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The Transition from Covid-19 Pandemic Induced Online Learning to the Future Physical Campus: Is the Higher Education Ready?

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ABSTRACT

This study explores the effectiveness of the Covid-19 pandemic-induced online learning model at the higher education level. It proposes that its future physical campus would be hybrid, blended, and hybrid-flexible instruction setting when Covid-19 is over. Developing more efficient online education software and devices helped enhance and improve student learning outcomes during the Covid-19 lockdowns. If academia capitalizes on these achievements, the monopoly powers of the traditional brick-and-mortar classroom setting would be challenged. This study uses nine research questions to analyze this proposition. The study's contributions to the literature are: demonstrates the importance of hybrid, blended, and hybrid-flexible learning instruction; indicates that it is the next stage of learning model at the higher education level; reinforces the view that the online instruction has come to stay with the academia; and harmonizes, supports, and strengthens previous studies and debates on the next frontier of the students' learning instruction.

Keywords: Digital competence, Pandemic-induced online learning and teaching, Future physical campus, Hybrid, Blended, Hybrid-flexible learning and teaching

INTRODUCTION

The Covid-19 pandemic affected all aspects of our human life, including the transition of face-to-face education into online education due to Covid-19 lockdowns, social distance, and quarantine regulations of most countries of the world. Contributing to the literature on the subject matter, Ma et al. studies (2021) indicated that 20% of the studied learners had Post-Traumatic Stress Disorder and depression symptoms, which emanated from the psychological effect of mandated lockdowns and quarantine. When Covid-19 occurred, all the global economy sectors (academia, private, and public) were affected detrimentally and revolutionarily. The school closure was detrimental to the effective and quality learning of students. In 1984, the University of Toronto was the first institution to pioneer online classes globally, which paved the way for its current universal usage and implementation globally at

all levels of education (Sarkar, 2020). Although virtual and distance learning started about four decades ago, digital teaching has changed rapidly. The advent of technology coupled with the birth of Covid-19 pandemics transformed and quickened the demand for online education globally, especially at the post-high school levels. This is because the traditional and face-to-face class instructions were replaced by online instructions in the global attempts to eradicate Covid-19 pandemics. Hence, because of the social distances regulations, academic institutions forced themselves into adopting online instruction even though it might have been against their initial policy. Also, collaborative tools have brought face-to-face interactions into online instruction mode. The Covid-19 pandemics exposed the importance of the innovative online education and learning model to the world. In fact, without online education and learning during the Covid-19 pandemics era, the whole world would have been at a complete stand-still, mess, disaster, and chaos. For example, without online education and learning during the Covid-19 era, most academic institutions would have been shot down by now. During Covid-19, online education was the only means most academic institutions could deliver their products (education and graduation of students) and meet their students' instructional needs.

Given the above fact, this study examines the direct impacts of the current Covid-19 pandemic-induced online learning and teaching at the higher education level. The hypothesis is that the future physical campus of the higher education institutions would be a hybrid, blended, and hybrid-flexible (H-B-HF Model) instruction setting. This study's objectives were to: explore the lessons learned in online education during the Covid-19 era; discuss the would-be effectiveness of, and strategies for, the H-B-HF Model; and examine the readiness of the higher education for its next future physical campus. To achieve these objectives, this study analyzes the following research questions. What are the benefits and shortcomings of the H-B-HF Model? What are the basic requirements for the H-B-HF Model to be successful? What lessons have we learned from the current online education and learning model? Is the higher education level considering and ready to adopt the new H-B-HF Model of a classroom setting? Would the H-B-HF Model promote students' learning outcomes and maximize their learning? Would the new learning mode promote internationalization standards for higher education? Would the new learning mode be cost-efficient? Are all higher education stakeholders now comfortable with online education and learning models?

The study's most appropriate research methodology would be descriptive since the study is proposing the would-be adopted academic campus of the future for the higher education institutions. The outline of this study would be as follows: immediately after this introduction is the literature and missing gap reviews. The study's methodology will follow this, with it is a-priori expectations in the post-Covid-19 era. Thereafter, there will be a discussion and the analysis of the study's propositions using its research questions. The last part of the study would be the study's contributions to the literature, limitations, and conclusions.

LITREATURE REVIEW AND THE MISSING GAPS DEFINITIONS, MEANINGS, AND EXPLANATION OF CORE CONCEPTS

The term "online teaching and learning" had been interchangeable to mean computer-based, cyber-based, distributed, electronic-based, internet-based, resource-based, technology-based, web-based, web-facilitated, and virtual-based learning (Moore and Kearsley, 2011; Moore et al., 2021; Rudestam and Schoenholtz-Read, 2010; Ally, 2008; and Anohina, 2005). Empirically, these terms have different definitions, which have diluted the actual meaning of online learning. For this study, online learning is distance learning coupled with internet technology to deliver the learning materials, both synchronous and asynchronous. However, distance learning mode may or may not embrace internet technology. For example, the early distance learning mode by the Rapid Result College was merely by mailing the materials to the learners. Also, either synchronous or asynchronous learning models may or may not embrace a "face-to-face" interaction using internet technology. The modes of online learning include hybrid, blended, and hybrid-flexible learning setting that embraces the combination of the traditional brick-and-mortar and face–to–face learning mode coupled with the use of internet technology to deliver the learning materials. In synchronous learning, instructors and learners interact face-to-face simultaneously, either online or in the traditional classroom. In asynchronous mode, the learner can watch the instructor's video without the same facial interaction with the instructor. Contributing to the literature on the subject matter, Dhawan (2020) indicated that the synchronous learning model is the traditional classroom lecture system with real-physical, real-life, real-time, and face-to-face interactions between the instructors and students. In contrast, the asynchronous learning model is a non-traditional classroom lecture system without real-physical, real-life, and face-to-face interactions between the teachers and learners. However, it should be noted that the two models are suitable for different types of students.

The Effectiveness of the Covid-19 Pandemic-Induced Online Learning on Higher Education

HSI experts work within the framework, consisting of processes and methodologies, provided by systems engineering to ensure successful human systems integration. Methodologies include the familiar, carefully structured approach to meeting the functional and nonfunctional requirements. The systems engineering team relies on each branch to assist in analyzing customer requirements. Research has shown that HSI aspects and components remained, until today, with no established methodologies or integration tools to link various human aspects to systems engineering models due to two reasons (Meilich, 2008): lack of relevant taxonomy linkage to SE needs and poor domain languages.

Empirically, online education is cheaper than traditional face-to-face education due to the reduced menu costs, such as parking, meals, transportation, and classroom (Gautam, 2020). The likely effect of this cost reduction would include the following. Students who cannot afford the higher cost

of face-to-face education will take advantage of the cheaper online education and enroll for their higher education. This lower education cost might make some students to migrate away from the academic institutions that are hesitant to adopt a digital platform to those institutions that offer the digital education option. The reduction in the students' absenteeism is an advantage for online education. This absenteeism can be eliminated in the following ways. Faculty members can pre-record their lectures and provide the class audios and videos to the students to be viewed at their convenience, even when they are absent during class time.

Prior to the Covid-19 Era, as of Fall 2017, Korstange et al. (2020), documented that 34% of college and university students enrolled in at least one online learning course. An improvement in online Learning Management Systems (LMS) can help increase students' enrollment for online classes since non-traditional and adult learners will not adopt the mold of dorm living and campus class attendance. Similarly, learners can take online courses internationally from any country without traveling abroad. Thus, this will promote international education, and many universities can take this advantage and matriculate as well as graduate many learners. The convenience and flexibility provided by online learning can help promote improvement in instructor-learner interaction globally. This can be done through phone calls and video conferences convenient to both parties. However, differences in time zones may be a challenge to this prospect.

The other benefits of online education also include the followings. It is more student-centered and flexible for both the students and instructors (Dhawan, 2020). It is very good for mature and self-motivated adults and working-class learners who can work at their own pace. It was an effective learning option and necessity during the Covid-19 lockdown era. It had made some students be dynamic learners, and they had contributed significantly to the needs of their employers and the success of the workplace during the Covid-19 lockdown era. It is more convenient than the traditional face-to-face education model. It allowed low socio-economic family members, adults, and manured learners to easily combine their employment and family responsibilities with their education and learning schedules (Toufaily et al., 2018). It can be structured by instructors towards promoting individualization, especially for the adult and matured learners, by guiding the learners through each step of the instructions and assignments for their courses (Junsay and Madrigal, 2021). Thus, it can be formatted and tailored to meet the students' specific needs and learning styles. Students can view, watch, and review the learning materials, audio and video, as many times as it takes to understand the course concepts, contents, and terms. The most significant impacts of the Covid-19 were perhaps the ambidexterity within academia and information, communication, and instructional technologies that accompanied the online education during the Covid-19 era.

The Shortcomings of the Covid-19 Pandemic-Induced Online Learning on Higher Education

Stressful environments developed for some higher education stakeholders because they were unprepared to adopt online education during the Covid-19

lockdown era. Thus, interruption in learning was the first major problem for students during the Covid-19 lockdown due to reduced campus access. Secondly, the online model of instruction cut most students off guard for what they were neither prepared nor trained for. Thirdly, learning from home was further complicated by home distractions, especially for students with large family members (Ebohon et al., 2021), or by social media or online gaming of their very learning device being used at home. Also, online education created some emotional feelings of isolation from peers and instructors for some students (Grover et al., 2021; Ebohon et al., 2021; Ma et al., 2021). Empirically, Ma et al. (2021) indicated that 20% of the studied learners had Post-Traumatic Stress Disorder and depression symptoms emanating from the psychological effect of mandated lockdowns and quarantine. Furthermore, Ebohon et al. (2021) revealed that 42% of instructors and 63% of learners studied expressed that online education and learning decreased learners' communication and problem-solving skills.

The other shortcomings of online instructions include the followings. The unreliability of internet connectivity (Clover, 2017; Gautam, 2020; Vinikas, 2021). Some faculty members were not technologically literate enough to deliver online instruction efficiently to students. It was inappropriate for non-disciplined students who could not concentrate or focus or stay engaged in an online class because of their distractions or because their physical environments may not be conducive for online learning (Adedoyin and Soykan, 2020). Online knowledge-based examination questions will limit students' creativity and rational thinking. The integrity of the online assessments, assignments, and examinations can be compromised easily (Ebohon et al., 2021; and Abdelrahim, 2021), making it very difficult for the faculty members to fully understand the students' mastery of the content and standards of their courses. Some students lacked the physical tools and technical skills needed to be linked to the online classes during the Covid-19 lockdown era. The pandemic-induced online learning put special-needs students at some disadvantages, and this had promoted the views that their civil rights laws were being violated (Reilly, 2020). Social media on the internet are the source of distractions to some students, which has reduced the benefits of online education. During the Covid-19 lockdown era, online learning could not support the students' social aspects of learning. It can lead to some emotional disturbance and distractions for some students because of a lack of physical interactions between the instructors and learners (Gautam, 2021). Access to appropriate technology for better Internet bandwidth and reliable devices is another online education and learning model problem (Basilia and Kvavadze, 2020; Sarkar, 2020; Sintema, 2020). Many universities provided devices to their students, but access to reliable Internet was their obstacle. In some cases, there is reliable internet, but there was a lack of appropriate devices. Thus, Covid-19 spotlighted the socioeconomic inequalities of each country of the world.

Potential Solutions to the Shortcomings of the Online Learning Models at the Higher Education

The potential solutions to the shortcomings of online learning at the higher education level include the followings. Academic institutions need to install

software programs that can be used to monitor students' online examinations. Faculty members should give students content applied assignments, homework, and exams questions rather than merely multiple-choice examination questions. All stakeholders need to master the models' techniques properly to be successful. Although the instructors' inaccessibility to the learners is one of the criticisms of online learning, the educators and learners are free to set up convenient one-to-one conferences to iron out concerns on class assignments and grades. The lack of digital competence has adversely affected the educators and the students. The students have to struggle to learn the platforms and programs used to deliver online education. The inexperience and inadequate training of the instructors diminished the quality and effectiveness of the online instructions. The solution to all the problems is that the higher-level institutions need to increase and provide funding for resources needed to improve the online platforms and training of educators and technical support personnel.

Covid-19 Era's Efficient Online Learning and Teaching Software, Devices, and Platforms

Online instructions have benefits (Clovers, 2017; Gautam, 2020; Vinikas, 2021). It is an efficient way to disseminate knowledge. It can promote better inclusiveness and benefit for all types of learners; because of its convenience; and because inflexible, time and venue constraints of bricks-and-mortar learning are eliminated. The costs associated with face-to-face instructions are eliminated or reduced, thus making online education more affordable. Online discussion boards and chats can better students' peer learning, interactions, and teamwork. During the Covid-19 era, students had the opportunity of taking their foreign language requirement courses online without traveling abroad.

When Covid-19 forced academia to shift its curricula to online platforms, its initial problem was the lack of preparedness (Dhawan, 2020; Nworie, 2021). Hence, Wieland and Kollias (2020) noted that the early online tools were limited and clunky. The initial limited and clunky tools frustrated both the educators and the learners due to inefficient functionalities. However, newer tools were introduced to elevate the shortcomings of the initial inefficient tools, but users need more hands-on training. These online learning and teaching software, devices, and platforms include audio, webcams, video recordings, Blackboard, Canvas, Google Classroom, Bright Space, Zoom, FlipGrid, Kahoot, Newsela, home and business internet, Wi-Fi hotspots, cellular, and Big Blue Button. To tackle Covid-19 lockdowns, webcams and video recording were the initial tools used, but the limited learner-owned technology devices hampered the learners' abilities to view and hear those recordings. However, the Zoom online video conferencing platform had been introduced to promote synchronous instruction and conferencing. This method meets the need of the adult, matured, and flexibly scheduled learners, and they can view their class lessons at their convenience. Also, educators promoted synchronous environments using audio and video to present shared documents, handouts, files, and video presentation materials to induce

active discussions. The discussions can be held in break-out groups or class-wide, and discussion boards allow students to participate in their peers' class comments and responses actively. Google Classroom is suitable for making students efficient in essays and written assignments online, and educators can easily provide feedback and applicable in a timely fashion.

Instructors can also use other online platforms to assign articles, post quizzes, and writing prompts FlipGrid, Kahoot, and Newsela. FlipGrid allows students to record videos, Kahoot promotes students' participation in competitive quizzes, while Newsela is a good information text site. The internet access limitations and interruptions in service will affect both the educators and students because they would disrupt the entire class. Those limitations and interruptions could occur whether the teachers and students work from home and on the school property. However, there were now improvements in home and business internet, Wi-Fi hotspots, and cellular technology devices that helped alleviate those concerns. The Big Blue Button, conferencing tool, can be programmed to allow only sky and introverted students to see their instructors' videos. Since the teachers can control and monitor their classroom with this tool, they can pair shy and introverted students with their peers who are their friends and thereby alleviate the students' anxieties. The active strategies to be adopted for online education to promote critical thinking skills and active learning for the students should include the following (Dozier et al., 2021): simulation, game-based learning, role-playing, Google Docs, social media correspondence, interactive learning platforms, case studies, the use of ATI product for assessment, and adaptive quizzes. Online learning is beneficial to introvert and shy students who are uncomfortable answering instructors' class questions in front of their peers in a synchronous environment (Vinikas, 2021). The online environments provided opportunities for these students to respond to teachers' questions in writing on the discussion board or direct messages to their instructors.

Literature Review's Missing Gaps and A-Priori Propositions on the Future Academic Campus

Currently, a digital learning platform is not just a solution to the pandemic dilemma. Still, it is now a new major learning platform that academia must incorporate into its plans, policies, and strategies to improve its services in the near future. Covid-19 cut academia off-guard; hence the availability of adequate technology devices was one of the shortcomings of online learning during the pandemic. Now, academia needs to invest resources to acquire better technology devices for the digital learning platform. Similarly, academia needs to sponsor educators to attend professional development conferences, seminars, and workshops to improve their abilities and efficiencies to teach online courses. Covid-19 had changed the education learning style forever. The need for online education rose and is now part of our educational system forever.

Korde et al. (2021) did a comparative study of online learning and classroom learning, and they found out the followings. Classroom learning was more effective than the online learning for students. Face-to-face instruction

promotes more interactive learning than online instruction. Online education is more effective for mature students, while traditional education is more effective for students that need direct interactions and emotional needs. They felt that blended learning is the best learning option because it would decrease the challenges of online and non-online learnings, improving student achievement and the overall teaching process. Hitherto, Graham (2006) indicated that "Blended Learning" is the future direction of learning. Hence, to reinforce the works of the above scholars, the study is proposing that the future physical campus of higher education would be a "Hybrid, blended, and hybrid-flexible learning and teaching model (H-B-HF Model).

Section2: Strategies to make H-B-HF Model Successful

The feelings of isolation can be overcome if the instructors utilize discussion forums, video conferencing, and feedback. Instructors can use discussion forums in their learning management system (LMS) by posting pre-class questions to discuss before their class starts. This will help students share their thoughts and reflect on the ideas of their peers and the instructor's comments on the learners' views on the pre-class posted questions, thereby promoting a sense of community among the classmates. Instructors can organize class video conferences to share ideas and discuss class topics to build up the missing class connection in the online learning model. Instructors need to provide quality feedback to the learners to reduce their isolation feelings.

The current pandemic might be over by 2023, but a pandemic is not the only reason why we need a new, improved learning and teaching model. Thus, academia needs to use its LMS (Ebohon et al. 2021) and adopt the proposed H-B-HF learning and teaching model. This model would help institutionalize the personalized learning needs of learners and promote the students' engagement and academic achievement. Instructors can use their LMS to personalized learning, making learning materials, assignments, and activities available to students. However, it should be noted that personalized learning needs will not work where the instructor has more than fifteen students in the class or course.

To measure the mastery of the student's course contents accurately, the instructor should utilize performance-based assessments methods. These performance-based engagements will improve students' learning better than the traditional multiple-choice assessment methods. Instructors should provide qualitative feedback to the learners to learn from their previous mistakes and hence help them improve their performance in the course.

DISCUSSION AND ANALYSIS THE STUDY PROPOSITONS

What are the Benefits of the H-B-HF Learning and Teaching Model?

With the relevant technology devices, the H-B-HF model can increase the students' experience, engagement, and achievement for mature and self-motivated adult learners because they can easily access their needed resources. The face-to-face or brick-and-mortar section of the H-B-HF model would be devoted to the essential and meaningful activities and contents of the course

since lectures would have been provided through the online video before the students came to the campus. Furthermore, the H-B-HF model will provide flexibilities that meet the students' lives.

What are the Shortcomings of the H-B-HF Learning and Teaching Model?

Firstly, only matured and self-motivated students can successfully complete their courses promptly in the H-B-HF model. Secondly, access to reliable and efficient technology-enabled systems is necessary for the H-B-HF model programs to succeed. However, this problem can be solved easily because the academic sector had learned the importance of technology during the recent Covid-19 pandemic-induced online learning model.

What are the H-B-HF learning and teaching model requirements to be Successful?

These include the following facts. Appropriate technology-enabled systems and adaptable curricula are the essential tools for the H-B-HF model to succeed. In addition, the proposed H-B-HF model curricula must fit into the needs of each university and its country. For the H-B-HF model to succeed, all the higher education stakeholders must be active partners. Furthermore, the higher education policy-makers must provide remedial and other professional training for the faculty and students.

What Lessons have we Learned from the Current Online Education and Learning Model?

Due to the socio-economic inequalities of the society globally, many students did not have access to laptops and efficient bandwidth, and many of them had to rely on the laptops offered by their universities. Students need to receive sufficient information about their exams because exam uncertainty can cause undue stress for students. Given the above facts, it is evident that the transition to the H-B-HF model would be a steep learning curve for the higher education stakeholders. Thus, the instructors and learners need technology-enabled systems and other materials support from the higher education policy makers to make the transition smooth.

Is the Higher Education Level Considering and Ready to Adopt the New H-B-HF Model?

This isn't easy because some higher institutions have not fully embraced the online learning model.

Would the H-B-HF Model Promote Better Student Learning Outcomes and Maximize Their Learning?

Based on the above-stated benefits of the H-B-HF model, it seems that this model would promote better learning outcomes and maximize the students' learnings.

Would the H-B-HF Model Promote Better Internationalization Standards for Higher Education?

The H-B-HF model will promote increased and improved international study abroad programs that students can access easily from anywhere in the world. Furthermore, it will require a very short stay abroad and, therefore, lower the cost of international study abroad programs. Students from anywhere can access international study abroad programs through video conferences. Hence, there is a need to invest in more efficient internet, video conferencing, and other technology-enabled systems.

Would the New Learning Mode be Cost-Efficient?

In the short-run, the initial investment might be very high and costly depending on the technological state of each institution. However, in the long-run, one would expect that those institutions that adopt the H-B-HF model would ripe the benefits of the economics of scale and lower learning curve advantages.

Are All Higher Education Stakeholders Now Comfortable With Online Education and Learning Models?

Currently, not all the current higher education stakeholders are comfortable with the online education and learning models. In fact, some of these institutions merely adopted the online learning model during the Covid-19 pandemic era principally to keep their institutions open during the Covid-19 period.

The Study's Contributions, Limitations, and Conclusions

The study's value-added contributions to the literature and research on the next stage of learning and teaching in academia. The study would quicken the higher education institutions' planning and adaptation to a new learning instruction setting The developers of complementary software and technology devices could start planning how they would create new pedagogical tools and benefit from the future campus. The study will reinforce the view that online learning and teaching instruction has come to stay with academia. The study shows how the H-B-HF model will help academia to overcome some of the shortcomings of the online and basic classroom learning models. The study harmonizes with previous studies by proving that the H-B-HF model is the next frontier of the students' learning instruction. The study strengthens the growing awareness among faculty, scholars, researchers, and formal academic institutions on the subject matter. Furthermore, this study would stimulate further studies or thoughts or debates on the next stage of learning and teaching in academia when the current Covid-19 pandemic is over by all academia stakeholders.

The fundamental limitations of the study are that the study was descriptive and was limited to only the higher education institutions where the authors have more experience. These study's gaps would be the future directions of studies by other scholars.

Covid-19 had promoted some digital citizenships because online learning was necessary during the Covid-19 Era. The long-lasting impacts of the H-B-HF model will significantly outweigh the challenges of the online learning model because its convenience, accessibility, and affordability will promote a higher literacy level for the community. The shortcomings of the H-B-HF model would be eliminated when educators attend more professional developmental courses, seminars, and workshops on the subject matter in the near future. The higher education policy makers need to develop decisions, policies, and strategies that will make the H-B-HF model more beneficial to the students and community in the near future. These could be done in part by providing more innovation and providing tools, programs, and resources that will best meet the needs of their students and community. In clear terms, technology and online education cannot be overlooked by academia any more. Academia must keep up with the ever-changing strategies of teaching students. There is a need to embrace flexibility and customize all online education's learning practices. Now that the importance of online education has been revealed to us, academia needs to address the lessons learned from the Covid-19 pandemic-induce online model and restructure the delivery of its products methods by adopting the proposed H-B-HF model.

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