. The reversal is possible when a thin "material shell" surrounds the earth. The process for creating a thin material shell is also known and would resemble that which creates the meteor showers—earth passing through tiny fragments of the debris left behind by disintegrated comets. The meteor showers create a brief show of light and color in the skies. In contrast, the earth's passage through a comet's larger fragments [68-69] can create a "material shell" [70]. When the material shell exists, earth would be glacial. When the material shell collapses, earth would be interglacial. The key here is not that we know the science of what was observed in the glacial earth by ancient populations as reversed direction of sunrise and sunset. The key remains that this is a "ghost story." Knowing its science does not reduce its hauntological aspect. Even with its science revealed, it remains a ghost haunting the present societies and as such engenders little interest in facing and addressing it in the present.

Initially, when the material shell is being formed, the shell would be chaotic. It would envelope the whole earth in darkness. The physics of the transformation of a thin chaotic shell is known. The transformation from chaotic to ordered takes place in a short time [71-73]. With loss of chaotic energy and an ordered shell, the polar areas of the material shell would become unstable and collapse, opening the polar areas to sunlight that will reflect earthward from

the interior of the material shell, thus a reversed direction compared to the interglacial earth. We could ask: not considering any other educational, psychological, business, and political challenge of the glacial earth, how would human psyche respond just to the sun rising in the west, no longer as a sun disk, but as a very diffuse polar source of light? But that is an irrelevant question for a ghost story. The fact remains that the information about this story is embedded in a sacred text. Not only it is a ghost story from distant past, in today's societal mindset, that also demands attaching, almost automatically, the label of "high ignorance content" to the story. In fact, in today's societies, humans, in general, have been socially conditioned to not see any high knowledge content in any strand of the sacred texts.

Notwithstanding its hauntological background, the science of the glacial earth's ghost story and its impact on human societies can be further analyzed. For example, in today's interglacial earth, the equator receives the most solar heating, causing the air to rise in the equatorial region and flow poleward high in the atmosphere. That uneven heating of earth's surface and the corresponding winds and clouds would disappear in the glacial earth as the equatorial heat engine ceases to exist and instead gets replaced with the diffusely scattered polar insolation. The details of how that alters the earth's water cycle are to be developed by hydrology experts. But regardless, under those conditions, the education system and psychological stability of both the experts and non-experts determine whether the societies' political system and business structure can be organized to produce and distribute adequate levels of food. The reality remains that no life-complex can function when all its members become politically, educationally and psychologically dysfunctional because of inability to produce food.

Yet all such observations fall into the category of scary ghost stories. While one may argue that such response to hauntology of the glacial earth would not be rational, it is easy to demonstrate that it is the "normal" mode of human behavior in present societies. One does not need to go back to tens of thousands of years ago to scare humans through ghost of the glacial earth haunting them. One can provide the same scary ghost stories of humans getting vaporized in a shower of exploding nuclear bombs. Yet such story about the ghost of the nuclear arsenals is ignored with the same lack of interest exhibited for the ghost of the glacial earth. No different than the glacial earth, the reality of the nuclear arsenals is perceived as a ghost story that should be ignored in the present.

Facing the hauntological challenge, how should the education system treat the knowledge of the glacial earth? Should it regard the glacial earth as a crucial aspect of human psychology, politics, business, and education, or ignore it, like all previous societies? Psychology of ignoring the ancient knowledge of the glacial earth is millennia old. For thousands of years, the sacred texts of every society have informed that this earth (the interglacial) will end and get replaced with a radically different one (the glacial), and humans should prepare for that radical change, yet no education system listens and teaches to prepare for the glacial earth. The predominant educational orientation is currently dedicated to relevance denial. The societal psychology and the education system display a strong tendency to dismiss and ignore the knowledge transmitted by ancient populations [74].

Conclusion

Humans live in the “world of artifacts” which is the same as the “world of knowledge-packets”. The artifacts (knowledge-packets) that humans create and use in the societal setting define the society’s psychological stand, economic system, political thought, and its mode of public discourse. Every societal life-complex has the choice of filling the suitcase of words differently. They can choose to create information or misinformation. They can allow open access to knowledge or choose to limit access to certain knowledge-packets, thus creating different modes of knowledge-dams and censorships. One can interpret this as keeping humans away from reality. Yet, it is more real to see all such possibilities for managing knowledge and ignorance defining and setting up the reality as the “world of artifacts.” The world of artifacts in which humans live is made and maintained by humans. There is no prerequisite as to how the words are to be constructed and how the suitcases of words are to be filled. All that is decided by humans as choice makers, artifact makers, and resource takers.

Some can choose to label the current mode of remaking the world of artifacts as “miseducation,” but it is not [75]. All possibilities of the world of artifacts are human choices in “ignorance management,” intended on typecasting groups and situations, determining identity formation, and disseminating propaganda, all to shape and direct the society according to the view of those that are in control of the societal life-complexes. It creates the world of artifacts according to the image the individuals and life-complexes deem to be the right design for the world of artifacts. In that sense, such behavior is no different than deciding how to fill the suitcase of words like “human nature” or “self.” Of course, even though there are foundational considerations as to how one makes and uses artifacts, there are no universal recipes for the world of artifacts. The world of artifacts is what the artifact makers choose to make. It could focus on feeding children or making bombs or both in varying proportions.

Suggestions and ideas to improve human psychology, political structure, and education system come from a variety of directions. Should we include “hauntology” in our psychological mindset, political dialogue, and education discourse in order to keep the ghost of the past alive? As a method of maintaining the link to the past, should the education system, for example, include reminders about those that have died or disappeared in acts of war and dictatorship? Should the education system propagate the stories of those that were agents of making others die and disappear in acts of war and dictatorship? Would such arrangement improve human life by invoking thinking and learning about “the war dead” and “the disappeared” [76]? At present, the education system, political orientation, and human psychology prefer to not bring those aspects of the past into the present. They treat them as ghosts that the individuals and societies should avoid if possible, and only informally learn to live with those ghosts of the past if they cannot be forgotten, even though that creates the possibility of leaving the society prone to repeating the same undesirable experiences—more wars and more disappearances.

The prime task of the education system is to teach, and for the participants to learn. The education system is a teaching and learning life-complex. Using its specialized jargon, the education system is said to be about pedagogy. Consider the analysis by Chen which

starts with the etymological definition of pedagogy. It is to “lead the child” [77]. The key question thus becomes “how?” Is leading the child the same as the teaching technique [78]? Or, is it just the delivery of information [79]?

Others who have thought about leading the child have characterized it as experiential education [80], or paying attention to the child’s developmental and learning life-stages [81], or emphasizing the teaching and learning as a lifelong process [82], or advocating a radical approach—teaching about things not known [83], or other views and variants of how the child should be led [77]. In this article we have offered the alternative of leading the child through full awareness of the foundational aspects of human existence, like human being a converter of ignorance to knowledge, a maker of knowledge-packets, and every knowledge-packet being a composite of knowledge and ignorance. Currently the education system either does not know or ignores the foundational aspects of human existence highlighted in this article.

The specialized world can be characterized as a world of “pluralistic ignorance” in which it is proper for everyone to remain ignorant. It is OK for one to be ignorant of how a computer is made or how one does brain surgery when one’s specialization is to sing opera. Pluralistic ignorance is always present in every life-complex when a group of humans, each with different specialty, or same specialty but different levels of skill and experience, make decisions about a situation [84]. Such view of ignorance through specialization is different than the group’s focus on “ignorance content” of the situation and the intent of converting ignorance to knowledge to better understand the situation being faced.

Consider the situation flagged by Hendricks [85]. It is a group of students. They are asked about the difficulties they might have encountered in an assignment. No one seems willing to start the “difficulty” conversation. No one knows that the conversation is about a process that involves the conversion of ignorance to knowledge. What does that mean? They are humans without a view of the foundation of their existence, namely human as “converter of ignorance to knowledge.”

Hendricks interprets the reluctance to share thoughts and experience as a reflection of each individual “deciding whether to flag ignorance or not.” Before talking, each wants to see “whether the other students encountered the same problem.” To avoid hurting one’s standing in the group, “nobody signals ignorance” [85]. It is important to recognize that this is not the same as pluralistic ignorance. The students are not specialists pooling their knowledge (and thus acting out of their pluralistic experience) in order to convert the ignorance content of a situation to knowledge to improve the understanding of the situation.

A different interpretation would see the student behavior originating at being in the dark about their own foundation of existence. They are unwilling to talk about their experience of converting ignorance to knowledge because any difficulty can be interpreted not as scholastic venture to convert ignorance to knowledge, but as “failure.” If one speaks while everyone else remains silent, then that student would publicly and self-consciously get labeled a failure and his or her status lowered. As a resource taker, no human sees value in such position, thus everyone remains reluctant

to engage in a conversation about their experience of converting ignorance to knowledge. While this is more evident in the classroom setting, it vegetates in every aspect of human life because the society has structured itself ignorant of the foundational aspects of human existence.

When one poses the question of “What is knowledge?” it is observed that the answer is not easy [86]. Various reasons are offered for the difficulty. Knowledge has a personal dimension and is not static [87]. Or, it involves the mind and emotions [88-89]. Or, it incorporates cultural and social aspects of human existence [90-91]. Many of these definitional problems would be avoided if the starting question becomes “what is a knowledge-packet?” What gets created when humans mix what they know with earth material? Then the ensuing question would be, what is that humans know? That would be answered by saying that, humans know that every knowledge-packet they create is a mix of knowledge and ignorance. That returns to the foundational aspect of human existence, namely human as convertor of ignorance to knowledge. The question of “What is knowledge” then gets answered as the artifact that humans create from converting ignorance to knowledge, and then mixing it with earth material. In this approach, instead of “knowledge,” the focus would be on “conversion of ignorance to knowledge.”

In making a knowledge-packet—in the process of converting ignorance to knowledge and mixing with earth material—there are other influences that dictate the knowledge-packet’s operational and structural design. Top of the list of such influences is human as “resource taker.” Unless the human’s resource position benefits from conversion of ignorance to knowledge, no one would engage in that activity. Thus the worker has to be paid if he or she is to work. Even in a setting where the knowledge-packet being created is a paper published in a journal—even a paper that few if any might read, the process is sustained by the salary the author receives and the privilege that comes with publishing papers, a privilege that can be later converted into other resource taking opportunities.

In every artifact, whether it is the toilet paper or an article published in a scholarly journal, there is always the concern that those making the knowledge-packet would cut corners and deliver a deficient product. In a published paper the deficiency can be in the form of inflated or inaccurate claims in converting ignorance to knowledge. Since most published articles are not read by anyone and are primarily “privilege trophies” for the author, it amplifies the possibilities where the benefit to the author is not in the knowledge being published but in the act of having been published [92]. This amplifies the societal challenge of converting ignorance to knowledge in ways that would be beneficial to daily needs of all.

If we are not aware of the societal sharing system, not aware that every aspect of our existence originates at capabilities shared by millions of others, how would we understand and describe the society in which we live? Rooney offers one example of such behavior. He characterizes his view of the otherwise invisible societal sharing system with the word “generosity” [86]. Even though Rooney is focused on knowledge, he does not see the societal sharing system as a “world of knowledge-packets” that defines human

existence. Instead he sees the “knowledge economy” amplified by generosity. How does Rooney fill the suitcase of the word “generosity”?

Rooney starts with tacit knowledge, knowledge that is understood in personal ways, knowledge critical for development of capabilities that lead to innovation and creativity, even though tacit knowledge is inherently difficult to characterize and manage formally [93-95]. The suitcase of the word “generosity” is then filled with how the tacit knowledge is transferred from parent to child, teacher to student, and master to apprentice. In short, generosity, as flow of tacit knowledge, becomes a knowledge-packet that points at how capabilities are shared in the societal capability sharing system. This model sees generosity as agent of “social connectedness of minds and knowledge” even when the model-maker does not see the societal capability sharing system that connects minds, capabilities, resources, knowledge and ignorance societally in order to serve the daily needs of every individual.

Rooney continues to point at the shadow of the societal capability sharing system as a structure of knowledge visible at three levels [86]:

1. It is a structure more than just data and information.
2. The society benefits greatly by investing in knowledge economy.
3. The implementation and maintenance of generosity in the knowledge economy rests on the shoulders of the society’s policymakers.

The societal capability sharing system is the “world of knowledge-packets” and it is more than just the artifacts we know as data and information. It includes the house, the hug, the thought, the toilet paper and the myriad of artifacts humans make and use by mixing what they know with earth material. The recommendation that the society should invest more in knowledge economy is a partial view in that, it does not recognize that the only place for human to exist is the world of knowledge-packets. There is nowhere else for the human.

Finally, the societal capability sharing system is managed based on “manager-managed duality.” In all times and in every society, without exception, the societal capability sharing system is built on the basis of manager-managed duality, where a small group of “managers” manage the affairs of the masses of “managed.” Thus the CEO manages the workers in the business, the teacher manages the students in the classroom, and the President manages the citizens in the nation. Humankind knows of no other way of managing the society’s shared capabilities. Both the managers and managed must share their capabilities symbiotically in order to keep the societal capability sharing system optimal [96]. Therefore, the notion that the implementation and maintenance of the societal capability sharing system rests on the shoulders of the policymaker (the manager) is false. It rests on shoulders of both the manager and the managed. Both the manager and the managed must actively work to keep the manager-managed duality functional and optimal. This is true whether the life-complex is the business world, the political structure, the education system, the psychology community, or any other.

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