

A Proposal for COIL-based Curriculum Design Incorporating Future Skills Enhanced with Active and Authentic Learning, and Integrity in New Education Normal

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Abstract

A new authentic educational paradigm in the post-pandemic era, i.e., the New Education Normal, is proposed in this paper. Such a paradigm de rigueur incorporates 21st-century skills elaborated in Kharbach (2024). An integrated curriculum incorporating lifestyle, cultural values, regional history, STEAM, and entrepreneurship, is introduced for learners to engage in collaborative gLocal learning through online learning across the border of the campus. In such a curriculum, learners include 1-12 students, university students, and graduate students, i.e., the entire major stakeholders of education. They all engage in active learning authentically with integrity. After experiencing the Pandemic, it is evident that the ultimate goal of education is to raise future generations for the entire globe, not for a nation. It is proposed that the authenticity of learning should transcend culture, heritage, values, and wisdom from generation to generation at the global level.

Keywords

New Education Normal, STEAM, authentic learning, integrity, innovative and creative learning

1. INTRODUCTION

Let us begin with a discussion of education within a nation. Kansai University of International Studies (henceforth, KUINS) offers a set of courses called Service Learning in the curriculum to arouse students' curiosity about the linkage to the local society and its people. Before the Pandemic, the students frequently visited their target study areas interacting and communicating with the local people to identify problems to improve wellness and living conditions. Physically being there and direct communication were the key factors in the success of the program.

On the other hand, In the Post-Pandemic era in Society 5.0, a university and regions may not be physically connected since G5 secures virtual communication linkage between the university and regional communities. As long as there is the feeling of "being together" in the virtual learning space, the foundational future skills to be acquired are cultivated through agile team-based PBL-type learning experiences through active learning. After all, it is just a matter of innovative or creative educational design.

In such a learning space, future skills, which will be elaborated on in the next section, will play a crucial role. Throughout the history of education, the concept of "learning" has been construed as sacrosanct in which face-to-face in-class instruction is the most effective and productive instructional strategy. Learning was mainly based on activities of

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memorizing and regurgitating knowledge from the teacher standing in front of the classroom. Let us begin by taking definition examples from the Oxford Learners' Dictionary (<https://www.oxfordlearnersdictionaries.com/definition/english/learning>).

Definitions:

1. the process of learning something
2. knowledge that you get from reading and studying
3. something that you learn, especially from your experience of working on something

It follows that the meaning of “learning” is related to acquiring knowledge and information from the outside world, which will not lead us to a productive argument here. Learning is merely construed as activities to accumulate knowledge and information from outside. There is no room for the mission of education: raising future generations for the benefit of the global society. In the next section, learning is viewed in terms of Bloom’s Taxonomy Matrix. In the course of the argument here, the term active learning will be employed to mean the learner-initiated action for learning.

2. LEARNING - REDEFINED

2.1 ACTIVE LEARNING FROM THE VIEWPOINT OF BLOOM’S TAXONOMY MATRIX

The New Education Normal must require a more refined definition of learning and be choreographed around ICT and AI to enhance learners’ learning activities. Figure 1 shows Bloom’s Taxonomy Matrix. The horizontal axis displays a list of learning activities. The vertical axis shows the types of knowledge or information offered to the learner. From left to right on the horizontal axis, learning activities are aligned.

The Knowledge Dimension What is offered to learners		The Cognitive Process Dimension					
		Activities by Learners					
		Passive Learning			Active Learning		
		Remember	Understand	Apply	Analyze	Evaluate	Create
		(knowledge)	(Comprehension)	(Application)	(Analysis)	(Evaluation)	(Synthesis)
The Knowledge Dimension What is offered to learners	Factual						
	Conceptual						
	Procedural						
	Meta-Cognitive						

Figure 1. Bloom’s Taxonomy Matrix
from Yamamoto et. al (2023).

While traditional education is centered around such activities as remembering and understanding, i.e., the learning pyramid or two columns on the left, as shown in Figure 2, active learning in the era of the post-pandemic includes all layers of the pyramid, namely, remembering, understanding, applying, analyzing, evaluating, and creating. It is evident that active learning must be engaged going beyond the traditional boundary of learning activities.

The Knowledge Dimension What is offered to learners		The Cognitive Process Dimension					
		Activities by Learners					
		Passive Learning			Active Learning		
		Remember	Understand	Apply	Analyze	Evaluate	Create
		(knowledge)	(Comprehension)	(Application)	(Analysis)	(Evaluation)	(Synthesis)
The Knowledge Dimension What is offered to learners	Factual 事実情報						
	Conceptual 概念情報						
	Procedural 手順・プロセス情報						
	Meta-Cognitive メタ認知情報 (学習者の成長を促す学習活動)						

Figure 2. Traditional Education Highlighted in Bloom’s Taxonomy Matrix
from Yamamoto et. al (2023).

The realm of active learning is the major playing ground for the New Education Normal. And yet, such an endeavor is not an easy task. In order to nurture the entire grid of active learning, we must define the future skills needed for the New Education Normal.

2.2 FUTURE LEARNING SKILLS (IFTF)

Let us begin with the definition by the Institute for the Future (henceforth, IFTF). IFTF defines future skills as given in Figure 3 below to nurture innovative and creative skills to survive and contribute to the future society. Ten needed learning skills are defined to have the future generations ready for their adult life. In other words, learning activities must range from the top left corner of the matrix to the entire area of the matrix in Figure 1. After all, authentic learning resides in the entire area of the matrix. Even in traditional education, we have been using thinking tools such as graphic organizers to enhance learning and critical thinking skills. In the post-pandemic era, we must employ innovative and creative thinking tools to nurture all future skills in the entire area of the matrix.

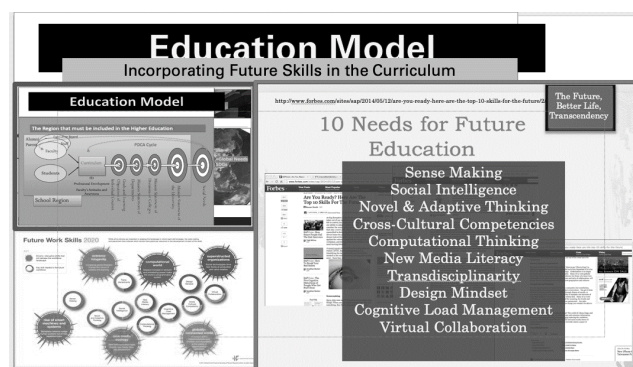


Figure 3. Future Skills Defined by IFTF
from Yamamoto et. al (2023).

2.3 CHARACTERISTICS OF 21ST CENTURY LEARNERS - ACTIVE LEARNING FROM THE VIEWPOINT OF BLOOM'S TAXONOMY MATRIX

For the sake of the discussion, it would be beneficial to talk about the characteristics of 21st Century Learners. Following Kharbach (2024), the top ten characteristics are reviewed.

- (1) Collaborative
The modern world is interconnected and cooperative, where collaborative skill is the key. The collaborative skill involves the ability to work in global teams, both in-person and virtually. Being deft in communication for empathy building to conduct projects to achieve team-defined goals. To guarantee the quality of globally collaborative teams, the members must be proficient in using online collaborative tools for communication and project management.
- (2) Creativity and Innovation
As Kettler et al. (2019) put it, creativity and innovation are essential learning skills in the 21st century, which will make learners think outside traditional frameworks and thus generate new ideas in terms of Problem-Based Learning. (henceforth, PBL)
- (3) Critical Thinkers
R. Sternberg (1985) views and defines critical thinking as “the mental processes, strategies, and representations people use to solve problems, make decisions, and learn new concepts” (cited in Shaw, 2014, p. 66). It follows that critical thinking is the basis for future learning skills to lead to problem-solving and authentic learning through recursive reflection.
- (4) Global Citizens
21st-century learners are aware of global issues in the realm of SDGs, cultural diversities, and perspectives. UNESCO emphasizes Global Citizenship Education (henceforth GCE) as an education that embodies a radical paradigm shift, focusing on developing learners’ knowledge, skills, values, and attitudes essential for a world that is more just, peaceful, tolerant, inclusive, secure, and sustainable, referring to Maslow’s Hierarchy of Needs.
- (5) Digitally Proficient
21st-century learners are digitally proficient or of high AI literacy, confident in identifying valid and reliable information in the digitally connected and archived internet world at large. They can make use of educational apps and software effectively and productively for authentic learning by interacting with global team members connected on the Internet. (For AI literacy, see below).

- (6) AI Literacy
Although Klein (2023) emphasizes understanding the basics of artificial intelligence and its applications in various fields, 21st-century learners here are capable of using AI as one of the thinking tools to conduct critical thinking in PBL.
- (7) Adaptive and Resilient
As symbolized by VUCA, adaptability and resilience are key traits for 21st-century learners. Ployhart and Bliese (2009) define that they include an individual's ability, skill, disposition, willingness, and motivation to change for the better or fit different tasks in social or environmental conditions at the global or gLocal levels.
- (8) Environmentally Conscious
As the concepts of SDGs prevail, 21st-century learners must be environmentally conscious and committed to sustainability and an understanding of ecological impact at the global level, demonstrating pro-environmental behaviors.
- (9) Self-Directed Learners
21st-century learners must take initiative in their own life-long learning mindset, arousing their own curiosity and motivation to continue learning by setting and pursuing their own goals. The ultimate goal of learning is to lead to innovative solutions for the benefit of the future society.
- (10) Ethically aware
Integrity in digital contexts is the most important trait for 21st-century learners. Taking ethical actions using digital tools and platforms is the key. In spite of the advancement of AI and IT technologies, it is humans to make fair decisions or set directions for the future.

The main points above are summarized in Figure 4 below.

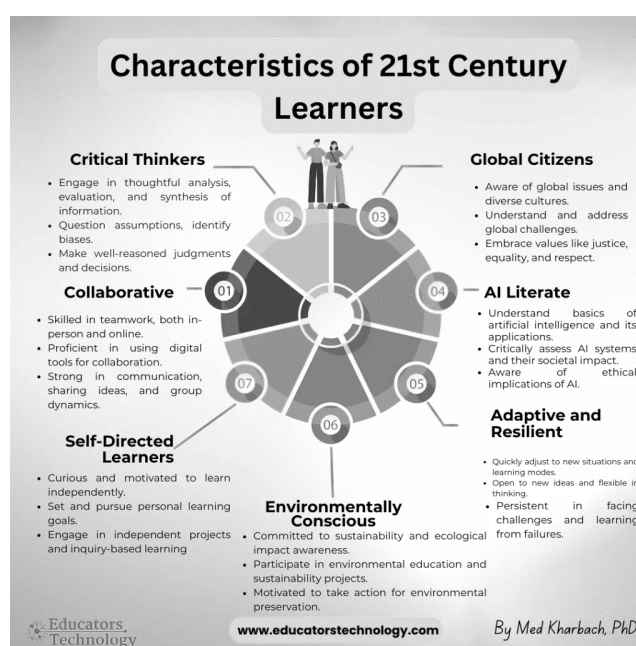


Figure 4. Characteristics of 21st Century Learners

From Kharbach (2024), 21st Century Education/ 10 Characteristics of 21st Century Learners

2.4 Lewis Model

In Lewis (1996, *When Cultures Collide*, Lewis claims that humans can be categorized in terms of three parameters: Linear-active, Multi-active, and Reactive. The Linear-active group comprises the culture of the English-speaking world: North America, Northern Europe, Oceania, and Scandinavia. The Reactive group includes the culture of most of Asia, where empathic relationship is emphasized. And the Multi-active group consists of the cultures of South America, Southern Europe, India, Pakistan, and most of the Slavs. Each group is characterized in terms of traits and commonalities. For example, a Multi-active group has such characteristics as emotion, talkativeness, expressive body language, the importance of religion or creed, the primacy of family bonds, low trust societies, unpunctuality, variable work ethics, inadequate planning, relationship orientation,

situational truth, dislike of officialdom, sociability, nepotism, unease with strict discipline and so forth. (Source: <https://www.crossculture.com/the-lewis-model-dimensions-of-behaviour/>)

Figure 5 summarizes the key points for the Linear-active, Multi-active, and Reactive categories.

LINEAR-ACTIVE	MULTI-ACTIVE	REACTIVE
Talks half the time	Talks most of the time	Listens most of the time
Does one thing at a time	Does several things at once	Reacts to partner's action
Plans ahead step by step	Plans grand outline only	Looks at general principles
Polite but direct	Emotional	Polite, indirect
Partly conceals feelings	Displays feelings	Conceals feelings
Confronts with logic	Confronts emotionally	Never confronts
Dislikes losing face	Has good excuses	Must not lose face
Rarely interrupts	Often interrupts	Doesn't interrupt
Job-oriented	People-oriented	Very people-oriented
Sticks to facts	Feelings before facts	Statements are promises
Truth before diplomacy	Flexible truth	Diplomacy over truth
Sometimes impatient	Impatient	Patient
Limited body language	Unlimited body language	Subtle body language
Respects officialdom	Seeks out key person	Uses connections
Separates the social and professional	Mixes the social and professional	Connects the social and professional

Figure 5. Characteristics of Linear-active, Multi-active, and Reactive.

The Linear-active Categories for Dimensions of Behavior

(Source: <https://www.crossculture.com/the-lewis-model-dimensions-of-behaviour/>)

Figure 6 below displays the plots of countries based on the three characteristic dimensions of behavior. In designing an optimal educational paradigm incorporating future learning skills, the global-level curriculum must be designed considering the Lewis Model. In other words, cultural diversity will play a major role in constructing an educational paradigm at the global level.

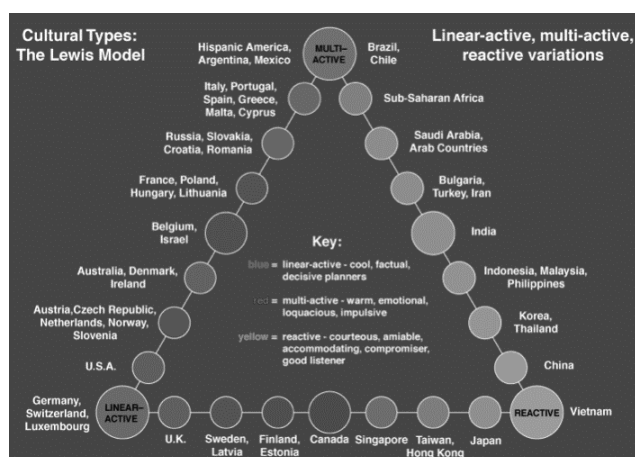


Figure 6. The Lewis Model

(Source: <https://www.crossculture.com/the-lewis-model-dimensions-of-behaviour/>)

It must be emphasized that the uniform and universal educational paradigm based on a certain dimension may lead to unwanted results in aiming for a global-level paradigm. In the classroom where global learners learn together tackling problems in society, such consideration as the Lewis Model will play a crucial role in the dynamics of global learning. A classroom with the mindset of the Lewis Model involves critical thinking outside a traditional framework, in which learning is open to new ideas and values when tackling problems.

2.5 Data Science, AI, and Ethics

Since the advancement of AI technology, the Internet has shifted from a robust data-searching tool in research to the role of facilitation or consultation in research. Time-consuming research activities in reading and writing are expected to be reduced or eliminated in conducting research. It is expected that human errors in research will be eliminated and time-consuming processes in research will be reduced greatly. On the other hand, the quality of well-being or human welfare may be belittled. While computational thinking may bring great benefits to human life, basic human rights and ethics must be taken into consideration in designing an educational paradigm.

It might be beneficial for us to take a look at what is included in ethics. *Ethics in Life and Business* by Santa Clara University (2019) elaborates on the major components of ethics in education. Ethics involves integrity, honesty, values, morals, principles, honor, choice or decision, right, fairness, conscience, and responsibility. (From: <https://www.scu.edu/mobi/resources--tools/blog-posts/ethics-in-life-and-business/ethics-in-life-and-business.html>)

Before moving on, let us look at the definitions of education by historically important educators and philosophers. See Figure 7.

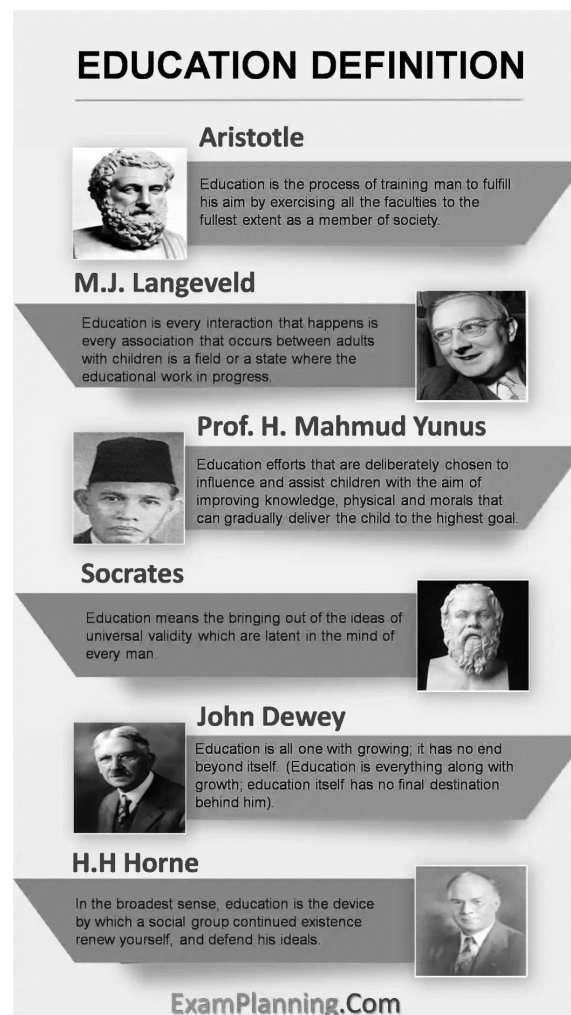


Figure 7 Education Definition

(From <https://examplanning.com/definition-of-education-by-different-authors/>)

They all hold the common view that learning belongs to the individual learner. In the course of the discussion, we will shift from their view to the one that learning is for the benefit of the future society. In other words, instead of the cognitive approach to education, the constructivist approach is employed, where learning is conducted with groups or teams of learners sharing the same learning space.

All the arguments so far support a paradigm shift in education for the future. In the next section, challenges that we must overcome in the course of the development elaborated, while taking a COIL-based social entrepreneurship course as an example.

3. Disruptive Innovation in Education

3.1 Disruptive Innovation Defined

Let us reiterate from Yamamoto et. al (2023) the key concept of disruptive innovation in Education in which disruptive innovation is an unexpected and creative change to a new perspective in terms of making sense of two completely unrelated concepts, values, or practices in existing products, services, processes, technologies, etc. that are already in circulation. It is an innovation (new axis) that disrupts existing livelihoods, existing concepts, values, and conventions, and then creates new cultural or market values or fundamental changes. Disruptive innovation leads to intuitive simplicity with high affordance, affordable price range, convenience that enriches the quality of life, and intuitive familiarity. Let us take a smartphone for example. In an era when there were only traditional black phones with dial buttons, the sense-making of such phones with portable computers to fit in the pocket is considered an example of disruptive innovation.

An example of educational innovation in curriculum development is highlighted. Maeroff (2003) introduces an innovation in curriculum development in terms of students' abilities. Students at Alverno College in Milwaukee did not receive any grades but earned degrees by demonstrating competencies in eight categories, which are analysis, problem-solving, communication, social interaction, value in decision-making, effective citizenship, developing a global perspective, and aesthetic responsiveness. To prove by demonstrating the skills from the eight categories, they participate in internships and archive their experience through online portfolios.

In the Post-Pandemic era in Society 5.0, 5G technology secures virtual communication linkage between universities in the world. "A Classroom of One" (Maeroff 2003) can be easily established as long as there is the feeling of "being there together" in the virtual learning space, where the fundamental future skills to be acquired are nurtured and practiced through agile team-based and PBL-typed active learning. A Classroom does not have to be a physical room surrounded by bricks and mortar. A virtual classroom can be reachable from anywhere in the world. For a detailed discussion of active learning in the global era, see the Authentic Learning section (pp.151-156) of Yamamoto, T. (2022). "A Proposal for Implementing Authentic Assessment Enhanced with Academic Integrity in New Education Normal,"

3.2 Sense Making to Innovation in Education

It is also worth noting that a proposed educational innovation is based on the concept of the learning ambiance or environment where all tiers of stakeholders work together to engage in authentic and active learning enhanced with the future skills explained above. In a way, it is a result of the sense-making of Dewey's Concept of Laboratory School, SDGs, Social Entrepreneurship, STEAM, as well as Roger Fischer's Win-Win Negotiation Practicum where the "learners now" will have a win-win relationship with the "learners themselves in the future". To illustrate the main points discussed above, see the Figure 8 below. Starting from the bottom, graduate and undergraduate students in a team serve as facilitators and act as role models for authentic and active learning to high school students in a learning theme or topic, say, regional community revitalization. On the next cycle of learning, i.e., in the second cycle from the bottom, the high school students serve as learning facilitators for junior high school students to work on regional community revitalization. And then, in the following cycle of learning, i.e., in the top cycle, the junior high school students serve as learning facilitators for the regional active learning of elementary school students. In this way, the percolation and transcendence of wisdom from one generation to the younger generation is guaranteed. After all, our society will grow in such a way.

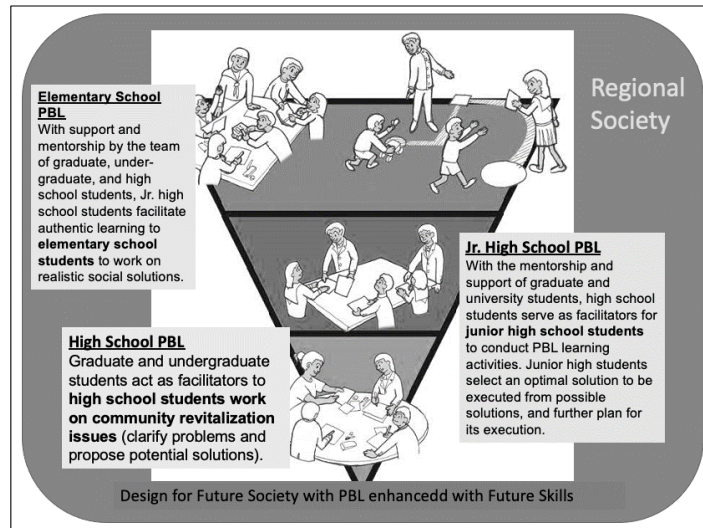


Figure 8. Authentic Learning in Regional Society

4. SHOWCASE (K-12 through University/Graduate School)

Along the line of learning activities for local or regional awareness for elementary school children, a showcase is introduced where university students and elementary school children work together with the local sweet shop owners to create the local sweets exploration map, which later transformed into a sweets-hunting game designed and programmed by the team. The first step is data collection. The elementary school children walk around the neighborhood area and researched sweets shops, finding out their location, history, opening hours, products, most-sold popular sweets, and service types, among others. And then they created a trifold to include all the information in an organized way. See Figure 9.

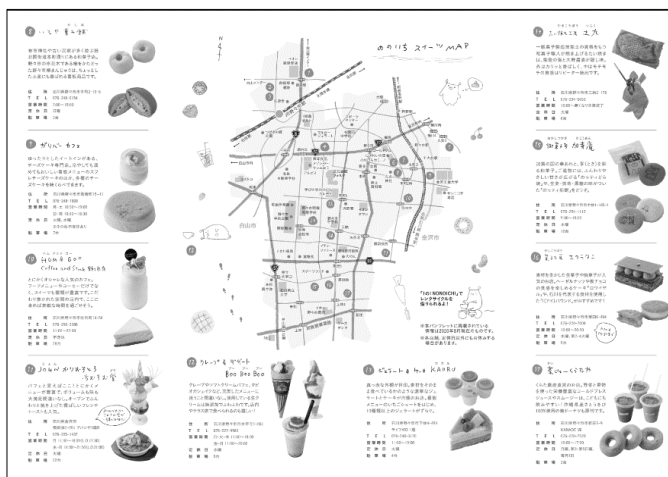


Figure 9. Research Results shown in the infographic



Figure 10. Game Board for Robot to Complete Tasks

Upon completion of the trifold, the school children worked on designing a sweets-hunting game by creating a storyboard with various tasks to complete. The concept of the game is to obtain designated items by maneuvering a robot car. See Figure 10 and Figure 11. The entire process of this series of learning offers the school children to be aware of the people and their lives in the neighborhood.



Figure 11. Scene of Completing a Task with Robot

In this way, the authenticity of learning involving various tiers of education can be reflected in the authentic learning contents and resources from the regional segments of living: lifestyle, regional culture (tangible and intangible cultural heritages), regional industry, economy, and local history, to name a few

It should be emphasized that sharing what is learned from the real world is the most important aspect of authentic learning. The traditional strategy in terms of presentation is now converted to gamification in this model. A PPT presentation is now incorporated into the process of creating an infographic. While involved in creating and playing games, the internalization process of active learning is enriched.

5. CONCLUSION

It is demonstrated in this paper that active and authentic learning in the Post-pandemic era implies the combination of traditional school learning with innovative, creative, and social entrepreneurial learning with gamification. With a future-oriented mindset, young minds can learn actively from the findings in the surrounding world and then share them with others in rich media including gamification, incorporating PBL in STEAM, programming, data science, and innovative social entrepreneurship. In this way, the authenticity of learning is guaranteed. Schools in regions with aging populations and declining birthrates need to shift gears to sustain the regional culture and tradition. Education is an enterprise for the entire society. The future of the regional community depends on the education there.

We are aware that our approach will not be the panacea in education for the future. And yet, we are confirmed that it will solve most of the challenges that we faced and experienced during the pandemic period.

Our next step is to organize a consortium of universities around the world to gain collaborative experience with colleagues of the same thought and share learning experiences with students who will bear responsibilities in the future of the globe. The forthcoming paper will elaborate on the details of the curriculum development of the proposed approach.

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抄 録

従来型の教育体制はコロナ禍以降随分と変化してきているようである。これまでの当たり前が当たり前でなくなり、人生観、価値観、生きる哲学、生活感、健康、ウェルネスについて、改めて考える人たちが増えてきた。もうコロナ禍前と同じマインドセットには決して戻れないのである。これからの未来を生きる子供たちもコロナ禍の3年間の経験は新たな局面を開きつつあるようだ。VUCAの時代を生きる子供たち、若者たちが大人になって自分の人生を振り返った時に、後悔のない教育が受けられたと感じるような教育のパラダイムシフトが必須である。本稿では、これまでの教育についてふりかえり、「学ぶ」とは何なのかという問いから始め、これからの教育でも必要と思われる概念を組み合わせ、センスメイキングし、教育のディストラティブなイノベーションでどのような教育展開が可能になるかを考えてみる。かつてアダム・スミスは、国富論の教育の章で、教育は経済を廻すための金儲けの営みのように書いているが、教育の使命はあくまでも未来社会に貢献する未来人材の育成である。本稿では、ポストコロナの教育のパラダイムシフトの提言を試みた。