Imagining with imaginable: A Holistic Approach to Futures Thinking

Dr. Shams Hamid
Founding Director, IMAGINE-Institute of Futures Studies, Toronto, Canada

Dr. Salman Ahmed Khatani
Assistant Professor, Department of Business Administration , Iqra University, Karachi, Pakistan
Salman.ahmed@iqra.edu.pk

Ms.Sobia Anwexr
Research Scholar
Dubai, UAE

Abstract

The COVID-19 pandemic has brought attention to how interconnected and dependent the globe is, emphasizing the need for a comprehensive and team effort to address local, regional, and international sustainable development issues. The ability to receive and understand data from the outside world, our inner world of emotions, and our memories is known as imagination. It serves as a display for rational evaluation, introspection, and imaginative creation of our instincts, perceptions, emotions, thoughts, and conceptions. The capacity for creative imagination is the capacity to combine sensations and notions to create original ideas that are not always logical or true. We need to be conscious of the three filters that imagination uses to analyze information: the emotional, the intellectual, and the creative. We may create a more comprehensive and integrated approach to problem-solving and decision-making by comprehending these filters and how they interact. The "Theory of Imagination and Imaginables" and the "Model of Imaginables" are presented in this work using an interdisciplinary and transdisciplinary approach. We may design sustainable, just, and compassionate futures by practicing creativity and using a multidisciplinary approach to problem-solving. In addition to contributing to the emerging field of future studies, this study offers a valuable framework for people and organizations trying to understand the intricacies of our linked world.

Keywords: *Imagination, Imaginable, Futures Studies, SDGs, Futures Literacy*

Introduction

Humans have made astounding technical progress in the 21st century, exhibiting previously unheard-of inventions and technological self-improvement (Szlávik & Szép, 2022). These developments push the limits of what is conceivable. However, they also make us wonder if we are sufficiently prepared to understand, adapt, and embrace technology to build a sustainable future (Laouris & Laouri, 2008).

To resolve this challenge, this paper presents the "Theory of Imagination and Imaginables" and a related "Model of Imaginables." These ideas form the basis for developing a thorough pedagogical model specially created to promote a just, sustainable, and humane future for our interdependent and interconnected planet.

To respond to the circumstances, the public has continually created and welcomed new traditions and innovations throughout history with each pandemic outbreak (Chaichinda, 2021; Abualhaija, 2022; Anwar, 2022). The present-day COVID-19 pandemic is no exception, prompting individuals, companies, governments, and the entire human race to seek new ways to survive and thrive actively. The disruptive nature of this crisis resulted in a worldwide standstill, underscoring our lack of preparedness to overcome the challenges posed by the advancing 4th Industrial Revolution, including technological disruptions, climate crises, and global conflicts (Umbarkar et al., 2021; Modliński & Gladden, 2022).

Reil Miller's (Miller, 2018) assertion that 'the future can only be imagined' holds as imagination not only enables us to envision the future but also plays a crucial role in recalling past memories and accessing present reality. Through imagination, we can shape our understanding of the world and navigate the complexities of our existence. This highlights the profound significance of imagination in shaping our perceptions and experiences.

Fortunately, these issues have been identified at some levels, shifting the focus towards sustainable development. Some of the objectives of this movement are restoring and protecting nature, poverty mitigation, communal justice, cross-generational equity, educating the populace, and identifying the factors that contribute to the non-commercial well-being of humans and their natural resources. To achieve these sustainable development goals, we must redefine the benchmarks for progress, growth, and evolution from humanistic and sustainability perspectives (Becker, 2007; Kerekes, 2021).

A comprehensive and collaborative approach to the current world is needed to address local, regional, and global sustainable development problems by envisioning and constructing alternative sustainable futures (Fonseca et al., 2020). The seventeen Sustainable Development Goals (SDGs) are comprehensive, universal, and transformative goals encompassing the significant developmental challenges for the global sphere. If we can only imagine the future, we need to be aware of imagination, how it works, and how we enhance and attain the Agenda 2030. Moreover, these 17 goals are all interconnected and interdependent (UN, 2017).

The information we receive from the external world and internal world is processed through three filters, i.e., emotional, rational, and creative. “Theory of Imagination and Imaginables” is constructed using an interdisciplinary and transdisciplinary approach. This model emphasizes the necessity of harnessing imagination to effectively address the pressing issues of our time, particularly concerning technology and sustainability. The COVID-19 epidemic has highlighted the need for education to be resilient and innovative. By incorporating imagination into the curriculum, students can acquire the abilities necessary to adapt to and embrace technology for a sustainable future. Students are better equipped to navigate complexity and effect positive change when encouraged to think creatively and solve problems. Cultivating a generation capable of proactive reactions and a better future depends on encouraging imagination in education.

Literature Review

Theoretical Framework

The time period in Earth's history when human activity began to have a noticeable impact on the planet's climate and ecosystems is known as the Anthropocene era (Crutzen & Stoermer, 2021). The environment has been significantly impacted by human activities such as population growth, air pollution, agriculture, mining, and water use, which have resulted in changes to the water cycle, imbalances and destruction of marine and terrestrial ecosystems, extreme weather events, ocean acidification, and deforest (The Anthropocene: Human Impact on the Environment, 2015; Owens, 2020). The historian and philosopher Yuval Noah Harari (Harari, 2016) suggests that humans must acknowledge and understand the rapidly evolving 21st-century technology to ensure survival and decode the mind and consciousness riddle. In order to create a better and more sustainable future for everyone, the United Nations General Assembly considered and made plans to accomplish seventeen sustainable development objectives by 2030 (United

Nations, 2015). These Sustainable Development Goals (SDGs) seek to build a safe, tranquil, sustainable, and prosperous world.

The UN Environment Programme suggests the Green Economy model as a remedy because it focuses on social justice and human well-being while lowering environmental dangers. Given the importance of the interaction between human civilization and the biosphere, efforts must be made to promote biodiversity protection, sustainable resource use, and ecological civilization. Creating a better future is within our grasp, and we can shape it by negotiating a global perspective through collective action (Folke et al., 2021; UNEP, 2011; Wang et al., 2021; Sterling, 2021; Waddock, 2022).

"I am because we are" - can lead us to our desired sustainable future (Chowdhury et al., 2021).

The concept of Yin and Yang from the Book of Changes highlights the importance of balancing science and humanism for a harmonious world (Ching, 1980). Natural capital, or the ecological sphere, must be the prime economic principle, and a green economy is needed to achieve sustainability (Natural et al.; UNEP, 2018). For equilibrium, we have to invest our resources and assets into green living, which requires the following guidelines:

1. We have to provide the supplies and resources for this generation and the next one within the capacity and size of our limited planet while living inside the planetary spectrum.
2. These supplies and resources need to be dispensed and disseminated equally within this generation, linking this and the next generation and adjoining humans and other species on this planet.
3. To realize that the limited resources of this planet should be distributed and divided justly, proficiently, and productively for the sustenance of humans' welfare and its dependence on the rest of nature (OECD, 2011).

The world today is characterized by unprecedented global interconnectedness and interdependence. To address our challenges, we need to adopt a constitutive worldview that recognizes the interconnectedness and interdependence of all aspects of the world. The integral theory offers Such a framework, which has been proven to help resolve global issues brought on by human actions that affect all life forms. Duffy, 2020; Goerner, 2002; Hargens, 2005.

Kenneth Earl Wilber II developed the integral theory, which gives a conceptual framework incorporating elements from several fields and ideologies. It offers a framework for appreciating many philosophical traditions and theories, including evolutionary tendencies, and

acknowledging the shortcomings of earlier worldviews. The integral worldview offers a constructivist perspective that validates the local manifestation and evolutionary stage of worldviews and is particularly relevant in addressing the complex challenges of the twenty-first century (Laszlo, 1994; Ken et al.; Ferreira, 2010; Wilber, 1997; Van Egmond, 2011; Knappe et al., 2019).

Human cognition and physicality are unique gifts that distinguish humans from machines (Dong et al., 2020; Miller, 2019). Humans have cognitive flexibility and the capacity to think simultaneously on multiple ideas or switch between contrasting concepts, a valuable competency that machines cannot emulate. Harnessing the mysteries of consciousness and imagination, which are distinct human characteristics, is the new plan to overcome machine intelligence and succeed in problem-solving(Pearson, 2019). Understanding and enhancing imagination are crucial for imagining the future and thriving in businesses, industries, and civilization (Moore, 1977).

The Power of Imagination: Definition and Significance

What is imagination? Is it the ability to embark on flights of fancy during a tedious university lecture or a boring workplace meeting? Is it the ability artists use to create fictional worlds in stories or vivid descriptions in paintings? It is all that and much more.

"The dictionary defines imagination as " the act or power of forming a mental image of something not present to the senses or never before wholly perceived in reality" (Merriam-Webster, n.d.).

"Imagination is the process of building knowledge out of pieces that have been both perceived and imagined. It entails blending internal information from our instinctual, emotional, and cognitive processes with sensory input from the outside world. In order to create new interpretations, ideas, and solutions, this integration is passed via logical, emotional, and creative filters."

The concept of imagination offered in this paper emphasizes the value of both internal and external realms in the formation of novel ideas. While the internal data consists of our unique experiences, memories, intuitions, and sentiments, the exterior data represents the physical world of things and events as they are seen by our senses, ideas, convictions, inclinations, desires, cravings, and urges.

For us to have a broader, more accurate picture of reality, both forms of data are required. The concept also emphasizes how powerful our imagination is in helping us come up with original theories, interpretations, and solutions. We can explore various viewpoints and generate original ideas by mixing and filtering our internal and external data through logical, emotional, and creative lenses. Thus, creativity, invention, and problem-solving all depend on imagination.

The human mind's most potent tool, the imagination, enables us to explore the uncharted and to imaginatively evaluate and understand the information of both the external and internal worlds. Imagination acts as a crucial link between the various pieces of information we learn from both the outside world and our own inner world. It combines our internal thoughts, memories, beliefs, emotions, and intuition with the sensory perceptions, observations, language, media, and experiences we get from the outside. Our intellectual, emotional, and creative faculties can analyze and synthesize this collection of information because of this dynamic interplay, which fosters fresh perspectives, ideas, and creative possibilities.Therefore, imagination serves as a catalyst, effortlessly fusing the fabric of our internal and exterior worlds and allowing us to investigate, comprehend, and derive meaning from the enormous amount of information at our disposal.

To develop new ideas or interpretations through logical, emotional, and creative filters, imagination links data from the external world—as experienced through our senses—and the interior world—as experienced through our instincts, feelings, memory, and intuition. This approach goes beyond everyday rational thinking and enables us to investigate areas of knowledge that have not previously been examined and find connections between concepts that at first glance seem unconnected.

Imagination as a Pathway to Transcendence: Bridging the Physical and Spiritual Dimension

By serving as a potent bridge between the physical and spiritual realms, the power of imagination enables us to transcend the limitations of our bodily existence. It allows us to access the enormous stores of knowledge that exist outside the boundaries of the physical world by opening a channel to our higher consciousness. We embarked on a voyage to explore the divine and dive into the profound depths of the psyche through the power of imagination (Maimes, 2015; Gills, 2012).

We open the door to the possibility of gaining fundamental insights into the nature of reality by exploring the complex workings of the imagination. It turns into a tool that helps us deepen our comprehension of the cosmos and comprehend its complexity and interconnection in fresh and profound ways. For deeper comprehension and awareness, imagination serves as the key (Sanders, 2020; Robinson, 2016).

We transcend the constraints of the material world and embrace the boundless potential within our consciousness when we are in the realms of imagination. We can venture into unknown realms of creativity and innovation by exploring our imaginative capacities, allowing us to soar above the confines of what is known (Ricoeur, 2023).

The essence of who we are is revealed by imagination, which also reveals some of our genuine potential and purpose. It offers a hallowed setting for reflection, self-knowledge, and the development of greater truths. We can weave stories, make art, and actualize ideas that help to alter our reality by using our imaginations (Gosetti-Ferencei, 2018; Hedges, 2014). We begin on a transforming path of self-discovery by harnessing the power of imagination, broadening our horizons, and strengthening our bond with the cosmos at large (Al'Lisha, 2020).

Transcending the Familiar: Unleashing Limitless Creativity and Innovation through Imagination

Imagination can also be used to create works of art, develop new theories, and open up previously unexplored avenues of thought. It is a powerful tool for problem-solving and for developing creative solutions to complex challenges. In essence, imagination is the key to unlocking a world of unlimited potential (Drigas & Mitsea, 2020; Glaveanu et al., 2020). Without imagination, we would be unable to perceive or comprehend anything. When we see an object, its image is projected into our mind with the help of imagination (Langland-Hassan, 2020; Power of Imagination!, 2021). Similar to how information from the outside world via the senses or from the inside world via the feelings is presented to us, so is it through imagination. It is the screen on which we see our world. Imagination presents information through three filters, i.e., emotional, logical, and creative, to process information from the external and internal world.

The Role of Emotional, Logical, and Creative Filters in Imagination

The emotional filter enables us to react emotionally to any information we have received. For instance, reading a text message from our bank about a salary transfer may make us happy, whereas remembering an accident we saw while traveling on the road may frighten and sadden

us. We use the emotional filter through introspection and react differently to different information we receive in a situation.

The second filter is the rational filter, the logical filter for induction and deduction. Our logical reasoning filter, which gives us the ability to form general concepts or the power of abstraction, has increased with the development of language over time. It analyzes the information received from internal and external worlds through reflection for logical analysis to form different concepts or establish cause-and-effect relationships. For instance, when we read text messages on our phones informing us about the prize we won in a competition we never participated in, the logical filter analyzes the information and declares it a scam message. Similarly, looking at the wet road may alert us to ride our bikes slowly because we had slipped on a wet road while riding in the past. Using the logical filter, our imagination has established a relationship between wet roads and the slipping of bikes. Thus, imagination is also the bridge that links our sensible world to our rational world through logical thinking.

Finally, the creative filter analyzes the received information and uses it to create and innovate. We can make or connect those ideas which are not present in reality through this filter. For example, through imagination, we see the concept of flying carpets, and then we create airplanes for flying or hovering boards for transportation. This filter of creative imagination blends impressions, feelings, ideas, concepts, and stored memory through creative or composite imagination. The three filters receive information through our imagination.

The Multifaceted Nature of Perception: From Sensory Input to Creative Adaptation

Perception occurs when we receive information through the sensory world, called sensible in philosophy. For example, when we see a chair, its color, shape, texture, and attributes are received in the mind through the senses separately and combined to form an image of the chair with the help of imagination. We will call it a chair because it is processed through a logical filter to identify the object as a chair when all the information is received. If we are tired and looking for a vacant chair in a park to sit for a while, it will bring comfort and happiness when we see a vacant chair and process the image using the emotional filter. However, if we are out in heavy rain and find a chair, instead of sitting on it, we might use it as a shelter from rain, like an umbrella. This is an improvisation that is only possible when we process the received information using the creative filter. By connecting different ideas, we use the same thing for various purposes.

Critical functions of Imagination:

Imagination performs the following vital functions:

- Imagination is a vital bridge that connects the data and knowledge we discern from the internal and external world to our logical, emotional, and creative faculties for processing.
- Creative imagination combines perceptions, feelings, and ideas to produce original notions and generate innovative ideas that may not always adhere to strict logic or align with tangible reality.

Exploring the World of Imaginables: An Introduction

Imagination is defined as "The ability to form mental pictures of people or things or to have new ideas" (Cambridge Dictionary, n.d.).

In psychology, imagination is the reproduction of images stored in memory with the help of associated images, which is called reproductive imagination (Panchal, 2016). Creating new images is also possible by recombining previous experiences for a specific goal. It also helps provide solutions to existing problems, which is termed creative imagination. Imagination is the creation of new ideas, visions, and worlds beyond limitations(Angell, 1908).

"There are mythologies scattered, broken up, all around us. We stand on a terminal moraine of shattered mythic systems that once structured society. They can be detected all around us. You can select any of these fragments that activate your imagination for your use. Let it help shape your own relationship to the unconscious system out of which these symbols have come." – Joseph Campbell.

Exploring the Spectrum of Imagination: From Sensory Perception to Novel Perspectives:

Creative imagination is separated from sensory imagination and recreative imagination (Currie & Ravenscroft, 2002). It blends sensory impressions from stored memories and past experiences unusually and unexpectedly. The ability to perceive or experience the world from a different viewpoint than one has had in the past is known as the recreater's imagination.(Kind, 2016; Arcangeli, 2022).

Leeuwen (Leeuwen, 2013, 2014) explains the uses of "imagination" in a similar pattern. First and foremost, imagination terms are called constructive imagining, and the information is processed to form mental images or presentations. Second, it also refers to attitude imagining,

which is the reaction or solution of mental presentations. Lastly, the term imagination is used for imagistic imagining, the formation of concepts or ideas from the mental presentations.

Immanuel Kant's View:

Kant's view on imagination is elucidated in his writings "Critique of Pure Reason" (1787) and "The Anthropology from a Pragmatic Point of View" (1798). Kant claims that imagination is the ability that enables us to picture an object even in the absence of direct sensory awareness in the "B edition" of the Critique of Pure Reason (Kant, 1908). He further distinguishes between two functions of the imagination. The first is the productive function, which involves the original presentation of an object that precedes any empirical experience. The second is the reproductive function, which involves recollecting and representing empirical intuitions (Kant, 2006).

David Hume's View:

Hume defines imagination as a process of separating, filtering, and reuniting ideas without a specific direction (Tierney-Hynes, 2007). It allows for the creation of concepts that are not bound by universal principles and can be loosely associated with the past or unrelated to memories. Imagination operates in a non-patterned manner, forming random and unrelated connections. It is a subtle force that commonly and randomly makes associations and connections (Banwart, 1993).

There are three sorts of such principles:

1. Resemblance
2. Contiguity in time and space: "a principle of the association stating that forming connections between ideas, events (e.g., stimuli and responses), or other items depending on their proximity in space or time."
3. Cause and effect

In his exploration of imagination, David Hume identifies two types of relationships formed by it: philosophical and natural relations (Cottrell, 2015).

- Natural relations include all types of relations, including likeness, contiguity in time and space, and cause and effect. They are generated from historical associations where one notion frequently begins the other. The natural quality of these relations forces people's minds from one concept to another. All natural relations can also occur philosophically or arbitrarily by imagination where no natural relation exists.

- Philosophical relations are not linked with past events, and objects are compared or connected arbitrarily through imagination. Hume identifies the philosophical "comparison" list as identity, degrees of quality, number or quantity, and contrariety.

Hume categorizes philosophical relations into two classes: direct comparisons of ideas and associations without comparison. These relations involve resemblance, contrariety, degree, proportions, and numerical relationships, contributing to scientific understanding. He identifies three types of relations: identity, situational, and causation, with the latter being the only one extending beyond sensory perception. Hume makes a distinction between relations of ideas and relations of fact, highlighting the significance of comprehending ideas and tracing them back to their fundamental inspirations, which forms the basis of knowledge. (Streminger, 1980).

Plato's view:

Plato's view on imagination is complex, encompassing both skepticism and recognition of its potential. In his earlier works, Plato portrayed imagination as an unreliable faculty that could lead to deception and illusion, viewing it as a lower form of cognition compared to reason (Bundy, 1922). In his later works, particularly in "The Republic," Plato acknowledged imagination's potential power and positive aspects. He recognized that imagination can serve as a stepping stone toward higher forms of knowledge and truth (McAleer, 2020)

In Plato's theory of the imagination, the primary focus is the irrational aspect of the soul that interacts with the visible world, particularly with images, shadows, and reflections. The ability of imagination to comprehend and analyze images shows that it contributes to higher cognitive processes such as sense perception and knowledge creation. (Thayer, 1977). According to him, people may get momentary views or memories of these higher truths by using their imaginations, which would help them get a better knowledge of the true nature of reality (Bundy, 1922). Plato also acknowledged the significance of imagination in the production of art and narrative (Rutherford, 1995). He acknowledged that artists, poets, and playwrights could harness the power of imagination to inspire and educate others (Belfiore, 2011). He also expressed concerns about the potential for art and literature to evoke strong emotions and sway individuals away from reason and virtue(Harper, 2021).

Aristotle view:

Aristotle examined the role of imagination in perception, memory, and creative thinking in his treatise "De Anima" (On the Soul). According to Aristotle, imagination plays a crucial role in the

process of perception. He believed that imagination filled in the gaps by creating mental images or representations of objects that imagination in the learning process, as children and young learners heavily relied on imagination to comprehend are not physically present(Karnes, 2019; Aristotle, 1986). Imagination involves the formation of mental images by retaining and reproducing sensory experiences, serving as a basis for thinking, reasoning, and memory. Aristotle recognized the creative aspect of imagination, which allowed for the recombination of existing sensory impressions to generate new ideas, concepts, and possibilities (Aristotle | Biography, Works, Quotes, Philosophy, Ethics, & Facts, 2023). Aristotle saw imagination as closely connected to memory, relying on the retention of mental images formed through imagination. In terms of education, Aristotle emphasized the importance of abstract concepts and acquired knowledge. By connecting sensory experiences with imaginative representations, individuals can grasp complex ideas and make sense of the world around them (Shields, 2016).

Shahāb ad-Dīn Yahya ibn Habash Suhrawardī's View:

Suhrawardi believed that imagination was a faculty that allowed individuals to access higher levels of reality and perceive spiritual realms. Takhayyul (conceptual imagination) and Tamthl (imaginative perception) are the two types of imagination. Takhayyul refers to the formation of mental images, while tamthīl involves imaginative perception, where individuals can directly apprehend the spiritual realities beyond physical appearances. Imagination serves as a bridge between the sensory and intellectual realms, enabling individuals to access higher knowledge and spiritual insight (Maftouni, 2013). Suhrawardi viewed imagination as an active and transformative power that played a crucial role in spiritual contemplation, mystical visions, and the purification of the soul. Through disciplined and focused imagination, individuals can attain a deeper understanding of the divine (Shafiei & Ghahi, 2011).

Muḥyī al-Dīn Ibn al-ʿArabī's View

According to Ibn Arabi, an image represents the combination of two sides, simultaneously embodying both sameness and difference. The mirror image is an example, as it simultaneously represents the object and its reflection. The Stanford Encyclopedia of Philosophy further explains that images exist and do not exist concurrently with nature, and imagination is the faculty that perceives concepts as images and recognizes their simultaneous truth and falsehood (Chittick, 2019). Concepts cannot be classified as true or false (Corbin, 2013).

Ibn Arabi posits that the heart encompasses two faculties, imagination and reason, which shape perception and awareness. Despite being a unified consciousness, the heart is aware of its own oscillations and adjusts perception through the eye of reason or imagination. Imagination has the capacity to unify perceptions, while reason can discern attributes through knowledge, intellect, and rationality (Chittick, 1994; Rahman, 1964).

The internal world of emotions and the external world of sensations are connected via imagination. Sensory perceptions and emotions are transformed into iconic imaginables through the process of imagination. These imaginables undergo further processing, including logic, introspection, and creative imagination, resulting in indexical imaginables. Finally, semantic models are applied to the indexical imaginables, transforming them into symbolic imaginables. Throughout the history of philosophy, from various eras, including modern, medieval, and classical, imagination has been recognized as the crucial conduit between the world of senses and the intelligible world.

The object borne out of imagination is an intermediary between the two levels called "Imaginable."

The Differentiation of Sensible, Imaginable, and Intelligible Realms

It is essential to differentiate between what is described as 'intelligible,' 'sensible,' and 'imaginable.'

Imagination not only represents the intelligible ideas in imaginable forms to aid the reflection, but it also represents the sensible as the imaginable form to aid judgment. Hence, in both functions, imagination is a true intermediary between the senses and the intelligible world. Imagination produces images or "imaginable" that can be seen by the mind's eye or by external or actual eyes. It is termed imagination proper when it creates mental images seen through the mind's eyes.

The material for images created through imagination comes from the external world through sense experience. A person can evoke images in their mind by recreating scenes from past experiences or conceive them just in the mind as one does in daydreaming.

The points that we want to emphasize are:

- Imagination creates or deals with its genre of being - Imaginable- different from the sensible and the intelligible.

- Imagination is the necessary intermediary between the intelligible and the sensible world, and nothing can be rendered meaningful unless it is presented as "Imaginable" through the action of imagination.
- Whether using reason as an abstract faculty for judgment-making or involving interaction between reason and sense experience, all cognitive processes are necessarily mediated by imagination.
- Imagination mediates all the conscious processes and precipitates human reflexive activities.
- Imagination simulates threatening and painful stimuli of the environment in our mind to assist in triggering instinctual defense mechanisms.

Imagination is vital to all cognitive processes, playing a pivotal role in our understanding and interpretation of the world. Its output is called the "imaginable," distinct from the products of reason and sense perception. Understanding the nature of imagination and its product is crucial to exploring how it has been received in human society. Indeed, the product of imagination has not only an individual end-user but also a social one. In this context, it is worth considering how the product of imagination can be harnessed and utilized in education.

The Dual Nature of Imagination: Unconscious Organization and Conscious Creativity:

Imagination gives form to the content received by our five senses and the inner sense through which we feel emotions. In this case, imaginable form is carved from objects we perceive through our sense experience. Hence, when we receive the sense data of a chair, our imagination organizes that data in space and time and produces the image of a chair for us. At this level, imagination works without our being conscious of its work.

However, imagination also operates at a conscious level when we actively engage in creative thinking or daydreaming. In such instances, imagination becomes a tool that aids our reasoning process by providing imagery and visual representations of the concepts we are contemplating. This conscious utilization of imagination enhances our ability to explore ideas and generate new possibilities.

Imaginable forms can be categorized into three types: Iconic, Indexical, and Symbolic. Iconic imaginables bear a close resemblance to the perceptible form of the being they represent. Indexical imaginables represent inferences generated from iconic imaginables. Symbolic imaginables, on the other hand, represent content in an arbitrarily chosen form that acquires

meaning through convention. These categories help to clarify how imagination transforms sensory data and emotions into a mental representation of the world around us.

The Inner Sense: Emotions and Feelings in Imagination

Imagination is a complex cognitive process that involves combining sensory data and lived experiences. The Stanford Encyclopaedia of Philosophy (Summer 2019 Edition) states that observation, perception, and sensation are the building blocks of experiences. These experiences shape our conscious and unconscious processes and create different forms of imaginable. Meanwhile, imagination expands our experiences based on dreams and fantasies. The expression fills the gap between different experiences (Zittoun & Cerchia, 2013).

The ability to transcend sensory perception and generate ideas and mental images is known as imagination. It combines our sensory data with our inner sense of experience, including feelings and emotions, to produce what is known as the iconic imaginable (Markman, 2020). Our conscious and unconscious processes shape this iconic imaginable, generating many mental representations.

One can use their imagination to widen their knowledge of the world, according to Vygotsky's idea of the zone of proximal development (ZPD) (Vygotsky, 1978). In other words, the iconically imaginable can serve as a bridge between what we can accomplish on our own and what we can accomplish with the help of others.

The Iconic Imaginable: Unifying Perception, Imagination, and Social Cognition

The concept of the iconic imaginable is influenced by umwelt, referring to the unique sensory world experienced by different organisms (Paresky, 2015). Imagination, as emphasized by Kant (1781/2003), unifies our sensory inputs into a coherent perception of objects.

Neuroscience research highlights imagination's significant role in social cognition. Mirror neurons suggest that the neural pathways of an observer "mirror" the actions and emotions of an actor, enabling us to simulate and understand others (Rizzolatti & Craighero, 2004). Based on sensory-motor mimicry and associative learning, this simulation system contributes to forming the iconic imaginable (Asma, 2021).

Consciousness and imagination pose challenges for cognitive neuroscience due to their subjective nature. However, fMRI and PET enable investigations into how imagination generates explicit and implicit sensory information and combines imagery with concepts to form mental images and hypotheses (Pearson et al., 2015).

The iconic imaginable is a complex phenomenon shaped by sensory experiences, emotions, and cognitive processes. It is essential for broadening our perspective and comprehension of the world.

Network science connects brain networks to cognitive networks, advancing neuroscience by exploring the relationships between brain, behavioral, computational, and cognitive networks (Medaglia et al., 2015a). This interdisciplinary approach quantitatively analyzes creativity, linking imagination, creativity, and innovation with neural flexibility through neural networks (Kenett, 2018).

The Indexical Imaginable: Exploring Connections, Counterfactual Thinking, and Conceptual Frameworks

An Indexical sign hints towards something else, like smoke indicates fire. The Indexical imaginable is the Indexical sign. It is represented as a hint or indication of something else. The appearance of a demonic face in one's imagination can be interpreted as the coming of a catastrophe. Whatever we perceive on an iconic level, the blending and mixing of the information received and gathered starts on an indexical level.

A distinct capacity of the creative faculty of our imagination is our magical thinking; philosophers call this ability of magical thinking "counterfactual thinking."

Counterfactual thinking creates a second universe where we project probable outcomes and index received information (Modell, 2003). Imagination is associational, connecting the dots and linking ideas and concepts, actively constructing new knowledge, and adopting new behaviors. It is composed of informational data and fundamental emotional and associative components at the iconic level.

The Indexical imaginable is about reflecting, understanding, and creating connections. The components of the Indexical imaginable for further processing of the sensory, emotional, and instinctual data are reason, introspection, and creative imagination. Introspection can be further practiced through mindfulness and self-reflection. The technique for reasoning can be practiced using the Socratic method of questioning. Finally, creative ideas can be processed with the help of art.

According to David Eagleman's thesis in "The Brain: The Story of You," the human brain's two halves interact with one another in a web, and humanity's achievements can be viewed as the works of a single, mutating meta-organism (Eagleman, 2011). As the underlying element of our

perceptions and thoughts and an integral part of intelligence, cognizance, and metacognition, concepts are vital to thinking, perceiving, and believing (Margolis & Laurence, 1999). Concepts enable us to make conjectures, build logical frameworks, link the real and the imaginary, and examine the data and logic supporting any theory. In addition, concepts play a crucial role in cognitive research and are increasingly utilized in cutting-edge technical sectors (Carey, 1999). The three typical methods for comprehending ideas in contemporary philosophy are as follows:

1. These are the mental representations and entities that exist in the mind and can be thought of as concepts.
2. Concepts such as aptitudes or mental states are mental capabilities/ distinctive/ characteristics of cognitive agents where massive data for computation are required.
3. Concepts as abstract objects are also called “Fregean Senses”: the distinction between references and senses, where reference is the name of the object it indicates, while sense is what the name expresses.

Exploring the Power of the Symbolic Imaginable in Knowledge Creation

The Symbolic imaginable is represented by a Symbolic sign, which lacks resemblance to the object it represents and is interpreted based on convention. Imagination allows us to perceive and interpret sensory stimuli, such as hearing a lion's roar and understanding it as the concept of a lion. Concepts become imaginable through the process of the sensible imagination, providing them with a recognizable form (Boulter, 2016).

Imagination is significant in concept formation, enabling knowledge creation and sharing (Boulter, 2016). Semantic memory's effect on creativity has been statistically investigated using network neuroscience, which has revealed that individual networks are responsible for variations in creativity (Kenett, 2018; De Deyne et al., 2016b). Understanding the interconnectivity between brain networks and cognitive processes is crucial in studying higher-order thinking and perception, and network science provides a framework for investigating this relationship (Medaglia et al., 2015a; Medaglia et al., 2015b).

Various techniques are available for presenting, processing, and categorizing information, such as mind mapping, concept mapping, cognitive mapping, and semantic modeling. Mind mapping can elicit learners' initial responses, concept maps can analyze and evaluate learners' conceptual understanding, cognitive mapping can assess responses after logical analysis and creative imagination, and semantic modeling can evaluate linguistic and logical consistency (references).

The selection and implementation of these techniques depend on the learning objectives, content, and target audience, allowing for an enhanced learning experience, critical thinking, and insight into learners' comprehension and retention of the material.

Imagination and Model of Imaginables: Exploring the Interconnected Worlds of Learning

The awareness of one's own thinking or learning process, also known as metacognition, is the awareness of awareness. The following is a summary of the proposed education model based on the abovementioned theory of imagination.

The information flows both ways from the Interconnected and interdependent Internal (Virtual world) and External world (Actual World) of the subject who selects the information, processes it and responds to it.

Sources of Information are the Internal (virtual world) and External world (actual / Real-world).

The information input is of three types:

- Sensible (from the external world)
- Feeling (from the internal world)
- Intelligible/concept (from the external and internal world)

Perception involves converting sensory and emotional input into a format that can be processed by the imagination—the iconic imaginable acts as the foundational stage of the creative thinking process. But the iconic imaginable is changed into the indexical imaginable by contemplation, introspection, and creative imagination.

Emotions are processed through introspection, concepts are processed through inference and deduction, and numerous sensations, feelings, and ideas are combined through composite imagination during this transformation process. In this sense, imagination is a vital tool for converting sensory and emotional information into a format the mind can understand.

Combining logical reasoning, self-reflection, and imaginative creation results in the metamorphosis of the iconic imaginable into the indexical imaginable. This process makes it possible to combine many experiences, feelings, and ideas, which results in a more in-depth and nuanced understanding of the subject matter.

Finally, through the use of the symbolic imaginable, imagination is essential to the production and articulation of the indexical imaginable. This makes it possible to communicate and exchange creative insights and ideas.

The practical application of imagination in education is suggested through the following methods:

For presenting input: Use emotional, logical, creative content and exercise.

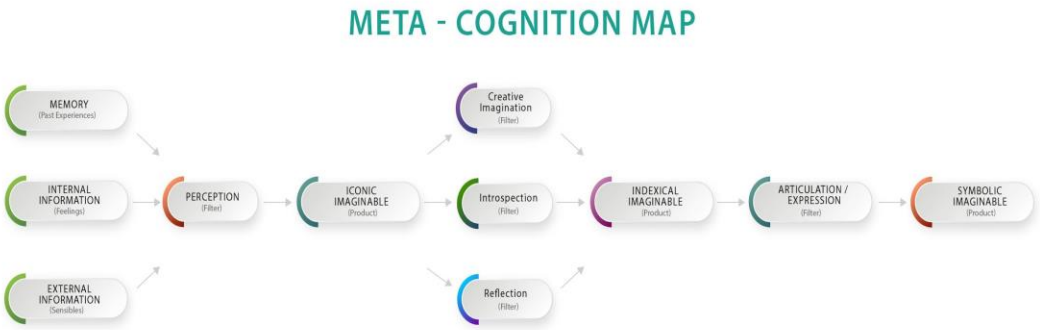
For assessing the result of input /presentation: Use Mind Mapping (to examine the iconic imaginable elicited through brainstorming).

For processing iconic imaginable: Use Reflection/Reasoning, Introspection, and Creative Imagination.

For assessing indexical imaginable: Use Concept Mapping

For processing the indexical imaginable and assessing the symbolic imaginable: Use the Semantic model

Figure 1



Understanding metacognition aids learners in enhancing and improving their learning skills and creating knowledge.

Visualizing the Future: How Imaginables Drive Change

It contributes to a better comprehension of how imagination influences the future. People are encouraged to explore the potential of their own imaginations in imagining and creating a better future because it is known how important imagination is in problem-solving, creativity, and innovation. A more comprehensive and nuanced vision of the future is fostered by imagination. Recognizing and appreciating the diversity of viewpoints and life experiences that people bring to the table is a necessary step towards adopting a more open and inclusive approach to future thinking. The three thinking filters of emotional, rational, and creative thinking can be used to empower and encourage people to use their imaginations in problem-solving, creativity, and invention.

Achieving a more open and inclusive approach to future thinking requires us to acknowledge and address the biases and assumptions that may be implicit in our own thinking. This entails critically assessing one's own experiences and viewpoints in order to understand how they could affect how we perceive the world.

Conclusion and Discussion

Many people today lead hedonistic lives, engrossed in the numerous recreational pursuits made possible by simple life. However, the other half is so lacking in requirements that they are also oblivious to how times have changed. In essence, neither group is aware of their surroundings or their own minds. Being conscious means having the quality of consciousness necessary to feel, think, perceive, reason, and judge. If we want to create a future where we may live in peace and prosperity, it is crucial that we take ownership of our actions.

In addition to being a mental skill, imagination is a tremendous tool for visualizing the future, spotting alternative outcomes, and coming up with creative answers to challenging issues. We can explore the potential of what might occur through imagination and imagine a future that is consistent with our goals and ideals.

The building blocks of imagination are known as imaginable, and they are created by combining information from the senses, emotions, and past experiences. The initial perceptions or ideas that arise in reaction to sensory and emotional inputs are known as iconic imaginable. These initial perceptions or ideas are subsequently processed through reason, reflection, and creative imagination to become indexical imaginable. The indexical imaginable is expressed in language to take the form of the symbolic imaginable. These various hypothetical stages are a reflection of the complex and recursive nature of imagination, which is constantly interacting with sensory perception, emotions, memory, instincts, desires, drives, and logic.

Imagination, and imaginable are crucial tools for exploring various situations, spotting potential hazards and opportunities, and imagining novel solutions in foresight and futures thinking; We can foresee possible issues and create solutions before they become serious by visualizing other scenarios. Additionally, using our imaginations, we may develop a common future vision that will motivate group effort and spur radical change.

The formation of indexical and symbolic imaginable is especially important in futures thinking because it allows us to articulate and communicate our visions of the future. We can engage a

wide range of stakeholders, bring their interests and values into alignment, and inspire group action toward a common objective by developing clear and appealing narratives about the future. Furthermore, it can be simpler to identify potential obstacles and roadblocks and come up with solutions when we define our future ambitions in clear and understandable language.

Therefore, it is impossible to overestimate the importance of imagination and the imaginables in determining our destiny. It is essential to develop our capacity for imagination as futurists in order to explore many situations, spot potential hazards and possibilities, and imagine creative solutions. We may create more complex and nuanced future visions that can catalyze dramatic change by comprehending the various stages of imaginables and how they are created. Ultimately, the world we want to live in will be significantly influenced by our capacity to envision and communicate a common destiny.

"*Imagination is more important than knowledge. For knowledge is limited, whereas imagination embraces the entire world, stimulating progress, giving birth to evolution*." -Albert Einstein.

References

Abualhaija, M. (2022). Change and resistance to change during COVID-19. *Proceedings of IHSES*, 117–124.

Agrawal, S., & Kaur, J. (2019). Kafkaesque: Awe, menace, and power relations in *The Castle*, *The Trial*, and *The Metamorphosis*. *Journal of English Language and Literature, 6*(1), 166–173.

Angell, J. R. (1908). *Psychology: An introductory study of the structure and function of human consciousness*. H. Holt.

Anwar, M. F. (2022). Post-COVID-19 world. *World Futures, 78*(8), 517–528.

Arcangeli, M. (2022). The creative side of recreative imagination.

Aristotle. (2023, April 24). In *Encyclopedia Britannica*. https://www.britannica.com/biography/Aristotle/Philosophy-of-mind

Aristotle. (1986). *De anima (On the soul)*. London: Penguin.

Asma, S. T. (2021). *The evolution of imagination*. University of Chicago Press.

Banwart, M. E. (1993). *Hume's imagination*. P. Lang.

Baerten, N. (2019). Napkin futures: Fragments of future worlds. *Journal of Futures Studies, 23*(4), 117–122.

Becker, J. (2007). How frameworks can help operationalize sustainable development indicators. *World Futures, 63*(2), 137–150.

Belfiore, E. (2011). The transformative power of the arts: History of an idea. In *The Routledge international handbook of creative learning* (pp. 27–35). Routledge.

Bendor, R., Eriksson, E., & Pargman, D. (2021). Looking backward to the future: On past-facing approaches to futuring. *Futures, 125*, 102666.

Bundy, M. W. (1922). Plato's view of the imagination. *Studies in Philology, 19*(4), 362–403. University of North Carolina Press.

Chaichinda, N. (2021). The deadly virus has changed the ways of the world. *Interdisciplinary Sripatum Chonburi Journal (ISCJ), 7*(2), 1–9.

Chittick, W. (2019). Ibn ‘Arabî. *Stanford Encyclopedia of Philosophy*. https://plato.stanford.edu/entries/ibn-arabi/

Corbin, H. (2013). *Creative imagination in the Sufism of Ibn 'Arabi* (Vol. 91). Routledge.

Cochrane, T., & Munn, J. (2020). Integrating educational design research and design thinking to enable creative pedagogies. *Pacific Journal of Technology Enhanced Learning, 2*(2), 1–14.

Cottrell, J. (2015). David Hume: Imagination. Fabian Dorsch - *Rero Doc Digital Library*, 1–28.

Crutzen, P. J., & Stoermer, E. F. (2021). The ‘Anthropocene’ (2000) (pp. 19–21). Springer International Publishing.

Currie, G., & Ravenscroft, I. (2002). *Recreative minds: Imagination in philosophy and psychology*. Oxford University Press.

De Deyne, S., Navarro, D. J., Perfors, A., & Storms, G. (2016). Structure at every scale: A semantic network account of the similarities between unrelated concepts. *Journal of Experimental Psychology: General, 145*(9), 1228. https://doi.org/10.1037/xge0000192

Deland, L. F. (1909). *Imagination in business*. Harper & Brothers.

Dong, Y., Hou, J., Zhang, N., & Zhang, M. (2020). Research on how human intelligence, consciousness, and cognitive computing affect the development of artificial intelligence. *Complexity*, 2020, 1–10.

Drigas, A., & Mitsea, E. (2020). The 8 pillars of metacognition. *International Journal of Emerging Technologies in Learning (iJET), 15*(21), 162–178.

Duffy, J. D. (2020). A primer on integral theory and its application to mental health care. *Global Advances in Health and Medicine, 9*, 2164956120952733.

Folke, C., Polasky, S., Rockström, J., Galaz, V., Westley, F., Lamont, M., ... & Walker, B. H. (2021). Our future in the Anthropocene biosphere. *Ambio, 50*, 834–869.

Fonseca, L. M., Domingues, J. P., & Dima, A. M. (2020). Mapping the sustainable development goals relationships. *Sustainability, 12*(8), 3359.

Gibbard, P., Walker, M., Bauer, A., Edgeworth, M., Edwards, L., Ellis, E., ... & Ruddiman, W. (2022). The Anthropocene as an event, not an epoch. *Journal of Quaternary Science, 37*(3), 395–399.

Ginocchio, M. A. (2021). Creating a future through the power of imagination.

Gills, J. P. (2012). *Imaginations: More than you think*. Charisma Media.

Glăveanu, V. P. (2018). Perspectival collective futures: Creativity and imagination in society. In *Imagining collective futures: Perspectives from social, cultural and political psychology* (pp. 83–105).

Gosetti-Ferencei, J. A. (2018). *The life of imagination: Revealing and making the world*. Columbia University Press.

Hedges, C. (2014). The power of imagination. *Truthout*. https://truthout.org/articles/chris-hedges-the-power-of-imagination/

Jalonen, H., Lehti, M., Tonteri, A., Koskelo, M., Nousiainen, A. K., & Jäppinen, T. (2017). *From signals to future stories: A handbook for applying foresight in the field of welfare*. Turku University of Applied Sciences. https://julkaisut.turkuamk.fi/isbn9789522166517.pdf

Jones, M., & Circumference, M. B. (2011). Transforming leadership through the power of the imagination. In *Leadership for transformation* (pp. 65–80).

Kant, I. (1908). *Critique of pure reason* (1781). In *Modern classical philosophers* (pp. 370–456). Houghton Mifflin.

Kant, I. (2006). *Anthropology from a pragmatic point of view*. Cambridge University Press.

Karnes, M. (2019). *Imagination, meditation, and cognition in the Middle Ages*. University of Chicago Press.

Kenett, Y. N. (2018). Investigating creativity from a semantic network perspective. In *Exploring transdisciplinarity in art and sciences* (pp. 49–75). Springer, Cham.

Kerekes, S. (2021). Chasing the impossible: Sustainable development is a wicked problem, but it can and should be tamed. *World Futures, 78*(7), 419–439.

Kind, A. (2016). Introduction: Exploring imagination. In *The Routledge handbook of philosophy of imagination* (pp. 1–11). Routledge.

Knappe, H., Holfelder, A. K., Löw Beer, D., & Nanz, P. (2019). The politics of making and unmaking (sustainable) futures. *Sustainability Science, 14*, 891–898.

Langland-Hassan, P. (2020). *Explaining imagination*. Oxford University Press.

Laouris, Y., & Laouri, R. (2008). Can information and mobile technologies serve to close the economic, educational, digital, and social gaps and accelerate development? *World Futures, 64*(4), 254–275.

Luangkrajang, M. S. (2022). Use of mind-mapping in language learning: A cognitive approach. *Theory and Practice in Language Studies, 12*(8), 1616–1621.

Maftouni, N. (2013). The foundations and consequences of Suhrawardi's theory of imagination. *Philosophy and Kalam, 46*(1), 133–146.

Marien, M. (2002). Futures studies in the 21st century: A reality-based view. *Futures, 34*(3–4), 261–281.

McAleer, S. (2020). *Plato's "Republic": An introduction*. Open Book Publishers.

McDowell, A. (2019). Storytelling shapes the future. *Journal of Futures Studies, 23*(3), 105–112.

McElroy, B. (1985). The art of projective thinking: Franz Kafka and the paranoid vision. *Modern Fiction Studies, 31*(2), 217–232.

Mecartney, S. (2022). Futures and the power of imagination for transformation. *A Compendium of Pacific Practice in Strategic Foresight*, 48.

Mehnert, W. (2021). Building possible worlds: A speculation-based framework to reflect on images of the future. *Journal of Futures Studies, 25*(3), 25–38.

Medaglia, J. D., Lynall, M. E., & Bassett, D. S. (2015). Cognitive network neuroscience. *Journal of Cognitive Neuroscience, 27*(8), 1471–1491.

Miller, A. (2019). The intrinsically linked future for human and artificial intelligence interaction. *Journal of Big Data, 6*(1), 38.

Mitchell, J., & Lapata, M. (2009). Language models based on semantic composition. In *Proceedings of the 2009 conference on empirical methods in natural language processing* (pp. 430–439).

Modell, A. H. (2003). *Imagination and the meaningful brain*. MIT Press.

Modliński, A., & Gladden, M. E. (2022). An organizational metaphor for the 4th industrial revolution: The organization as Cyborg. *World Futures, 78*(6), 372–391.

Moore, S. R. (1977). Justice and imagination: The necessity of utopian thinking to a humane social order. *The Philosophy Forum, 15*(1–2), 69–81.

Noel, L. A. (2022). Dreaming outside the boxes that hold me in: Speculation and design thinking as tools for hope and liberation against oppression. *Journal of Futures Studies, 26*(3).

Nuyen, A. T. (1996). Lyotard's postmodern ethics. *International Studies in Philosophy, 28*(2), 75–86.

Ollenburg, S. (2018). Beyond futures: Designing futures by educating future designers. *World Futures Review, 10*(4), 279–293.

O'Brien, R., & Forbes, A. (2021). Speculative futuring: Learners as experts on their own futures. *Journal of Futures Studies, 26*(2), 19–36.

Owens, P. N. (2020). Soil erosion and sediment dynamics in the Anthropocene: A review of human impacts during a period of rapid global environmental change. *Journal of Soils and Sediments, 20*, 4115–4143.

Pearson, J. (2019). The human imagination: The cognitive neuroscience of visual mental imagery. *Nature Reviews Neuroscience, 20*(10), 624–634.

Polak, F., & Boulding, E. (1973). *The image of the future*. Elsevier Scientific Publishing Company.

Rahman, F. (1964). Dream, imagination and 'Ālam al-Mithāl. *Islamic Studies, 3*(2), 167–180.

Ricœur, P. (2023). *Lectures on imagination*. Edited by George H. Taylor, Robert W. Sweeney, Jean-Luc Amalric, & Patrick F. Crosby. University of Chicago Press.

Robinson, G., & Rundell, J. F. (2016). *Rethinking imagination*. Routledge.

Roine, H. R. (2016). Imaginative, immersive, and interactive engagements: The rhetoric of worldbuilding in contemporary speculative fiction.

Rutherford, R. B. (1995). *The art of Plato: Ten essays in Platonic interpretation*. Harvard University Press.

Sanders, S. R. (2020). *The way of imagination: Essays*. Catapult.

Shafiei, F., & Bolkharie Ghahi, H. (2011). Artistic imagination in the Illuminationist Theosophy of Suhrawardi. *Metaphysics, 3*(9), 19–32.

Shields, C. J. (Ed.). (2016). *Aristotle: De Anima*. Oxford University Press.

Skov, M., Stjernfelt, F., & Paulson, O. B. (2017). Language and the brain's 'mental cinema.' In *Image, Eye and Art in Calvino* (pp. 185–200).

Sterling, S. (2021, May). Educating for the future we want. In *The pedagogy of transition*. Great Transition Initiative.

Streminger, G. (1980). Hume's theory of imagination. *Hume Studies, 6*(2), 91–118.

Szlávik, J., & Szép, T. (2022). A framework of risks in the context of industry 4.0, related to sustainability. *World Futures*, 1–24.

Thayer, H. S. (1977). Plato on the morality of imagination. *The Review of Metaphysics*, 594–618.

Thompson, N. A. (2018). Imagination and creativity in organizations. *Organization Studies, 39*(2–3), 229–250.

Tierney-Hynes, R. (2007). Hume, romance, and the unruly imagination. *Studies in English Literature, 1500–1900*, 641–658.

Trigona, R. (2021). The human relationship—Environments: An epistemological and anthropological perspective on Anthropocene. *World Futures*, 1–13.

Umbarkar, A., Serafin, N., & Betti, F. (2021, November). How fourth industrial revolution tech helped companies survive the COVID crisis. *Proceedings of the World Economic Forum*.

Vygotsky, L. (1978). Interaction between learning and development. In *Readings on the development of children* (pp. 34–41).

Waddock, S. (2022). Art, transformation, and the social imaginary. *World Futures, 78*(7), 419–439.

Wang, D., Liu, N., Chen, X., & Xian, Y. (2021). Harmonizing the relationship between humans and nature for sustainable development: UNESCO's Man and the Biosphere Programme in China. *Bulletin of Chinese Academy of Sciences*, 36(4), 448–455.

Wilber, K. (1997). An integral theory of consciousness. *Journal of Consciousness Studies, 4*(1), 71–92.

Zittoun, T., & Cerchia, F. (2013). Imagination as expansion of experience. *Integrative Psychological and Behavioral Science, 47*(3), 305–324.