Changes via Two Pandemics: One Change is Being Imposed by a Virus and another Change Should be Achieved by Self

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Abstract

It has not been a long time that technology has genuinely served us; our education, work, and actually our lives in the 21st century have truly and strongly been interwoven with technologies. Technology is leveraging opportunities, supporting, and personalizing learning. There are no distinctions between formal and informal learning. Education takes place everywhere, anytime. AIs are advancing fast, and robots are joining us. The Fourth Industrial Revolution shapes our future and expands our horizons of possibilities and opportunities. Traditional schooling systems have broken down and schooling rethought. Since the COVID-19 pandemic, we have been experiencing a huge shift towards technology, the digital environment, and an online connection, interaction, and collaboration. Education, place of education, classroom, and learning environment are being reshaped by the crisis of COVID-19. Some people are out of their comfort, normal existential zone and are experiencing different absences and tensions. Some are feeling helpless and powerless in surviving themselves. Subsequently, some are trying to fight, some are trying to flee, and some are in a freezing zone. It is benevolent of a pandemic over pandemic; one needs to be changed by our selves, and another is changing the world. At issue is whether virtual teaching and the learning environment, space, and place like Zoom and Team classes are sufficient not only for students learning but also for teachers teaching. The purpose of this study is to illustrate and focus on the recent changes in education and our ways of learning, and how to improve and adapt ourselves to make better progress towards a more sustainable future. I recommend and highlight that there is a need to recreate and reform our pedagogical approaches and teaching techniques and styles for the aim of increasing the efficiency of virtual teaching and learning primarily in Canada, the US, and elsewhere. The main question in this paper is: How has COVID-19 impacted education and the students' learning environments and places? In short, we should not only reconstruct our pedagogical teaching approaches but also redesign the curricula which fulfil the 21st century students' needs.

Keywords: *COVID-19, Change, Learning Environment and Place, Reality, Virtual Teaching and Learning*

1. Introduction: Real Reality

I return to one of my mathematics classes at the Simon Fraser University's beautifully constructed and developed Surrey Campus in the last safe and away-from-pandemic school year—the regressive moment of *currere* according to William Pinar's *method of currere* [14, 15, 16]. I am neither teaching nor working as an SFU employee; I am working for an independent organization with an enrichment after-school program in British Columbia called Math Potentials Inc. at their SFU Surrey Campus.

On a gorgeous Sunday morning the sunlight peaks though the clouds turning and dancing in the sky. On such a day, a majority of the population would be spending their time by the beach basking in the glory of the sun or walking beside the water; however, I vigorously devote my day to my passion of teaching and granting my knowledge to passionate learners and knowledge seekers. A light, soft, silky breeze flows through my hair as I walk into an architectural masterpiece. I am welcomed by a grand hall, with a roof so high you could truly see how vast this establishment is. Heading down the walkway, I notice the embellishment of beautiful carpeting adding a hint of comfort to an otherwise serious educational *environment* and step into a simplistic yet modern classroom equipped with the best equipment to provide a strong and welcoming learning *environment* for students. I always arrive at my classes 15 to 30 minutes ahead of time to set up the class *environment* for my students' learning and to make ready to utilize the prepared materials, such as printed worksheets and handouts. I am immersed in peace and quiet.

The classroom has been equipped with blank canvases waiting to be decorated with the majestic art of knowledge. Rows of tables consisting of smaller tables and comfortable cushioned chairs with rolling wheels for enthusiastic learners will present a vast ocean of knowledge receivers with waves of great

potential. SFU classes on the second floor at the Surrey campus have been equipped with six whiteboards attached to the walls around the students' sitting area. Two large whiteboards are located in front and two boards on the left and right sides of the classroom. Minerals mined from the beautiful earth conjoined into one technologically advanced masterpiece provide endless opportunities for communication, literacy, and the realization of inner potentials and passion. There is a well-designed and proper-sized table with a brand-new computer on it and a projector with curtains that cover all of the two large whiteboards in front of the class. This acts as a theatre scene for knowledge, giving life to imaginations, innovations, and dreams while also providing new opportunities for unique creations. It is a comforting *space* providing an educator with room and *place* to focus on teaching and educating the future generations while being equipped with the newest and finest educational technological tools, a strong internet access, and with required software and platforms for teaching and learning on the instructor's table. Next to the entrance door of this well-designed learning *environment* at the back of the class, there is a full-length window with the same proportions, providing a sense of comfort and relief to parents and guardians, with a crystal-clear lens that allows onlookers a first-hand experience of the art of mathematics. Students have enough space to move, work, collaborate, and utilize the whiteboards for group work activities in the class.

Teaching high-school-level mathematics in such an educational *environment* and *place* creates for the instructor a unique and thrilling experience of working and living with students. However, this is not the main point and lesson to be drawn from this unprecedented teaching opportunity and situation. There are lots of opportunities and significant factors associated with students' learning and achievement in such an educational *environment* and *place*, specifically for adolescents. "Place [is considered] as an important concept for understanding curriculum" [23]. It is a curriculum that can support students' 21st-century learning objectives and be practically and efficiently covered in a place where the students are now.

Since the COVID-19 pandemic, we have been experiencing a huge shift towards technology, the digital environment, and an online connection, interaction, and collaboration. The real classrooms are being transferred to virtual Zoom classrooms; technology has vastly supported us. Our place of education, classroom, and learning *environment* are being reshaped by the crisis of COVID-19 [18, 17]. With schooling disrupted [17], students' learning *place* and *space* is no longer like the illustrated building and classrooms at the SFU Surrey Campus. Though just a name of an educational institution has been left for students and teachers as a *place* of education, the educational institutions' members have become more connected to and closer together despite the virtual environments. Student's learning has become more personalized and digitalized, and teacher's teaching requires a cautious curricular review and update [17]. Traditional schooling systems have broken down, and schooling rethought [17]. At issue here is missing in-person activities in real places and spaces. At issue is whether virtual teaching and the learning *environment*, *space,* and *place* like Zoom and Team classes are sufficient not only for students learning but also for teachers teaching with the old curricula. The purpose of this study is to illustrate and focus on the recent changes in education and our ways of learning, and how to improve and adapt ourselves to make better progress towards a more sustainable future. I recommend and highlight that there is a need to recreate and reform our pedagogical approaches and teaching techniques and styles with the aim of increasing the efficiency of virtual teaching and learning primarily in Canada, the US, and elsewhere. The main question is: *How has COVID-19 impacted education and the students' learning environments and places?* In short, we should not only reconstruct and update our pedagogical teaching approaches but also rethink, redesign and update the curricula which fulfil the 21st century students' needs.

2. Short Orientation

It has not been a long time that technology has genuinely served us; our education, work, and actually our lives in the 21st century have truly and strongly been interwoven with technologies. "The form of instruments and devices by which we make 'worlds' available to us which were previously unexperienced and unperceived. Instruments are the means by which unspoken things 'speak,' and unseen things become 'visible'" [12]. Digital devices, technological instruments and sensors are now everywhere; they are closer to us than we think—cellphones in our hands, digital and wireless headphones in our ears, and digital watches on our wrists. Moreover, by 2025, the first implantable mobile phone commercially will be available to us [20]. This is not the only digital object that is being more connected to our *bodies*. There will be more wearable and implantable digital objects available to us in the future, such as digital tattoos, smart dusts, smart pills and medical objects in our *bodies* [4]. We form a unity with digital devices and

technological instruments; that is to say they become part of our *bodies* and everyday lives. In fact, it is a time-consuming process, and it forms gradually as time and practice are needed for the *body* to adapt and change [1, 22].

A huge amount of data from human activities and inactivities are being stored and again saved in huge digital devices. It has become like a closed loop. These data are being processed, analyzed, and again utilized to enhance our lives in the 21st century. "Microsensors track and digitize human activities, algorithms manipulate the data generated, then feed us steady streams of information about ourselves and the world around us" [1]. Technology and digital objects are becoming one of the important parts of our *body* by frequently being attached and detached from the *body*. It seems that we must become accustomed and habituated to the technology [1].

3. Turning Point

Indeed, we, human beings, ponder how fast it is happening. All around the world, we are experiencing a high-paced revolution and shift towards digitalization and technology—Fourth Industrial Revolution. We ponder how and when the pace changed, and a huge turn happened. We ponder what the cause of this sudden change was. It is now more than 14 months that the world has been dealing with a pandemic, COVID-19, since March 2020. This is a crisis, pandemic, and health threat for everyone on Earth. This is something that involves and targets the *in-person presence* and *connections* of human beings everywhere on Earth. This is something that changes the definitions of so many things, the definition of *connection*, definition of *present*, definition of *absent*, definition of *place,* definition of *environment*, definition of *space*, and eventually definition of *reality*. With the current status quo, it seems that the definitions are being reformed as technology is bringing us so many new delineations and meanings which must be added to the previous ones. In fact, definitions are being updated and modernized with technology due to digitalization and creation of new digital avenues and streams.

4. Reset Button

This pandemic and crisis—COVID-19—paused the world and closed everything that was related to human beings' presence, *places*, like stores, companies, factories, offices, institutions, schools, and classes. According to OECD, school closures across the OECD countries for an average of 14 weeks locked 1.5 billion students and their parents out of their schools [18]. As schools closed across the world, the educational institutions and ministries of education rapidly developed and deployed various projects and approaches to reach primary, secondary, and post-secondary students to help them continue learning during the difficult period of pandemic. Not only did students need to be provided with educational materials and remote lessons, teachers and instructors also needed to connect with their students. Some approaches suggested making the lessons and materials available online to students to maximize the reach [18]. Therefore, they initiated using different online platforms and many highly innovative learning environments emerged, such as Microsoft Teams for content learning and Zoom for connecting and virtually becoming *present* to the students. In sum, remote and online learning became the best solution in education [18].

The educational institutions and ministries had to observe and investigate how teaching and learning could take place during the school closures and create a report and overview of how the systems are being adapted during the crisis. It is very important that each country is responsible for finding solutions which would work for their own contexts though they can learn from one another and see how other countries could adapt their system during this difficult period. However, after all these challenges and ups and downs during the pandemic of COVID-19, now most of the educational systems prefer an online working, teaching and learning approach. The educational institutions acknowledge that technology could and can amplify and scale innovative teaching and faster ways of learning [17, 18]. Teachers and students cannot be stopped from having creativity, new ideas, and unprecedented solutions in learning and teaching during the pandemic [19]. It demonstrates that a virus in the size of 50–200 nanometers in diameter [8] could successfully work not only as a reset button in the world but also as a thrust towards innovation, digitalization, automation, mechanization, computerization, and telecommunication in the world. Consequently, it could "challenge our traditional conceptualisation of teaching and learning" [19].

5. New Place and Space for Learning

The results of OECD demonstrate that about 99% of students have internet access at *home* and 95% of students have a computer for their schoolwork at *home,* across the OECD countries and economies. In addition, more than 94% of students have a quiet place to study at *home*. Most of the students have a great experience with online learning in their new learning environment, *at home,* though some will be disadvantaged in this process [18]. Moreover, in some countries, based on the principals' reports, schools were able to provide each student with a computer to study such as in Luxembourg, Canada, United Kingdom, United States, New Zealand, Iceland, Australia, Austria, Singapore, and Norway [18].

All the aforementioned statistics and studies demonstrate that students, teachers, and parents have succeeded in adapting and updating themselves with new online and distance learning and other innovative approaches in education. They effectively entered into the new learning *place* and *space*—online/virtual and at home. Reopening of K-12 schools occurred when students' and teachers' "e-learning readiness" were confirmed [18]. Close to 85% of teachers were targeted for training and professional development on effective e-learning and assessment [17]. Alternative ways were developed for students without internet access and network connection to approximately 68.5% across 36 OECD countries, such as radio and TV, and 79% invested in "updating or creating effective e-learning platforms and content" for students and teachers [17].

Students and teachers came out of the in-person classrooms (face to face) and mostly shifted to study online (virtual) in home environments. "Learning takes place through more diverse, privatized and flexible arrangements, with digital technology a key driver" [18]. Instructional resources and class activities have subsequently changed. Computer simulations, applications and videos have replaced in-person hands-on activities of real classrooms. Now students have access to infinite information and training options. The nature of teaching and the role of teachers is changing. Students as active participants and teachers as collaborators and facilitators should learn together in a democratic society [9]. "Remote work and blended learning may drastically blur distinctions between home and school, time for study/work and time for leisure" [18]. Therefore, learning either formally or informally can take place anytime and anywhere.

6. Stop and Let Transfer

The future will continue to surprise us. Though COVID-19 has caused so many losses, pressures, and issues for people around the world, it is bringing and creating new opportunities and possibilities too. How much tension; how much anxiety; how much work; how much running in our everyday lives? We need to stop; we need to pause for a few moments. I refer "to the importance of Appelbaum's [3] concept of the *stop*, and how attending to those moments that tug on our sleeve as embodied data for pedagogical exploration can enlarge the space of the possible" [21, 11]. This *stop* invites us to find and open a space for listening, perceiving, exploring, and finally turning to the new ideas that will support us in the next moments of the future.

The world needed a *stop*. COVID-19 with all its challenges, tensions, and impacts as a pandemic could provide us with this opportunity to *stop*, to *pause*, to meditate, to review, to reset, to become able to start again for redesigning, reconstructing, rebuilding a better future. For the sake of human beings' wellness and well-being, we need to slow down. For enhancing our quality of work and quality of education, we do not need to increase our speed as AIs (artificial intelligence) and robots will be doing and taking care of pace, precision, and accuracy soon. It is the right time to transmit some of our responsibilities to AIs and robots, our new collaborators; it is the time of the Fourth Industrial Revolution [20]. This is the century that scientists and researchers have doggedly and overwhelmingly worked days and nights by utilizing intelligences, capabilities, knowledge, and powers like a machine and computer to create artificial intelligence and robots. As such, it is the time to use and benefit from all the discoveries, explorations, innovations, and creativities in the 21st century. Some of our responsibilities and work should be bequeathed to AIs and robots. However, we are not sure how long it will take and to what extent robots will be substituting for us; moreover, how fast will this substitution take place in various sectors [20]. What is significant is high-performing robots and AIs can do a lot with fewer errors and uncertainties. However, this does not mean that we should pause and stop forever.

This is a temporary *stop* to transfer the work and *place/space* of our work, like coming out of the Surrey Campus classrooms and entering into Zoom classes. In fact, the places in which knowledge can be granted to knowledge seekers and receivers have been changed. In this impermanent *stop*, "a slow

pedagogy" can be an approach to adapt and update as "a slow pedagogy […] allows us to pause or dwell in spaces for more than a fleeting moment and, therefore, encourages us to attach and receive meaning from that place" [13]. The *place* between SFU Surrey Campus and Zoom, in which innovation, creativity, architectural masterpiece, digital devices, technologies, potentials, reality and virtuality all are coming together and blending for the aim of creating high-quality education.

We will be having new responsibilities and work which is not doable by AIs and robots [20]. More flexible robots with complex biological structures, functions, and sensors will collaborate with humans which is called human-machine collaboration [20]. Robots are able to understand, respond to their environment and remotely access information via the cloud and network connection [20]. Humanoid robots are the tangible example of a technology that may substitute for faculties like instruction, meetings, and tutorials, by focusing on "critical thinking and creativity serving scholarship […] and instructional initiatives" [10]. However, AIs and robots do not have the creativity, innovation, and ability to think critically or come up with new ideas independently. They are the best at speed and accuracy. They are the best to receive data and process it but are not able to analyze, which is the expertise of human beings. Therefore, this is why being capable of thinking critically, solving problems, having innovation, coming up with new ideas, and being creative [2] are the required and even vital skills for us to succeed in the future of the 21st century.

7. Pandemic Over Pandemic

Before the COVID-19 crisis, the world had already been dealing with another pandemic, a "pandemic in our current civilization"—*existential lack* [6]. The reason for this pandemic and the underlying point is embedded in *self*—a student, [a teacher, and an educator] [6]. The source and reason for their pain of "existential lack" could be examined in the "struggling experience of frustration, impatience, anger, helplessness, hopelessness, dejection, and giving up" [6]. These are all experiences that might also occur in the process of change. Change is a time-taking process though it can happen at different speeds and directions. So scholars propose that we need to start from our *selves*, and the world, afterwards, will be impacted gradually and subsequently. "We change who we are, which changes how we act in the world; then, this will change how the world comes into shape and form" [5]. In short, for changing the world, we need first to change ourselves. For this change, learning is required and vice versa. In fact, in the process of change, learning will happen. In other words, when learning is achieved, change is manifested. Therefore, change is also considered as a solution for this pandemic too. Learning needs complete openness, presence, participation and "being-with-ness, moment by moment" [6]. The ability for attunement, experiencing flow, and awaking human beings is required for learning [23].

Not being open to learning with/and change leads to rigidity—frozen, rigid, closed-minded, dogmatic, and shut-down states of consciousness—fear, insecurity, inadequacy, doubt, shame, worry, anger which all will consequently result in resistance, hesitancy, defence, and presumably offence [6]. Moreover, resilience, stress tolerance, and flexibility are likewise the skills for the aim of having a more sustainable future. As such, first, we need to start from self with "attuned relational humanity" practices that awaken human beings in the era of digitalization, mechanization, and manifestation of artificial intelligence. Second, we need to apply some changes "in what we value and find meaningful," and find different ways to spend our time and energy with the aim of holding "an embodied and animated perception of the world" and our well-being like contemplative practices [7].

Human well-being matters here as a more digitally-connected world has created higher expectations which can cause significant consequences and risks when prosperity and access either is not attainable or occurs with lower chance [20]. Besides, there is a reciprocal relationship between human well-beingness and being able to have creativity and innovation, having the abilities of analytical thinking and problem solving, and coming up with new ideas consequently. Therefore, those are the practical solutions which admittedly can be useful in keeping people away from the impacts of psychological tensions and problems due to the past, current, and future challenges.

8. Virtual Reality

Our living in *reality* in many contexts and from various aspects has been currently transformed and somehow has been pertinent to virtuality, such as our presence in a Zoom class. Our presence is real but in a virtual *space*, which in itself is real. We live the moments with our *selves* in reality; however, we simultaneously live those moments (the same moments) with others in virtuality, which is again a reality in

itself. Is our reality virtuality or is our virtuality the reality? Maybe the virtuality itself is part of the reality. Maybe the definition of reality is being expanded and reformed by embracing the virtuality and its manifestation in every aspects of our lives. Maybe the definition of reality should be transformed and expanded to embrace the virtuality in itself. Where is our *place* and *space* in virtuality? How do we define *place* and *space* in virtuality? Where does our learning happen—in a Zoom class or at an SFU Campus class? In reality or virtuality while the virtuality itself is a reality? Do we not think that virtuality is now becoming our reality? How is our connection and relationship in a virtual *space*? It is significant how our perceptions, ways of knowing, ways of learning, and practical actions are facilitated and mediated by technologies? Don Ihde [12] beautifully describes how "our lifeworld obtains new shapes and curves, meanings and trajectories" by technology [1]. In real world—real reality—like the SFU Campus class, our place/space is quintessentially determined but limited. However, in virtual reality like Zoom, people at different locations and places are and can be present at a place/space which is truly not only far from each other but also different from their original places/spaces. I clarify. For instance, for gathering at the SFU Campus class, everyone from everywhere around the world—their places/spaces—must travel, take time, and come to the SFU Class/place/space/environment. However, for being together in a Zoom class, everyone from their own places/spaces/environments—with any location on Earth, even from the beach— are able to gather and become *present* at a time in a new place/space/environment— Online/Virtual/Remote Place. This presence does not take time for traveling from one place to another place to become present. This place/space/environment does not hold any determined and specific location. It is everywhere. Boundaries are broken.

On the one hand, students from around the world are able to gather together in a newly defined *place/space/environment* from their own *place/space/environment* for different educational and professional purposes. On the other hand, our classrooms have been shrunk from the architectural equipped classrooms to the size of a laptop monitor. Now, what is the definition of *place/space/environment*? How do you define it? If we look carefully, we are actually virtually face to face in Zoom rather than at the SFU Campus Class.

9. Conclusion

Technology is leveraging opportunities and personalizing learning. "Distinctions between formal and informal learning are no longer valid as society turns itself entirely to the power of the machine" [18]. Education takes place everywhere, anytime. AIs are advancing fast, and robots are joining us to support and develop a sustainable future. Digital devices and technology are becoming part of our *bodies*. In brief, the Fourth Industrial Revolution shapes our future and expands our horizons of possibilities and opportunities. In fact, it is not an easy shift. It is benevolent of a pandemic over pandemic; one needs to be changed by our *selves,* and another is changing the world. With these pandemics, people are out of their comfort, normal existential zone and are experiencing different absences and tensions which have resulted in their existential lack. Some are feeling helpless and powerless in surviving themselves. Subsequently, some are trying to *fight*, some are trying to *flee*, and some are in a *freezing* zone [6]. Indeed, "world change is mirrored by self-change" [6]. Scholars suggest that one of the effective solutions for surviving is attunement and flow, which is not an easy practice for some people.

Moreover, people with different perspectives and lenses look at the world and the changes differently. Here we need to change our lens and become pragmatic optimists. The question remains: Do we find Zoom classes as effective as the in-person and face-to-face classes at the Surrey Campus—from both students' and teachers' perspectives? Do we still think that in-person and hands-on activities have been left at SFU Surrey Campus? Our learning places/spaces/environments are being changed. Home environments serve as a safe learning environment for students and working environments for teachers and parents. New experiences push the traditional and old boundaries back. I have highlighted how to learn and understand what is happening, and what are adequate ways of sustaining and enhancing the quality of learning and teaching. Collaboration and cooperation are central canons for the education we value for today and tomorrow. This collaboration and cooperation does not need to take place necessarily in-person. It can and should happen virtually for our own safety. This is the new reality and new normal; this is not the virtuality anymore. Subsequently, for the aim of enhancing the efficacy of virtual learning and teaching, and according to all the aforementioned standpoints, I underline and stress the need to rethink and redesign not only our pedagogical approaches and teaching styles but also the curricula for the 21st-century students.

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