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Integral Studies and Integral Practices for Humanity and Nature

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Abstract: Humanity is facing a crisis of survival. In order to save humanity and nature, we must rebuild their foundations. This paper proposes integral studies and integral practices as a possible new paradigm for the 21st century. First, we investigated the necessity of integral studies and integral practices, which were suggested by the following three evidences: (1) limitations of the Spiritual Revolution and modern philosophy, (2) limitations of the Scientific Revolution and modern science, and (3) contemporary practical problems that threaten the future of humanity and nature. Second, we investigated the purpose and the principle of integral studies and integral practices from a viewpoint of the nature of both human beings and universe. One of the fundamental questions for humanity is how to overcome the egoism of individuals as well as the entire human race. In this avenue, we think the first step is to transcend *toraware*, which is a Japanese word meaning both "states of being caught" and "what catches us". The state of being caught manifests itself when the ego emerges while we begin to distinguish between the self and others. Therefore, integrity and intrinsic nature become principles of integral studies and integral practices. Consequently, integral studies and integral practices serve for the sake of nature including humanity. Third, we discussed the methodology of integral studies and integral practices. We argue its core is integral exploration and reframing of the self and others, ourselves and the world (universe), and humanity and nature. It consequently reveals integrity and harmonizes intellect, emotion, and volition as well as goodness, truth, and beauty while revealing integrity and opening up or unfolding the intrinsic nature of the individual and the collective. Finally, we addressed limitations and future agendas of integral studies and integral practices. We suggest it is essential to raise and discuss fundamental questions on humanity and nature as well as to elucidate the truly unknown, which cannot be understood within existing frameworks. However, whether it is correct or not will come to be verified over time. No one in the history of humanity has ever attained universal truth, which is absolutely true in light of absolute criteria that are not relativized by differences in space, time, or people, or which is absolutely true even without referring to any criteria. Therefore, it is necessary for each of us to discern what is right and maintain a critical gaze.

Keywords: integral studies; integral practices; *toraware*; intrinsic nature; cosmic correspondence; spiritual revolution; scientific revolution; environmental revolution; humanity revolution; sapiential revolution

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1. Introduction

The motivation for this paper is the recognition that humanity is now standing at a civilizational crossroad. Looking back at human history, we observe five great turning points which created epochs [1–4]. They are called the Anthropological Revolution, the Agricultural Revolution, the Urban Revolution, the Spiritual Revolution, and the Scientific

Revolution. The Scientific Revolution, which took place in the 17th century, has provided humanity with many conveniences by realizing the subsequent Industrial Revolution and today's Information Revolution [1–3]; however, it has also caused problems that threaten the future of humanity and nature, such as global environmental problems, pandemics, nuclear weapons and power plants, poverty and exploitation, ethnic and religious conflicts, nationalism, and the refugee crisis. The future of humanity and nature does not exist only in an extension of the Scientific Revolution, the Industrial Revolution, and the Information Revolution. This is mainly because while new technologies such as the decentralized web (web3) and metaverse may bring something good to humanity, the underlying ethos of "gaining more and efficiently" remains unchanged. Therefore, we need a new civilizational revolution where we overcome the problems that threaten the future of humanity and nature. The new revolution is called the Environmental Revolution because environmental problems involve all aspects of human activity [1–4]. This revolution requires a radical shift in our attitudes towards humanity and nature. Nevertheless, the details of the revolution remain unclear. In what direction should humanity go? How should we live our lives? What should the academic in the future be like?

In response, the objective of this paper is to propose integral studies and integral practices as a possible new paradigm for the 21st century. There have been various ways of classifying disciplines since Aristotle, and they are generally based on the nature of interest in a subject or method. There has been, however, very limited research that classifies the frameworks of integral studies. With this background, Akiyama [5] classified integral studies as follows. The integral studies in a broad sense so far can be divided into those that include the word of integra* in their name where * represents a wildcard and those that do not. The latter includes the synthetic, the unified, and the holistic (or wholistic). The representatives of the unified are Theory of Everything and Great Unification Theory in Physics, and Edward O. Wilson's "Consilience: The Unity of Knowledge" [6], while the representative of the holistic is Yan Smuts' "Holism and Evolution" [7]. On the other hand, there are five schools of integral studies in a strict sense: Ken Wilber's "Theory of Everything" (e.g., [8]) and the California Institute of Integral Studies; Ervin Laszlo's "Integral Theory of Everything" (e.g., [9]) and the Laszlo Institute of New Paradigm Research; Sally J. Goerner's Integral Science (e.g., [10]) and the Integral Science Institute; Nissho Takeuchi's integral studies (e.g., [11]) and the International Institute for Integrative Science as well as the German–Japanese Society for Integrative Sciences; and Isamu Kayane's integral studies (e.g., [12,13]). In this way, what we call integral studies are diverse. This indicates that the integral studies have never been sufficiently established. It is obvious that further discussions are needed to establish the foundation of integral studies.

The author's integral studies cannot be classified into any one of the existing frameworks. If so, what are the differences from the previous ones? Here, I demonstrate my integral studies focusing on the differences. The rest of the paper is organized as follows: Section 2 discusses the necessity of integral studies and integral practices from the perspective of the history of human civilization and the contemporary practical problems that threaten the future of humanity and nature; Section 3 is on the purpose and the principle of integral studies and integral practices from the viewpoint of the nature of human beings and the universe; Section 4 is the methodology of integral studies and integral practices; and Section 5 is the scope of integral studies and integral practices. The paper concludes by highlighting the limitations of current integral studies and integral practices.

2. Necessity of Integral Studies and Integral Practices

The necessity of integral studies and integral practices has been pointed out in the previous studies [5,8,9,11–13], but integral studies have not yet become generally accepted. This section describes the rationale based on current knowledge. In short, the necessity of integral studies and integral practices are suggested by the following three evidences: (1) limitation of the modern philosophy (the Spiritual Revolution), (2) limitation of the modern science (the Scientific Revolution), and (3) contemporary practical problems that

threaten the future of humanity and nature. In other words, it is because the limitations of both modern science and modern philosophy have become apparent, and no alternative to them has yet been clearly proposed.

2.1. Limitations of the Spiritual Revolution and Modern Philosophy

What we call world religions today are considered to have their roots in the "Spiritual Revolution", which took place between 6th century BCE and 1st century CE [1–4]. The Spiritual Revolution occurred in human minds for the first time in history due to an era of crisis of corruption. In this regard, it differed from the other revolutions in which humans influenced nature and created physical objects. The Spiritual Revolution took place in four locations in parallel, Greece, India, China, and Israel, in search for universal principles as to how humans should live their lives. In Greece, it began with the discovery of "Psyche", which led to the awareness of "Idea" as the objective of "Psyche", and finally to "the idea of the good" (textitagathon in Greek philosophy). In China, "Tian" (the celestial aspect of the cosmos) was united with the Earth during the Zhou period, and it became "Tao" (practical order that is given by awareness of the Tian), which then turned into "Li" (ritual rules of propriety), and reached "Ren" (Confucian virtue of humanity denoting the good feeling a virtuous human experiences when being altruistic), which underlies "Li" in Confucianism. In India, it began as a matter of "suffering" (*duḥkha* in Sanskrit). Realizing the target (objective) of obsession, which causes suffering, is the ever-changing nonexisting "interdependence of all things" (*pratītyasamutpāda* in Sanskrit), or "the voidness that constitutes ultimate reality" (*śūnyatā* in Sanskrit); it eventually reached "unconditional kindness and compassion" (*maitrīkaruṇā* in Sanskrit). In ancient Israel, Torah was considered important, however, eventually formalized, Jesus Christ turned it into "Agape" (the highest form of love, and charity). The final ideas of the Spiritual Revolution in essence—"the idea of the good" in Greek philosophy, "unconditional mercy and compassion" in Buddhism, "Ren" in Confucianism, and "Agape" in Christianity—are the principles of our actions and behaviors toward others. The Spiritual Revolution brought about a structure that the self and others can coexist through those universals as mediators (Figure 1) [4].

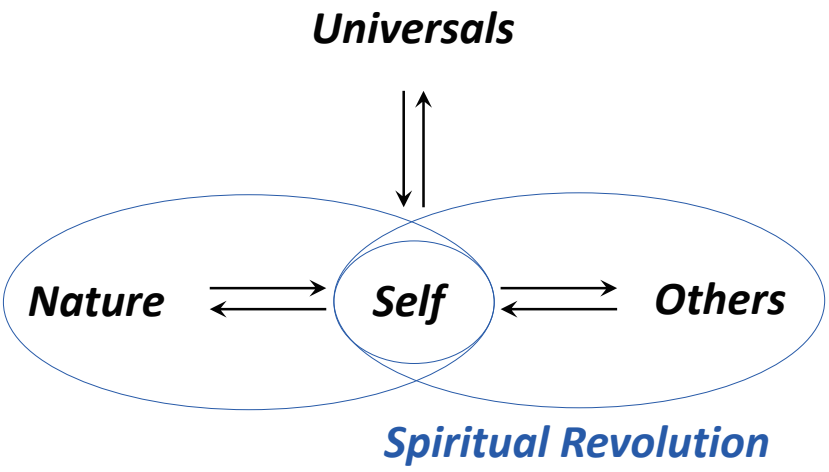

Figure 1. A schematic diagram, drawn based on Ito [1–4], of the structure of Spiritual Revolution, which shows that the self and others can coexist through universals as mediators.

2.2. Limitations of the Scientific Revolution and Modern Science

Since the Spiritual Revolution, religions had diversified while the Scientific Revolution occurred in Western Europe in the 17th century and laid the foundations of modern science [1–4]. The Scientific Revolution was not only a great turning point in "history of science" but also created what defines the modern age (modern civilization) in human history. René Descartes and Francis Bacon established its foundation. Descartes made a

clear division between subject and object in order to obtain objective cognition. In this idea, the subject, the one who recognizes object, is separated from the object, the one to be recognized. The subject does not recognize the object-world from within, but the subject recognizes the world of the object from outside. This epistemology of subject–object separation became the fundamental premise of modern science. Consequently, reductionism prevailed the world, and science continued to divide itself into segments. This "divisive thinking" is dominant in most of human society today. The accelerator for the bias toward the "divisive thinking" was the modern idea of "mastery of nature", an idea that "knowledge is power to rule and own the nature". This idea is attributed to Bacon's notion of "knowledge is power" and "knowledge to dominate nature"; Descartes also asserted the same idea in his "Discourse on Method". These have resulted in viewing "nature as a resource" or "natural resource", which has continued to the present day.

Based on this sort of idea as a pillar, modern scientific technologies have promoted economic activity and made people's life convenient; however, they ignored the interior development of humanity who uses the technologies. Modernization changed human minds and released the brake on desire. Modern industrial capitalism may be likened to a desire-driven runaway train with broken brakes. The train, profit-driven, keeps on running while leaving environmental problems as external diseconomy, and further accelerates toward economic growth. However, because of humans' overconsumption of energy and materials, human activities have finally exceeded the functions and capacities of the earth system. In the 1990s, global environmental issues caught the attention of the world when knowledge as power turned to its negative side and various problems arose. An individualistic society, defined as one whose members predominantly believe in forms of independent self-construal, exhibit a higher environmental impact [14]. With such "divisive thinking", one sees oneself independent from problems, dismissing the respect for all living things. The outcome is the various current problems threatening the future of the Earth and humanity, such as: nuclear arms and nuclear plants, environmental problems, poverty and exploitation, ethnic and religious conflicts, and nationalism and the refugee crisis. In this way, Cartesian dualism and the idea of "mastery of nature" has functioned as the principle to divide "humans from humans" and "humans from nature" (Figure 2) [4]. They also functioned to eliminate the desire for inner cultivation of humanity. In this regard, it can be seen as a cause of various conflicts. In other words, the principle established by the Spiritual Revolution became no longer sufficient to serve its purpose.

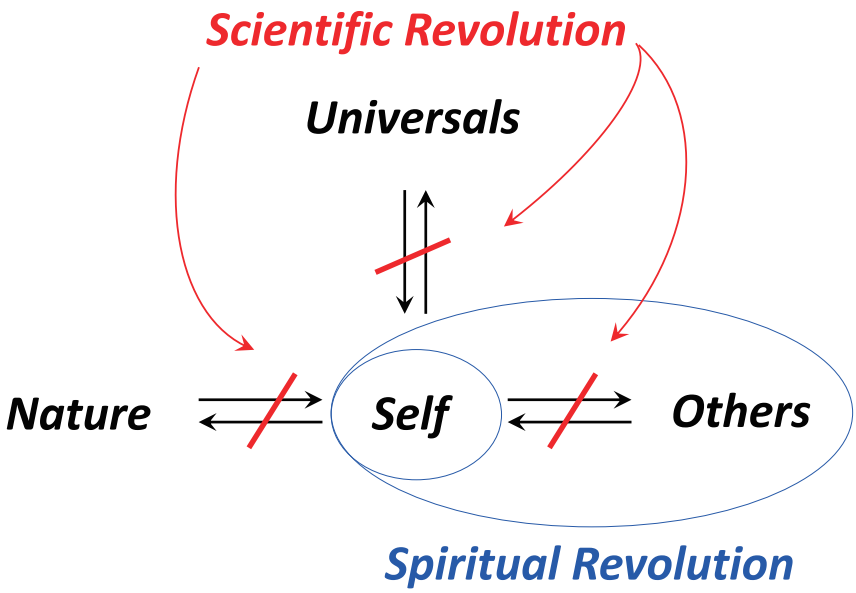

Figure 2. A schematic diagram, drawn based on Ito [1–4], of the structure of Scientific Revolution, where it has functioned as the principle to divide "humans from humans" and "humans from nature".

In the meantime, Cartesian dualism has also led to two issues in academic research. The first is the problem of the method of study [5]. Cartesian dualism eliminates subjectivity in order to recognize things objectively. It also makes the hypothetico-deductive method the objective method for developing a theory. In this way, modern natural science has ensured the rationality and universality of perceptions obtained about objects. As the scientific method has been established, many humanities and social scientists have followed suit. However, the hypothetico-deductive method does not necessarily fit humanities and sociology. This is because there are few universal principles or laws in humanities and social phenomena. Therefore, interpretation has been the mainstay of humanities and sociology, but a tragedy occurs when ideology replaces principles and laws. The social environment naturally interacts with an individual while genetics and brain science have revealed that the natural environment also interacts with the individual. The interaction of subject and object reveals the limitations of the Cartesian dualism. Modern problems, including environmental issues, include both objective and inter-objective problems (e.g., scientific, technological, and social systemic problems) and subjective and inter-subjective problems (e.g., individual and cultural problems). This is why problems are complex and difficult to solve and why integral knowledge is needed.

The second is the problem of the object of study [5]. In his "Discourse on Method", René Descartes wrote of a mechanistic view of the world in which the world was likened to a machine, in which each part was broken down to pieces to be studied individually, and in which it was considered that when all those parts were integrated in the end, the world could be understood. This approach has resulted in elemental reductionism, and science has been subdivided into a number of areas of specialization. While the individual sciences have become the foundation of modernization, the segmentation of academic disciplines has also brought its adverse effects, one of which has appeared in "science for science's sake". The segmentation of disciplines subtilizes the connection of essentially integrated components and interest in the wholeness, bringing the negative effects of studies in ivory towers or "science for science's sake". Academic freedom has been secured through value-neutrality while many scientists have become confined to each discipline, and the connections between each element and their wholeness have become less of a concern. Descartes united synthesis and analysis into a single principle in his "Rules of Thought", but analysis without synthesis has become general. This leads to an ethical problem. One of the most typical examples was the scientific research conducted under the Manhattan Project. In addition, the natural and the social sciences are currently undergoing what is called the "reproduction crisis", where a considerable number of peer-reviewed and published research cannot reproduce the same findings when experiments are rerun [15,16]. Another adverse effect has appeared in "science for society's sake". Shifting from "science for science's sake" to "science for society's sake" means venturing into the field of value, rather than insisting on value-neutrality. In 2015, the new framework named "Future Earth", as driven by the International Council for Science (ICSU), was developed. This framework features strong focus on a transdisciplinary approach or co-creation of knowledge integrating science and society [17]. Principles of transdisciplinary research are co-design, co-production, and co-delivery of knowledge by academics, governments, business, and civil society from all regions of the world to support research on the earth system, global development, and transformation toward sustainability [17]. However, there are cases that a system designed in one specialized field may not be optimal on a global scale, or may create other problems. This is a problem caused by limiting the scope of an object. It is possible that an end result of the segmentation of academic disciplines can be disastrous. This is why integral studies are necessary. However, it must be distinguished from pluralism and relativism. This is because, as recent complex systems science has shown, each element is not only a self-organizing emergent system that interacts with each other, but it also emerges and generates new self-organizing emergent systems. This rejects Cartesian mechanics while supporting the need for integral studies.

2.3. Contemporary Practical Problems That Threaten the Future of Humanity and Nature

The necessity of the integral studies is corroborated by the existing practical challenges. Humanity is facing a crisis of survival which can be attributed to the climate crisis, rather than the Coronavirus Disease 2019 (COVID-19, hereafter referred to as the pandemic). In order to save humanity and nature, we must rebuild the ways in which humanity interacts with its environment. The risk of point of no return has been discussed for more than 60 years. In 2020, a paper was published which stated that global warming had already crossed this point [18]. Randers and Goluke [18] reported that even if global society stops all man-made greenhouse gas emissions immediately, it would not reduce the self-sustained thawing of the permafrost for hundreds of years. Although this prediction is based on a numerical model and needs further verification, we can expect more papers to be published along this line given the rapidly increasing atmospheric CO_2 concentration. If the point of no return has already been exceeded, then the goals of the Paris Agreement may be inadequate. If such a possibility exists, it should be reviewed immediately since the survival of the human race is at stake. While the global lockdown caused by the pandemic temporarily reduced CO_2 emissions, it was estimated to be a cooling of around 0.01 ± 0.005 °C by 2030 compared with a baseline scenario that follows current national policies [19], which was nowhere near the goal of the Paris Agreement. In the Sixth Assessment Report by Working Group I of the Intergovernmental Panel on Climate Change (IPCC), released in August 2021, the term, "uncertainty" was removed and the new passage was incorporated as follows: "It is unequivocal that human influence has warmed the atmosphere, ocean and land". This implies the need for a major shift to a decarbonized lifestyle for all people living under the climate crisis.

There is no shortage of evidence for the crisis of human survival. As important as the climate crisis is the degradation of the ecosystem[1]. Plants receive solar energy and photosynthesize to produce nutrients, which are then eaten by herbivores, which in turn are eaten by carnivores. When living things die, they are decomposed by fungi and bacteria to become inorganic matter, which then becomes the source of photosynthesis for plants. Everything circulates without waste. The important providence of this ecosystem is as follows: (1) the higher up the pyramid, the fewer nutrients there are; (2) the stronger the organism, the fewer its numbers are; and (3) the pyramid structure stabilizes the ecosystem. However, with the advent of humans, this has been disrupted. Humans are the top predator of the ecosystem, and they have now taken over the ecosystem with a tremendous biomass of 7.8 billion. As we are sucking up more and more of what the organisms below us are taking in, they take less and less, causing biodiversity[2] to deteriorate. Thus, humans can no longer sustain themselves on ecosystems driven by solar energy alone. Therefore, we began digging up fossil fuels buried underground and using them for energy and material production. Naturally, ecosystems do not have the capacity to decompose the various wastes emitted from this process, so more and more wastes are accumulated, leading to pollution. Elhacham et al. [20] revealed that global human-made mass exceeds all living biomass. The large amount of greenhouse gases and heat energy that are released also cannot be fully absorbed by the natural world, leading to global warming. These three major environmental problems of ecosystem degradation, increased amount of waste, and global warming form a trinity, triggered by mass production, mass consumption, and mass disposal by humans. Since nature is an ecosystem, it is designed to maintain a balance [21]. If there is an overabundance of organisms in high density, natural enemies will appear. That is where viruses come in. Humans are the perfect prey for these emerging infectious viruses. With no choice but to extract energy from humans, new viruses enter human society and feed on humans to proliferate. Hence, the pandemic is probably a natural order that was bound to happen [21–26] though further investigation is necessary [27].

Indeed, many scientists think the pandemic has been caused by an imbalance in the natural ecosystem [21–26]. Robin [26] clearly demonstrated that the successive pandemics were the consequence of our lifestyles and the changes that impacted fauna and flora on a global scale, and the destruction of biodiversity was likely to be the main factor in the emer-

gence of infectious diseases. Biodiversity is key to public health, as shown by the Dilution Effect [28,29]—a phenomenon where "an increase in biodiversity results in a reduction in the prevalence of an infectious disease" [30–32]. Animals are the principal hosts for viruses, and ordinarily pathogens would not break through into the human sphere. However, as industrial farming, pesticides, fertilizers, and urbanization have considerably reduced the number of such predators, the number of pathogens jeopardizing human health has soared [33]. Robin [26] concluded that, rather than ceaselessly chasing vaccines or extending lockdowns, the only way we can eradicate pandemics is by preserving biodiversity.

Globalization facilitates the spread of pathogenic viruses [34,35] as well as invasive alien species (IAS) around the world as international commerce develops new trade routes, markets, and products [36–38]. Figure 3 shows the impact of the pandemic on the global supply chain [39]. The thickness of the arrows indicates the supply chains affected by the pandemic. To put it the other way round, it shows that supply chains were connected on such a large scale before the pandemic. With the global economy advancing so intensively and straight on, a new type of virus can rapidly spread worldwide [23]. In short, it is legitimate to think that the pandemic was more likely caused by the extraordinary connections of the global supply chain than by the virulence and infectious power of the coronavirus itself. Rather than attributing it to the coronavirus, we must consider that it is because of this abnormal global economy that so many people have died. If we continue with the present lifestyle, another pandemic of greater virulence is sure to occur.

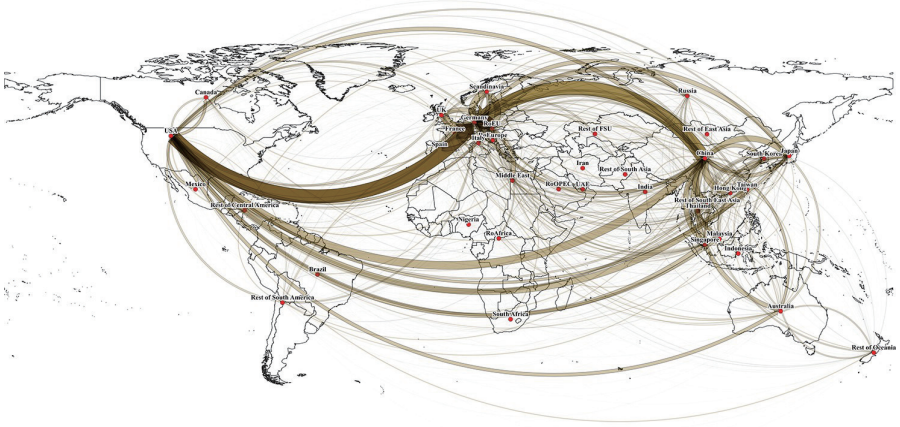

Figure 3. Wage and salary income losses as a consequence of trade volume reductions in international supply chains due to the global COVID-19 effects. The lines connect ultimate origins and destinations of supply chains, both direct and multinode, with line thickness representing the trade volume lost [39].

It is clear that urgent measures must be taken to limit the current and future imbalances caused by human activity. It is known that climate change impacts on the transmission of infectious diseases [40,41]. The concept of "planetary health", which integrates human health and environmental sustainability, has been proposed [42]. Unless we build a society in symbiosis with nature, we will not be able to escape the disasters caused by these viruses, nor will we be able to sustain human society. We need to understand that the conservation and management of biodiversity is a security measure for the sustainability of human society. Symbiosis with nature does not mean living in harmony with animals. The natural world is a mass of various pathogens, and there are many natural enemies in the natural world. Therefore, zoning, or moderate separation and fragmentation, is necessary. In other words, humans should not overly encroach on the habitat of other organisms; vice versa, other organisms should not overly encroach on the habitat of humans. This is what symbiosis with nature is [21]. On the other hand, Bernardeau-Moreau [43] showed how major events, beyond an initial period of shock, can help to awake different

levels of reflexivity in individuals. In the case of the pandemic, this involves changing lifestyles and consumption habits, preserving natural areas and biodiversity, restoring ecosystems, stopping invasive species, combatting climate change, and curbing energy consumption [26]. The road is long and full of obstacles, and there are other disasters yet to come, but the efforts of individual and collective reflexivity are essential in pointing the way to a safer path, via which we can protect the planet and all the living beings that inhabit it [26].

2.4. Integral Studies and Integral Practices as a New Paradigm for the Environmental Revolution

Although people might think that a new civilization has already emerged from the current Information Revolution, the information revolution is a mere extension of the Scientific Revolution in my perspective [3]. It is the Scientific Revolution that led to the Enlightenment, the Industrial Revolution, and the Information Revolution because, although each of them has different objectives from one another, all of them share the common orientation or common ethos of "increase in production" and "improvement in efficiency" [3]. The Information Revolution advances fast. When something new is invented, the old is thrown away. The consequence is mass production, mass consumption, and mass waste. Therefore, my discussion here is that the future of mankind does not exist only in the extension of conventional development, such as, the Scientific Revolution, the Industrial Revolution, and the Information Revolution.

Therefore, we need a new civilizational revolution. The new revolution is called the Environmental Revolution because environmental problems involve all aspects of human activity. The Environmental Revolution requires a radical shift in our attitudes towards humanity and nature [1–4]. This is also suggested by leading philosophers (e.g., [44–46]) as well as leading natural scientists (e.g., [47–52]). It is a revolution that happens inside human beings. The Environmental Revolution is equal to the Humanity Revolution [3]. This is because each of us are required to broaden and deepen our view of self as well as view of others, including worldview such as view of nature and view of universe, so that each of us can restrain egoism and selfish desires in order to overcome the problems that threaten the future of humanity and nature. How do we live our life? How can we overcome egoism and the selfish desires of the entire human race? These are some of the fundamental questions facing humanity right now. The Environmental Revolution also requires a radical shift in our paradigm. As described above, the principle established by the Spiritual Revolution became no longer sufficient to serve its purpose, and the limitations of the Scientific Revolution have also become apparent. Thus, it is necessary to reframe them integrally. In this sense, the Environmental Revolution is equal to the Sapiential Revolution, that is, the revolution of wisdom to seek the fundamental accordance of knowledge and virtue [4]. This is essentially the integration of so-called trans-science (going beyond the limit of sciences) and trans-religion (going beyond the limit of religions). The trans-science here refers to the scientists who investigate themselves by asking fundamental questions such as who I am and how should I live my life, and consequently reframe their view of the self and their way of life. The trans-religion here refers to religious people who explore the world (universe) and reframe their worldview. Therefore, the idea of Sapiential Revolution can cause a revolution of wisdom without denying either religious traditions or modern sciences.

In this sense, the Environmental Revolution requires each of us to practice integral studies, that is, integral explorations of the self and others, ourselves and the world (universe), and humanity and nature; thus, "integral studies and integral practices" can be a new paradigm for the Environmental Revolution. This does not deny "divisive thinking" itself but criticizes the "bias toward divisive thinking", suggesting the necessity of the complementary use of both "divisive thinking" and "integral thinking". What I mean by integral is not integration as opposed to separation. It is not totalitarian integration. What I mean by integration respects both the whole and the parts. Therefore, consequences of the "integral thinking" become significant. Namely, it is possible to end all the conflicts, such as

between man and nature, matter and mind, and religion and science, because, based on "integral thinking", there is no contradiction between them. This is why I believe that integral studies and integral practices can be the foundation for the Environmental Revolution.

3. Purpose and Principle of Integral Studies and Integral Practices

The purpose and principle of integral studies have also been discussed in previous studies [5,8,9,11–13], but integral studies have not yet become generally accepted. This section discusses them from a viewpoint of the nature of both human beings and the universe. First, while the fundamental trait of the brain, to distinguish between the self and the other, is the source of creating a new culture based on the relationship between the two, it is also the cause of various kinds of *toraware* and *shuchaku*. This not only is hazardous in terms of destroying the wholeness of an individual but also prevents us from maximizing our potential abilities. In this sense, integrity and intrinsic nature become purposes and principles of integral studies and integral practices. This is corroborated by the principle of the universe or what we call "Cosmic Correspondence", which is equivalent to integrity and the intrinsic nature of the universe. The return to "Cosmic Correspondence" or integrity and intrinsic nature enables horizontal transcendence (Figures 1 and 2), and therefore can be the source of creating future civilization.

3.1. Purpose and Principle of Integral Studies and Integral Practices from the Viewpoint of the Nature of Human Beings

There are multiple theories about what makes us human—several that are related or interconnected. The topic of human existence has been pondered for thousands of years. Ancient Greek philosophers Socrates, Plato, and Aristotle all theorized about the nature of human existence as have countless philosophers since. Scientists have also developed theories as well. Chimpanzees are the closest living relatives of humans, and share nearly 99% of our DNA. Efforts to uncover human DNA have yielded a number of sequences that are distinctive in humans as compared with chimpanzees. Pollard [53] summarized a partial list of these sequences and some of their functions. While there may be no single conclusion, there is no doubt that humans are, indeed, unique.

Now, let us look at the traits of the human brain. There are at least the following four traits [2]. First, there is the trait of making representations, that is, creating an image as the object of the mind and knowing the world. The second is the trait of creating a feeling about a known object by matching it with one's memory. Third, the trait of willing based on emotion, which is related to the act of doing something. These three traits correspond to intellect, emotion, and volition. Fourth, there is also the trait of integrating representation, emotion, and volition to grasp the other as a whole and sublimate it. Thus, human beings perform thinking, judging, implicating, valuating, and considering. The brain has the function of creating connections between oneself and others, as well as between oneself and the world. While the fundamental trait of the brain, to distinguish between the self and the other, is the source of creating a new culture based on the relationship between the two, it is also the cause of various kinds of *toraware* and *shuchaku*. *Toraware* is a Japanese word which means both "states of being caught" and "what catches us". Another concept associated with *toraware* is *shuchaku*, which is also a Japanese word meaning obsession or a state of attachment. Attachment is the state in which mind is trapped by an object; as a result of this, the person remains stuck in it. The attachment is considered a root cause of suffering in Buddhist tradition. Harari [54] also argued "Ever since the Cognitive Revolution, Sapiens have thus been living in a dual reality. On the one hand, the objective reality of rivers, trees and lions; and on the other hand, the imagined reality of gods, nations and corporations. As time went by, the imagined reality became ever more powerful, so that today the very survival of rivers, trees and lions depends on the grace of imagined entities such as the United States and Google".

Here, I would like to explain further by sharing my experience of *toraware*. I have mainly walked on the path of an academic journey. My vision is to contribute to solve

environmental issues, which was triggered by a near-death experience (NDE)[3] [64]. This changed my outlook on life and made me realize that I was given life for the sake of the world. When I was a 19-year-old university student, I caused a self-inflicted car accident. Both my parents and the police told me that the accident would have been fatal and that it was a miracle that we escaped unharmed. Later, I was summoned by the university along with three of my friends who were also in the car, and it was suggested that all of us might be expelled from the university. Since then, I spent my days thinking it was the end of my life. About a month later, my mother told me, "At the very moment of the accident, Grandma appeared in my dream and told me repeatedly: You don't have to hold a funeral. He is fine". Hearing that, I was instantly convinced: "My grandmother had saved my life. This body does not belong to me as I should have been dead. I had been given life to serve the world—that must be my life's mission". It was an event that could be another birth for me.

Right after the NDE, I had the opportunity to read Brown and Halweil [65] in a university course. I was shocked by the gravity of global environmental problems. Then, I read Lester Brown's "Who will feed China?" [66], which triggered a global discussion about the water crisis and food security around the world. I was very shocked at that time. So I decided to become a hydrologist to tackle global environmental problems. Since then, I have had a lot of opportunities to join inter- and transdisciplinary research projects. I have conducted various fieldwork worldwide, especially in Asian and African countries. I have also conducted environmental measurements, lab experiments, mathematical modeling through various methods, as well as investigations into the history of human activities.

After receiving my doctorate, I began to tackle the fundamental problem common to all of humanity: how to overcome egoism. Since environmental problems are a matter of the human way of life, I thought I had to further study philosophy, religion, and ideology. Thus, I have been studying these from the viewpoint of the history of human civilization as well as exploring the origin of humanity. On the other hand, I have also explored the origin of life and that of the universe by studying the relatively new sciences that have emerged since the 20th century, such as quantum mechanics, quantum field theory, high energy physics, cosmology, neuroscience, epigenetics, nanoscience, spintronics, and so on. I have been pursuing this path because I believe that it is necessary to open new horizons by carefully integrating the individual deep insights that have emerged from the fragmentation of disciplines and by examining the fundamental questions[4] of humanity and nature. I have named this approach "integral studies".

As I pursue integral studies and integral practices, I have been blessed with a series of unexpected encounters. I was acknowledged as a disciple by world-renowned mentors in various academic fields. I also was invited as an accompanying interpreter at international conferences and festivals held in various countries by the Vatican's Pontifical Council for Inter-religious Dialogue. In order to deepen my understanding of myself, I began to practice monastic life in various traditional religions on a daily basis. I have also been practicing cooperation with business owners. When I look back on my life so far, I cannot help saying that I have been guided by some great power rather than me paving my own path.

While pursuing integral studies and integral practices that are yet to be established, I received gentle but harsh criticism around the year 2017 from five people with whom I had connections in very different networks. They were as follows:

> "Yours is idealism. It's not accompanied by religious practice. Professor Anonymous, you sound like the Dengyō Daishi. You are obsessed. You cannot go any further that way. You're given a chance by Buddha right now, so don't think, just follow him."
>
> "You're worn out. When you start dialoguing with yourself, put it in writing, express it, even in simple words. Be aware of whom you wish to communicate to. You are merely talking to something great. Don't be engaged in inward-looking dialogue. You should also do something to communicate your thoughts

> in communicable words to others. Don't let people read between the lines. For example, when you say thank you, no one will doubt it. Being grateful is good for the soul. You can't find anyone as you are looking for someone with the same values. It's your habit."
>
> "You are not equipped with the human capacity to carry out your great academic aspirations."
>
> "You can't get confidence just by reading various books. Once you try Zen, you can gain confidence from there. You can make Zen one of your methodologies."
>
> "You will neglect your body if you continue to live like that. You don't have the eyes of someone who can accomplish something. Don't be so thick-headed, but engage yourself in practice."

At first, I could not grasp the true meaning of these words, but I finally realized it through the investigation of myself. This process is called *Kojikyumei*, a Japanese Zen word, which means "a search for one's true self". I realized I had been under *toraware* to integral studies. Although integral studies was meant to be an approach for creating a healthy future, I was unconsciously caught by its foundations. As a result of reframing this experience, I have come to realize that integration is not the assimilating of the individual into totality or the confinement of the individual in an oppressive whole, as in the case of evil totalitarianism, but the harmonizing of intellect, emotion, and volition as well as goodness, truth, and beauty while opening up or unfolding of intrinsic nature of individual and collective.

Figure 4 illustrates the process of integration. There is said to be three parts in the human mind: the cognitive, the emotional, and the conative. These three parts, when in complete harmony, form personality and enrich it. However, in modern times, we hardly see the harmony of these three parts. We are tied to our own ego, to knowledge, and to organizations such as schools and firms; we are ruled by many prejudices and biases. This is what I call *toraware*. This not only is hazardous but also prevents us from maximizing our potential abilities. The integrity of an individual is retrieved in the process of seeking complete harmony of these three parts. If these three parts work in accord with one another, the possibility of humanity is almost limitless. This is what I mean by integration. Integration is a process of opening or unfolding. This is also what we call "spiritual awakening" or "spiritual conversion". This process is a remembering of who and what you are. "Tat Tvam Asi" in Sanskrit, "Moksha" in Jainism, "Satori" and "Wu" in Buddhism, "Metanoia" (repentance) in Ancient Greek Philosophy, and many others are classic names for this realization.

The state of integration refers to integrity, which derives from the Latin word *integritas*, means wholeness, completeness, and purity [5]. In Japanese, it is translated as *kōketsu-sa* (nobleness), *seijitsu-sa* (truthfulness or honesty), *shinshi-sa* (sincerity), etc. Thus, integrity can also be understood as the degree of wholeness, completeness, purity, nobleness, truthfulness, honesty, and sincerity. On the other hand, the antonym for integrity is "disintegrity", which is attributed to egocentricity. When we are caught by the ego or a stereotype, and when egoism is manifested, our integrity is weakened, and our intrinsic nature becomes unrevealed. Here, being caught means to fall into a state of egoism, including an obsession with the ego, absolutization of certain values and epidemiological frameworks, a bias toward divisive thinking, and a narrowed perspective. In this sense, we can say that nature is not caught by anything. Likewise, we human beings are originally not caught by anything. The state of being caught manifests itself when the ego emerges while we begin to distinguish between the self and others [67–70].

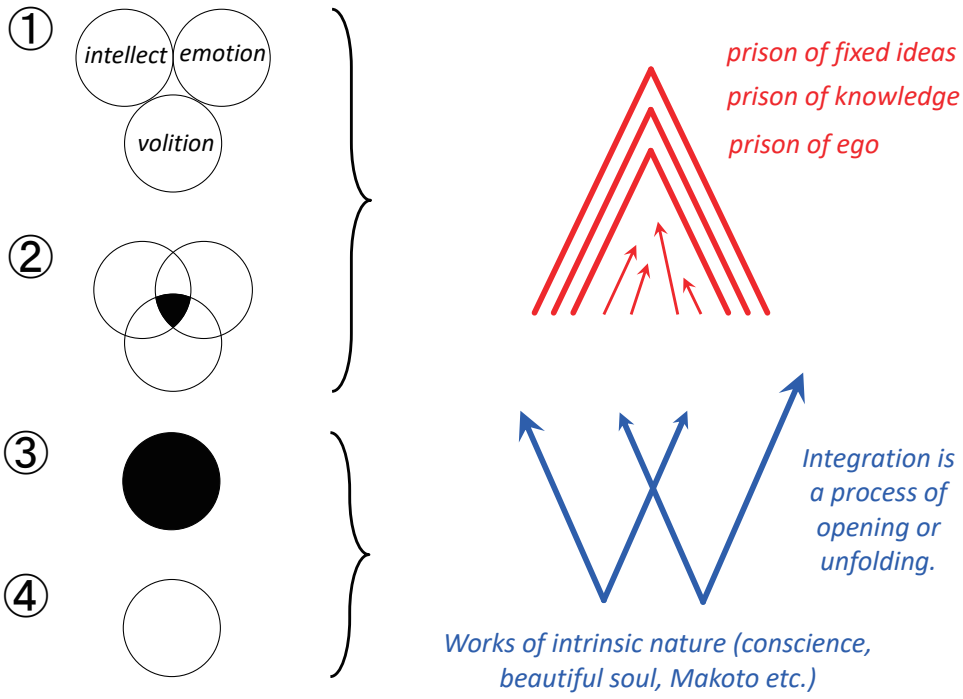

Figure 4. A schematic diagram of the process of integration. The symbol ① shows the state when intellect, emotion, and volition are separated. The symbols ② and ③ show the states of intellect, emotion, and volition when synthesized. The symbol ④ shows the state of intellect, emotion, and volition when integrated. The concept of intellect, emotion, and volition can be replaced with other concepts such as goodness, truth, and beauty.

In the meantime, intrinsic nature refers to the inherent traits of people and nature. I consider the intrinsic nature of human beings to be conscience, beautiful soul, and *makoto* in Japanese[5], whereas the intrinsic nature of nature is to be the universal laws and principles of the Kosmos, which currently are probably beyond modern physics. The exploration of the self and others is necessary to reveal integrity and open up or unfold our intrinsic nature. By exploring the self and others, we will be able to recognize the connection between things we were unaware of, to draw closer to the understanding of the intrinsic nature and wholeness of an individual or a group, to recognize and transcend the state of being caught, and to reveal the intrinsic nature of the self and others. In this sense, integral studies is practice-oriented research on a never-ending exploration of the self and others, ourselves and the world (universe), and humanity and nature. Integral studies and integral practices are for the sake of humanity and nature, namely something great or the harmony of the Kosmos.

3.2. Purpose and Principle of Integral Studies and Integral Practices from the Viewpoint of the Nature of the Universe

The argument above is corroborated by the evolution of the universe. We can trace our origins back to about 13.8 billion years ago. It is said that our universe was created from a "vacuum fluctuation". A vacuum is by no means a space with zero energy but defined in physics as the lowest state of energy. The vacuum is generally thought to be nothing. In reality, however, in vacuum, pairs of subatomic particles emerge and disappear. That process is called fluctuation: energy becomes matter, and vice versa, matter becomes energy. Immediately after the birth of the universe, it is said that the "spontaneous breaking of symmetry" was repeated and the universe was filled with energy. Symmetry is defined as a state of harmony, and the spontaneous breaking of symmetry is the theory that symmetry is

always broken spontaneously. Spaces that are filled with vacuum energy push against each other and begin to expand rapidly. This rapid expansion is called inflation. The universe was heated by this enormous energy, becoming a ball of fire with ultra-high temperature and density. This was the beginning of the Big Bang. In the first three minutes after the birth of the universe, the fundamental forces and the source of all the matters were born. As the ultrahigh-temperature universe rapidly expanded and cooled, elementary particles called quarks came together to form protons and neutrons, which then bonded together to form the nuclei. The electrons then bonded with the nuclei to create atoms that formed galaxies and solar systems. The Earth is similarly held in place by the solar system and the expansive universe [71]. The evolution of life is inextricably linked to environmental changes due to universal factors and continents assembling together and breaking apart [71].

Thus, the birth and evolution of the universe and life are the development of "self-organizing emergent systems" in their interaction with the environment [2,72]. From complex systems, new emergences have been created. Although the conventional conception of evolution has been that of a winner-takes-all situation where the strong destroy the weak and take their place, this is not the case with co-evolution. It is the process of creating new developments (i.e., new forms of life) by contributing to each other's positive elements and helping one another when faced with difficult environments. Human beings in their connections create societies, and human minds are formed through relationships with others. The development of the nervous system of the cerebrum, especially that of mirror neurons, which controls the ability to empathize, is of great importance. This is a form of connection as a consequence of evolution. As a result of evolution, civilization is formed, and here we are. The Cosmos in Cartesian mechanical worldview was an extended dead space, whereas the Kosmos in fact is a "self-organizing emergent system".

From its beginning through to the present, the universe has continually generated new relations every time a particle connects with another particle, a cell connects with another cell, a living object connects with another living object, and a human being connects with another human being. Ito [4] first proposed that it is within the Great Chain of "Cosmic Correspondence" that all life exists together. This is what I believe by symbiosis. Human beings, as a part of nature, create culture and go back to nature. We live today in the context of this long history of "Cosmic Correspondence". Thus, the ultimate principle of symbiosis can be seen as "the enabler of the self-organizing emergence of nature or the Great Chain of Cosmic Correspondence" [4]. This idea contradicts neither modern science nor modern philosophy and religions. It does not deny anything from the past. Therefore, I believe that the return to "Cosmic Correspondence", which enables horizontal transcendence (Figures 1 and 2), can be the principle of "integral studies and integral practices" as well as the source of creating future civilization.

Scientists do not necessarily mention "Cosmic Correspondence". In the subdivision of modern science, we cannot find a description of "Cosmic Correspondence" in any branch of the natural sciences. However, from an integral perspective, it seems to me that such a shift of thinking has already taken place in contemporary cosmology and life science. Indeed, knowledge is accumulating in such an integral way. In this shift of thinking, we must reconsider how our view of nature is changing. Evolution per se is moving forward, and we need to constantly recontextualize the new horizons that emerge as a result of such evolution.

It is also important for each us to ask not only how we should live but also what we live for. The end-of-the-universe scenarios have been predicted by modern cosmology (e.g., [73]). A hypothesis of the hidden multiverse is being suggested. In physics, Krauss [74] said that there was no purpose in the universe. His conclusion is rational based on current knowledge; however, human beings know only a tiny part of reality. Currently, there is no way for human beings to know if there is an ultimate aim or objective purpose of life and whether there is a purpose in the universe. Therefore, no one can know what the objective purpose might be like. We cannot know objectively why we have been born into this world. As Strecher [75] discussed, these big questions are now, for the first time in

history, being studied using the methods of science; however, we are only at the first step in our understanding. Humanity is still in an extremely immature state. Nevertheless, in asking these questions, it is important how extensively and deeply we think. It is important to ask what fundamental questions are investigating the fundamental of the fundamentals.

4. Methodology of Integral Studies and Integral Practices

The core methodology of integral studies and integral practices is the integral exploration of the self and others, ourselves and the world (universe), and humanity and nature. An overview of the exploration is shown in Figure 5. This diagram shows what I think are the fundamental questions for human beings. I propose integral studies and integral practices as a new way for exploration.

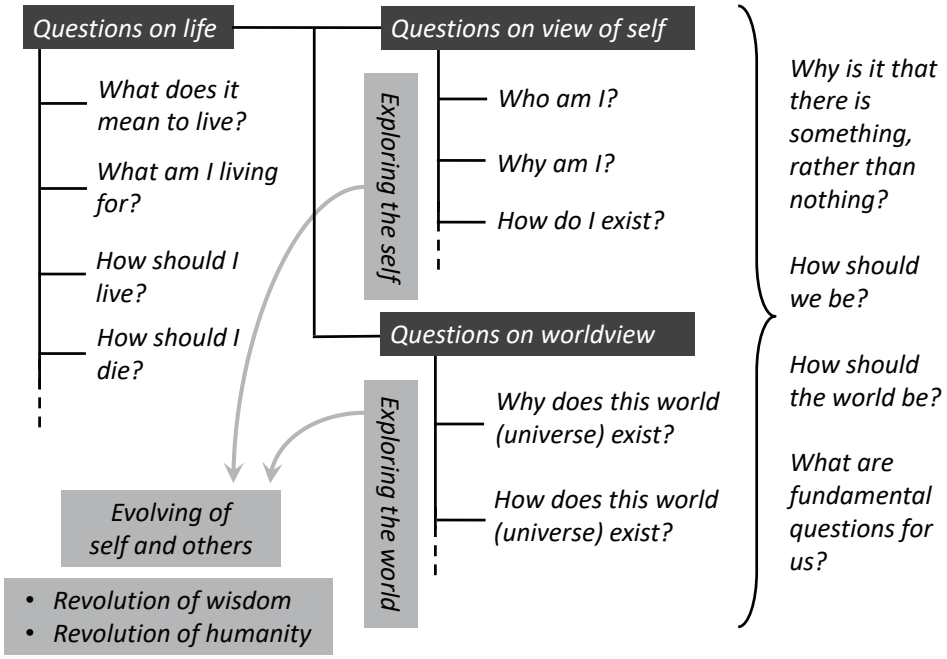

Figure 5. An overview of exploring the self and others, ourselves and the world (universe), and humanity and nature.

Of course, our recognition of the self and others can be deepened through other approaches. There are at least five ways to explore the self and others so as to transcend *toraware*. The first way discovered by humanity is the practice of philosophy, religion, and ideology. While the ways are different from one another, what they have in common is the practice of monastic life for self-transcendence. After that, religions were diversified, resulting in the arts and martial arts. This is the second way discovered by humanity to transcend *toraware*. Through the practice of arts and martial arts, he or she will experience a similar kind of self-transcendence that occurs through religious practice. While ways of exploring the self and others so as to transcend *toraware* have traditionally been religious practices, they are the wisdom of pre-modern philosophers, and they are not fixed eternal truths. Then, the third way of transcending *toraware* discovered by humanity was science. Based on subsequent human experiences, it is now clear that religion and science are not the only ways to transcend *toraware*. The fourth way discovered by humanity is the near-death experience. While they may vary from person to person, notable examples include out-of-body experiences. Changes that occur after NDEs include conviction of the afterlife, increased respect for life, increased compassion for others, overcoming the fear of death, self-transcendence, and belief in reincarnation (e.g., [57–60]). Although such experiences are not common to everyone, a broader interpretation of the NDE would be to

confront one's death seriously. The fifth way discovered by humanity to transcend *toraware* is what Kierkegaard calls "repetition" [76], or reframing the self and others addressing the following questions: (1) What am I caught by and in what state of *toraware* am I subject to? (2) What kind of possibilities are open if I am not in the state of "being caught". More generally speaking, I believe that should we commit ourselves consciously to the exploration of the self and others, we ought to be able to continue to open up or unfold our intrinsic nature not only through integral studies but also through any other practices.

However, from the perspective of integral studies, we should not be caught with a bias toward a single approach, but we should integrate all the five approaches as well as other approaches. We should also explore not just a single entity or a collection of things, but all of them in an integral manner. We should not treat them separately because it has become obvious everything is connected in the universe. The past, the present, and the future are all connected. Hence, it is important to explore everything in an integral manner. That is why I have been exploring new ways and proposing in particular integral studies and integral practices.

At the same time, it is also important to explore the self and others assuming that everything that has ever happened can be nullified. This is because the outcome will vary depending on whether we envision the future assuming that nothing ever happened or the future as an extension of the past. Assuming that nothing ever happened does not mean vandalism or radicalism; rather, it means not being caught by anything, not in *toraware*. For example, the conventional frameworks or models for recognition and thought about the self and others include philosophy, religion, ideology, and science, but are there any other frameworks? If any, what kind of frameworks are possible? For us to move towards an open future, it is important to reexamine fundamentally the frameworks of recognition and thought themselves after thorough investigations into existing philosophies, religions, ideologies, and sciences assuming that all those conventional frameworks did not exist. A completely different future can be created depending on whether we think being constrained by philosophy, religion, ideology, and science, or whether we think in an integral approach without being caught by anything. If we ask what the purposes of philosophy, religion, ideology, and science are, and what the purpose of these purposes is, we can clarify the direction we should go. If we confine ourselves to philosophy, religion, ideology, and science, we will not be able to gain a sufficient insight into answering fundamental questions. We need to raise and discuss fundamental questions from diverse perspectives rather than pursuing only one set of values.

As we explore the self and others in this way, our recognition of them will be transformed, our problems may turn out to be unproblematic, or we may become determined to solve them. This kind of exploration of the self and others is for one's own sake as well as for the benefit of future generations. Being engaged in such exploration together with others, we can nurture our minds, develop our aspirations, and unlock our wisdom with each other. Consequently, we will put it into sincere practice together. This might be called "sapiential innovation", that is, innovation in the wisdom of each individual and in the way of life. In other words, it is an innovation of the interior and exterior aspects of human beings. There is no end to it, and so room exists for future generations to develop. In this way, I believe that society will be transformed into one in which everyone can live with a sense of personal significance, and a positive future will open up to us.

5. Further Scope of Integral Studies and Integral Practices

In order to change the level of humanity, the way of life that is neither friendly to humanity nor nature, I believe that the current prevailing framework of recognition and thought, or paradigm, must change. To achieve this, it is important to elucidate the truly unknown, which cannot be understood within existing frameworks. Specifically, it is important to investigate universal laws and principles of everything, including the physical and the metaphysical. This means exploring universal laws and principles ranging from elementary particles, matter, life, body, mind, soul, spirit to society, and the universe at

large. It will shift the paradigm that can direct the future. By developing an integral theory which is overarching such as the superstring theory and the theory of elementary domains proposed by the late Dr. Hideki Yukawa in his later years [77,78], we may be able to examine the "connection between the real world and the unreal world (the metaphysical world as represented by the soul, spirits, and gods, etc.)" such as NDEs in which my grandmother saved my life. To elucidate the natural law of this dimension, I have been conducting scientific experiments using supercomputers, high-energy accelerators, and so on. I believe the clarification of the connection between the real and metaphysical worlds will lead to transcendence of our state of being caught, *toraware*. This is a shift to a way of life that reveals our intrinsic nature and the salvation of humanity and nature. The imagery of the hypothesis here is that a gate exists between the real and metaphysical worlds, and the gate to the metaphysical worlds opens and closes depending on how we live in the real world. When we live with egoism, the gate closes and we enter into suffering, but when we live a life of conscience and sincerity, the gate opens and we are protected by something great. This hypothesis has a certain scientific basis, but it is still not sufficient (e.g., [64]). However, I believe that further scientific experiments will change the paradigm of humanity and the way human beings live their lives.

Much evidence suggests that the era of living by egoism is over: we have entered an era in which each individual's conscience and sincerity can positively change the world. I would like to contribute to the realization of a world in which all people's conscience and sincerity work together. People can change their ways of life if they are touched by conscience and sincerity. Each individual's way of life, of exploring the self and others, and of opening up or unfolding the intrinsic nature of individual and collective, will be the foundation of civilization in the future. As each of us opens ourselves to the world, people who resonate with this way of life will follow. I consider everything in the universe to be my companions or partners. In this way, I become able to find the potential of everything in the universe. So far, I have lived my life as a researcher, and I believe that researchers are the backbone of society and that their role is to support society. In this world, many wonderful scientific discoveries and technologies exist that are not well-known to the general public and yet that can be applied. However, scientific knowledge and technology are not the only things that should be shared. Each individual's life experience can also be shared for future generations. If each and every one of us lives in a way that inspires one another based on conscience and sincerity while bringing out the intrinsic nature of each other, we can make the most of our respective positions and experiences; then, we can nurture each other. If this way of life spreads throughout the world, the contemporary practical problems that threaten the future of humanity and nature will naturally be solved, and we will have a society in which all people can experience true happiness.

6. Concluding Remarks

This paper is a short sketch of the tentative terminus the author has reached at age 43 in this never-ending journey. Akiyama [64] is the first article I have written as an introduction to integral studies and integral practices. Prior to that, from 2008 to 2013, I had applied Ken Wilber's integral framework [8,79] to conduct research on the environment and education (e.g., [80–84]). Later works include Akiyama [5], Akiyama et al. [85,86], Hattori et al. [87], Masuda et al. [88], and San Carlos et al. [89]. However, none of them are satisfactory: I am still at the beginning of my journey to achieve my life's aim, and I will continue assiduously to search for solutions. With this recognition, this paper is written from the standpoint of someone who will continue to achieve the aim of realizing a society where everyone in the world can live happily for generations to come.

Therefore, I do not claim that what I have argued in this paper is without its faults, errors, and omissions. Seen from my eye, half a century later, this paper would turn out to have been written when I had spent less than half of my life. Whether it is correct or not will come to be verified over time. Therefore, it is my hope that the readers will not be

caught by anything but make their own way in light of their intrinsic nature, and that she or he will judge the rightness of things.

The judgment of what is right is obtained in light of certain criteria. The existing criteria include conscience, sincerity, truth, logic, emotion, rationality, ethics, morality, norms, law, and so on. Furthermore, truth is then categorized into that of philosophy, religion, ideology, and science. Finding the criteria of reference depends on space, time, and people. Some philosophers, religionists, and thinkers advocate universals, such as God or Buddha. They take such transcendent beings to serve as the criteria of rightness. In other words, they name God or Buddha anything that can be called right. There are also philosophers, religionists, and thinkers who respect the transcendents but are not caught by them. By contrast, scientists use mathematical and experimental methods to pursue the scientific truth. They use logic, rationality, and objectivity as criteria for correctness. When a framework of recognition and thought becomes the mainstream among people in the same generation in the world, it becomes a paradigm. However, this does not mean that everyone will accept it, and even if the criteria we adopt are the same, their weight differs depending on space, time, and people. In other words, even if any of the above criteria is shared, the actual situation often differs depending on space, time, and people.

The term "universal truth" exists, but no one in the history of humanity has ever attained it. Universal truth is what is absolutely true in light of absolute criteria that are not relativized by differences in time, space, or people, or what is absolutely true even without reference to any criteria. Since there has never been a truth that has been accepted by everyone, we cannot say that the states and discourses that our predecessors have arrived at are universal truths. The universal truth is something that will continue to be explored.

Nevertheless, we tend to unconsciously absolutize or ideologize something. An ideology is what an individual or group considers self-evident. To absolutize is to assume that something is absolutely true. If we make something an ideology or an absolute, we fall into the state of being caught. Without transcending it, she or he will not develop further. If we insist on ideology or impose it on others, it becomes self-righteousness and self-indulgence, which can cause antagonism, conflict, and strife. Such a phenomenon is prevalent in the world. Ideology and absolutism cannot be separated from the way we think and live. Therefore, it is necessary for each and every one of us to discern what is right and maintain a critical gaze. It is with this hope that I present this paper to the world.

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Abbreviations

The following abbreviations are used in this manuscript:

CO_2	carbon dioxide
COVID-19	Coronavirus Disease 2019
DNA	Deoxyribonucleic acid
IAS	Invasive alien species
ICSU	International Council for Science
IPCC	Intergovernmental Panel on Climate Change
NDE	Near-death experience

Notes

1 The ecosystem refers to a system formed by an ecological community and its environment that functions as a unit.

2 Biodiversity is the variation of life forms, plants, and animals within a given ecosystem, biome, or on the entire Earth. In other words, biodiversity is a measure of variation at the genetic, species, and ecosystem level.

3 My near-death experience was a NDE-like experience in a precise sense. The first reported case was the one that happened to Albert Heim, a Swiss geologist, in a climbing accident [55]. The full-scale research started in the 1960s (e.g., [56]). Characteristics of recent near-death experiences have been described in various ways (e.g., [57–60]). In earlier times, patients who had been

resuscitated after cardiac arrest were the major subjects of the research, and the veracity of a near-death experience was judged with the Greyson scale [61]. In AWARE, the largest-ever project in this area, started by the University of Southampton in the UK in 2008, interviews with 330 patients who were resuscitated after cardiac arrest revealed that 140, or about 40% of them, reported that they were conscious while suffering cardiac arrest [62]. Given the variety of near-death experiences [61], recent research has included the self-reporting of NDE-like experiences without any critical conditions such as cardiac arrest [63],

[4] The fundamental question means the origin of questions that cannot be investigated any further.

[5] I take *makoto* in Japanese, following Ono (1962), to be a pure act, the work of a beautiful soul.

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