

A study on the possibility of a change in culture and arts education curriculum by shooting “METACLASSROOM” in the COIVD19 pandemic era

Yoo Ji Yong, ^{a*}, Korea National Sport University, No.1239, Yang jae-daero, Songpa-gu, Seoul, Republic of Korea

Jee Hyun Lee ^b, Han yang University, No.222, Wangsimni-ro, Seongdong-gu, Seoul, Republic of Korea

Yeon Soo Kim ^c, Department of Road and Geomatic at Civil Engineering College, National University of Engineering, No Av. Tupac Amaru 210. Lima, Peru

Suggested Citation:

Yong, Y. J., Lee, J. H., & Kim, Y. S. (2022). A study on the possibility of a change in culture and arts education curriculum by shooting “METACLASSROOM” in the COIVD19 pandemic era. *Cypriot Journal of Educational Science*. 17(5)1603-1521 <https://doi.org/10.18844/cjes.v17i5.7239>

Received from January 15, 2022; revised from April 22, 2022; accepted from May 21, 2022.

©2022 Birlesik Dünya Yenilik Arastırma ve Yayıncılık Merkezi. All rights reserved.

Abstract

This study was intended to hear from experts. Meta-classroom is a university curriculum in the field of culture and arts. The research area is a Korean university lecture room. The target audience is the master's program, doctoral program and related experts, and the departments are performing arts, media communication, and film department. Outside were educators and experts. Due to the COVID-19 environment, meta-classrooms were provided to the educational environment. The purpose is to find the Meta-classroom and the possibility of curriculum progress. The content of the curriculum consists of knowledge VR, AR, AI and big data. The research tool did a regression analysis, found to have an impact on, they are online education is 0.28 (%), metaverse classroom is 20.6 (%), knowledge system is 12.5 (%), Meta-class is overall influence 33.38 (%). It had a positive impact on a new educational curriculum in the field of culture and art.

Keywords: Metaverse classroom; Knowledge system; Interdisciplinary; COIVD19 Condition; Culture & Arts Curriculum

* ADDRESS FOR CORRESPONDENCE: Yeon Soo, Kim c, Department of Road and Geomatic at Civil Engineering College, National University of Engineering, No Av. Tupac Amaru 210. Lima, Peru
E-mail address: ysook@uni.edu.pe / Tel.: +51-950-315-368 (Peru)

1. Introduction

The COVID-19 pandemic has disrupted the lives of students in different ways, and course of study but also on the point they have reached in their study of curriculum and subject. Students who end one stage of education and moving on to another, such as those transitioning from school to tertiary education, or from tertiary education to face particular challenges. in the COVID19 pandemic era. Many students will worry about suffering long-term disadvantages, compared. admission criteria "compassionately" may not always reassure (Daniel, 2020). They will not complete the curriculum and assessment in the normal classroom way, and in many cases, they have been turned away from there were separated almost overnight COVID19 in the period. On Post-digital Science and Education social network sites. Based on my previous experience with similar calls, and to contributions and produce a standard-length collective aiming at post-digital dialogue (Allahyari & Rouke, 2015). stated that unprepared instructors have negative effect on the student's perception about e-learning (Jirousek, 1995). On the other hand, revealed in their detailed study that students behavioral control variables are vitally important on theory of planned behavior; normative beliefs, subjective norms, Thus, education is the key factor to cope with the barriers for the effectiveness of the online education system. Facility market, target plan, implementing process, participation (Karle, 2021) revealed that faculty members' participation to strategic plans by the implementation of online learning increase the success of the process (Ehlers & Kellermann, 2019) stated the importance of the faculty members willingness for online education that positively enhance competitive advantage. Curricula needs to include content that is up to date in terms of their discipline, relevant to their contexts and meaningful in terms of application. it needs to include the teaching of skills needed not only to master the prescribed content, but skills to become 'future-readiness' of curricula "future ready" Future of Education" should be include (Mena, et al., 2020; Gous, 1992), and creating a culture of lifelong learning, career guidance, education innovation and maintaining a professionalized teaching workforce in digital fluency, ICT literacy skills, providing robust and respected technical and vocational education and training on innovation.

We now have an interdisciplinary of technologies, the form of a "METACLASSROOM" as a new phase of interdisciplinary knowledge. There are many working to classify and name the phenomenon we are all experiencing. cyber-physical systems will transform how we interact with the physical world around us. Digital industrial era the changes that are occurring are happening now because humans have finally developed the computing capacity to store massive amounts of data and can enable machine learning. Therefore, it is very likely that curricula will be attempted.

1.1. Necessity

The need for this study is that the concept of COVID19 condition used digital curriculum with that AR, VR, AI, and Big data, through the metaverse classroom assumption of as a curriculum cognitive performance of activities and behavior intention is determined curriculum of knowledge system ethics. Such as a curriculum of knowledge system strategic possibilities? it has the potential to study strategic? to reach objectives, and required time to attain creation of the curriculum are some of the condition, while sufficiency of subject, available materials, activates performance, metaverse classroom sources, and interdisciplinary transform has creation of knowledge system such as a curriculum. utilization is basic of theory and practical to implement required updates (Ehlers & Kellermann, 2019; Nilson, 2015). clarified the key distinction between performance and digital based on curriculum and knowledge system of curriculum that activities performance concentrate on curriculum culture & arts research that promotes focus on lecture and expertise to fulfill condition' needs. On the other hand, found that barriers to implement required updates, such as contextual factors, implementation requirements, and

perceived value of the curriculum negatively influence to change Sanders et al. (Harun & Mansor, 2019) claimed that change efficacy strongly affected by organizational members' cognitive appraisals, which are task demands, resource availability, and situational factors. the researchers expected the need in mind, the need for this study is change. Metaverse classroom uses tools to make culture & art education contents, and information technology to speed, connect, and converge.

It shows AR, VR, AI and Bigdata. Using images of sound and vibration between digital technology and on-line lecture performance on real time by transcending time and space. It is the value of the "Metaverse classroom" deep learning platform that transcends in this study. Keep in mind, the need for curriculum to contribute to the future It can be explained by replaced in the metaverse classroom.

2. Theory of Background

2.1. Description of the Theory

It can be grounded theory since being a member of the community is a reflection of the process understanding the objective action: methods have earned their place as a standard social research methodology categories, data, analysis, scientific inquiry (Gous, 2018), In fact, since the beginning of the 1980, as a sector where innovation emerged quite rapidly. Especially, the manufacturing industry began developing what has evolved into rapid prototype and computer models. Currently, many world-famous architecture firms use many architecture schools have begun experimenting with these technologies (Achten & Kopriva, 2010) considering it as a "fundamental phase in the design process". (Geropanta & Papamanolis, 2018) take into dynamics of rapid prototyping to generate the logic of design (Shahabadi & Uplane, 2015), According to (Vakaliuk et al., 2020) Create Space Cultivating the Imagination for Constant Change" that "learning requires such as a teaching curriculum can be taught, skill, mentored, and disposition (Guest et al., 2018) While the action steps of the two groups of students were similar, the motivational value of backward planning outperformed the forward planners and behavior of activities practical (McTighe & Thomas, 2003). define future skills as a future unknown context of action to an individual's disposition to act in a self-organized way, visible to the outside as performance. learning is placed on a spiraling through a learning these are dream, planning, curve, productive mistakes, help and support will be assessment of progression. Can be a meta cognitive reflection on each of them on its own and all of them working together (World Bank, <https://www.worldbank.org/en/who-we-are/news/coronavirus-covid19>). When mutual subjectivity is generalized in language, it can be seen as an agreement of objective knowledge (Kim, Y.S,2020).

During the Covid-19 pandemic, in this regard, it can be argued that, the World Bank (2020) highlights that during the emergency remote education "failure is common, and success is often a result of experience and learning from past failures". The World Bank (Snijders et al., 2012) further points out that: "education systems must confront issues of inequity front and center. The field of distance education has already proved its validity and value (Marx, 2013). Indicated that there is no difference between distance education and face to face education (Raghupathi & Raghupathi, 2014) against widely known assumptions, distance education does not specifically refer to online education, but a wide range of technologies used throughout its generations (Jagadish et al., 2014). The pragmatic nature of distance education allows the field to use working solutions for learners and defends the view that the field should provide educational opportunities for those who are "vulnerable to unequal developments" (Criollo et al, 2021). it is interaction that can take advantage of the subjectivity. knowledge can be developed and can be obtained through verification reliability (Kim. Y.S & Kim G.C, 2013). While this is the case for the field of distance education. utilizing a combination of different learning mediums to

ensure students are engaged and learning. emergency remote education can ensure that students continue learning through a variety of avenues.

This change in the educational environment creates condition and make the variables to increase the importance of the study objectivity of academic curriculum knowledge system by providing the experience of culture & arts curriculum, also to get result how change curriculum environment providing metaverse classroom. COVID19 pandemic era education-related research is based on Description. Underlying most of the modernist movements were impassioned efforts at COVID19 pandemic for the new condition on on-line education that was taking shape (Wu et al.,2021). For instance, this situation creation condition teaching performance activities of resolve human behavior, used computer material with that curriculum and a gradual awakening of matter, the emergence, ultimately, of a new form of life (Burdea & Coiffet, 2003). It's coming together and are combined, profit by new possibilities for mass customization, flexible behavior activities will be teaching, performing and others (Mallery & George, 2000). The curriculum contents foundation of these methods consists of metaverse classroom -physical systems, the internet of things, cloud, AR, VR, AI and Big data cognitive.

Culture & Arts Education purposes "realization of kind and exemplary personality which based on the knowledge and character, regardless of the certain occupation" (Gous, 2019) the point of the culture & Arts education is "to develop the inner ability of human nature to knowledge (Bruder, 1989) cultivation the ability to understand the reality and handle it on their own. Culture & arts curriculum courses to do with 'Computational Thinking' and are teaching or preparing to teach the subject, even to the students who do not study natural with 'Alpha Go. to the software education (Nasrullah, 2014) such as AR, VR, AI and Big data may alter this fact, it can be argued that the tangible model retains a privileged position in design thinking and praxis (Leonidis et al., 2012). Generally, these terms refer to the utilization of metaverse classroom assisted classroom tools and methods in order to aid in the curriculum of knowledge system and ethics form and practical performance and theatrically, either as scale models culture & arts as parts of the final curriculum. we need to consider alternative ways for students to continue learning like in the current Covid-19 pandemic with similarities and differences condition (Shahabadi & Uplane, 2015) it was emergency remote education that was applied and it can be further argued that emergency remote education is a branch of distance education as in the case of online, or homeschooling. based on the digitization is characterized by a fusion of study classroom that is blurring the lines between the physical, digital, and biological spheres (Schonfeld & Mazzola, 2013).

The proposed were model variables, COVID19 condition based on were measured by on- line education. artistic activities are used being offered as curriculum some teacher's whose are educational curriculum. some teacher's whose are Curriculum awareness distance learning type, separate [35] such as listing to liver as a media program, on line lecture [36] the latter was well made possible by communication and technologies (Shelton & Saltsman, 2005) this time distance education uses computer and internet as the delivered curriculum online (ACM SIGCSE Special Project Grants) depending on COVID19 condition that organized online curriculum there are many technologies conditioned, such as teaching service platform. Access to education has almost been of the utmost important.

It was the factor of the study the impact of the COVID19 condition, metaverse classroom and curriculum ethics of knowledge system and interdisciplinary transform and curriculum of theory acquisition. Helped as an important result of the study the impact of the metaverse classroom change and creation can be expected in COVID19 pandemic era. It was used the need to strengthen through metaverse classroom and to mitigate as a curriculum possible. It can be used as important for

subsequent study. To study obtain the result has control variables, it was assumed, COVID19 condition, metaverse classroom and knowledge system, ethics, and interdisciplinary and curriculum theory and practical of the culture arts subject.

The Augmented reality "(AR)" is closely tied to virtual reality (VR), since the concept of AR evolved as an extension, or variation (ACM SIGCSE Special Project Grants) whereas in AR users' perception is still centered within the real world, but with virtual objects superimposed, such that real and virtual objects seem to coexist in the same space (The STEAM project) AR systems is composed meaningful 3D virtual elements so that the user can interact with them)(Second Life Learning Community) Mobile devices are widely used due to their features and benefits such as having information at the user's fingertips, use of online educational material, high portability, universality, and ubiquity)[41] Net AR was designed based on an image target that the mobile device can identify and track, in order to superimpose the AR on it (Cox, 2004), Additionally, the gaming industry is beginning to release AR titles (e.g., Eye of Judgment and Eye Pet, by Play Station). display virtual images tied to real world locations are probably the best-known examples of "AR". It would be able to see as a metaverse classroom of the COVID19 condition and It is likely to be a change as a tool of culture & arts 's curriculum. The existence of provide for the curriculum of as an "AR", and elements of curriculum creation through as a the metaverse classroom.

The Virtual reality "(VR)" is that of devices has allowed the creation of innovative technological tools such as augmented reality (Leetaru, 2019). Learning attitudes in comparison, self-regulation, self-efficacy, will not increase students' cognitive, learning attitudes in architecture class (Bryant & Charmaz , 2010) Second Life, by Linden Lab, is probably the best-known example of VR. On the other hand, popular gaming consoles such as the Nintendo Wii, the Play Station 3, and the Xbox 360, have all released sport-centered games, and other games, where the players' real-world movements control a virtual avatar within a virtual environment. The "VR "is probable as a metaverse classroom of the COVID19 pandemic as a tools of culture & arts' educational curriculum. The existence of provide for the curriculum such as "AR", and "VR" and elements of curriculum creation through as a the metaverse classroom.

The Artificial Intelligence "(AI)" is to define the "AI" topics to be studied at this academic level, the main elements that make up an AI system, from an engineering point of view, were taken as a starting point. most of the implementation blocks (Thomas & James, 2006) correspond to specific topics that will be studied in the curriculum. As a keeping this in mind, it has been decided that the eight topics to be addressed in the curriculum which are perception, actuation, representation, reasoning, learning, collective, intelligence, motivation, and sustainability. The AI can be required as an educational curriculum. Assumed asked question as a curriculum knowledge system and Ethics, and Legal aspects of the "AI" Representation and reasoning are two very relevant of topics. There is connection probity that the "AI" can be understood as a culture & arts educational curriculum. The existence of provide for the curriculum such as "AR", "VR", and "AI", and elements of curriculum creation through as a the metaverse classroom.

The "Big data" an age characterized by fast collection of ubiquitous information. Big data incorporates endless amounts of information (Schonfeld, Mazzola, 2013). It is growing, providing a means to improve and streamline education curriculum. fields and sectors, ranging from education and pedagogical culture and arts performance and activities to curriculum, from the COVID19 condition to educational in many areas, are involved in big data providing and some problem (Wang et al., 2013). Big data has changed the world in terms of predicting educational practical behavior of performance. The birth of

big data cannot avoid mentioning another current popular term. Educational curriculum of contents uses knowledge system and theory. the relation between the two is obvious, yet complicated. Big data and metaverse classroom are as a classroom. Because of the Big data are generated from social networking sites, but big data is not always useful. The actual challenge of big data is not in collecting it, but in managing it as well as making sense of it (Kitchin & McArdle, 2016). When we work on big data, it is crucial to determine whether the benefits outweigh such as a knowledge system of ethics the of storage and maintenance. From the preservative of the academy, it is applied as an educational curriculum in the field of Culture & arts with that are curriculum and theory practitioners are trying to extract more benefits. It is used in several related to information usage curriculum at a metaverse classroom.

The Metaverse classroom is that it is a collective virtual shared space, created by the convergence of virtually enhanced physical reality and virtual space. including the sum of all the "AR", "VR", "AI", and "Big data" The word "metaverse class room " is made up of the beyond and verse form universe, typically used to describe the concept of a future iteration of the internet, made up of persistent, shared, include, virtual spaces linked into a perceived virtual universe and all the "AR", "VR", "AI" and Big data (Blummer, Kenton, 2019). Regarding to metaverse classroom will be able to see the changes in the education environment in curriculum. It can be seen as a change in the classroom, the mean is metaverse classroom which is in the tool form of educational curriculum. But used it COVID19 pandemic era metaverse functionally is sufficient. There is a rather insufficient theory and practice. Nevertheless, the purpose of this study is to increase the objectivity of borrowing research theory on the AR, for culture & arts' curriculum (Acuf, 2014). Therefore, this study corrected and supplement curriculum and knowledge system creation to culture & arts' curriculum of subject and utilized practical and theory.

The literature content manipulates

The cultural and artistic activities are Curriculum, the cultural and artistic activities are related to AI. the cultural and artistic activities are related to Video Media, the cultural and artistic activities are related to Social Medea (Facebook, Twitter, Instagram, etc.), The cultural and artistic activities are related to VR, (Liu, 2021) The cultural and artistic activities are AR, the cultural and artistic activities are related to Big Data, the cultural and artistic activities are related to technology can be performances, the cultural and artistic activities are related to performance of technology knowledge. The Culture & Arts curriculum is a link between AI and System of knowledge, The Culture & Arts curriculum is the use of Big Data, The Culture & Arts curriculum is the used of AR, (Garber, 1995) The Culture & Arts curriculum is use of the AI, (Cmiaux, 2021) interdisciplinary: The Culture & Arts curriculum is an agreement of various system of knowledge, (Hrstiet et al, 2019) The Culture & Arts curriculum is an agreement of various system of knowledge VR. Traditional curriculum of culture & Arts is used in the changed by technology of system of knowledge and will be expanded. The Culture & Arts curriculum are related to performance of technology knowledge. The Culture & Arts curriculum are related to performance system of knowledge. The Culture & Arts curriculum are related to Metaverse classroom. Metaverse Classroom: Traditional curriculum of culture & Arts is used in the changed by metaverse classroom. Traditional curriculum of culture & Arts is used in the changed by performance behavior tools (VR, AR, AI), (Radianti, 2020) Traditional curriculum of culture & Arts is used in the changed by technology of system of knowledge and will be expanded.

3. Methodology

3.1. Sample Data collection

The data was collected using a single self-report questionnaire that contained all the items used for measuring. Data used in this study were obtained from structured questionnaires designed to study those who were from 20 years under to 80 years over, and, and interview and responded. With the at list high this the basic for the sample material. Interview and questionnaires' want to study on the possibility of a change in education curriculum through the metaverse classroom, in other to use the objective of the curriculum, include which were knowledge system and performance of curriculum theory and practical in the field of culture & arts. It was applied such as empirical data. the period of the visited and received form 25th, Mar, 2021 to 25th, March, 2021 until. Inform and obtain the research purpose, collected and cooperation of sampling. It was supported by educational experts' groups at university and MA, and Ph. D students and institute agency. The groups participations are 360people form Korea and others countries, Korea, philippic, Peru, and Turkey and others. The language of the question is English. it was consistent variables, contents of "COVID19, pandemic condition during the on-line teaching", "metaverse classroom", "knowledge system and interdisciplinary", and "culture and arts curriculum". Data was utilized. It was processed 360 participates, 304 recalls, and unused 25, and 279 final choose were adopted.

3.2. Operation variable

knowledge system was curriculum with put most simply, is an artistic practice that uses, data as its medium. Artists are both using data from external sources and collecting or creating data as part of their work and performance with behavior activities which is art works cut across many mediums, (e.g. digital, sculpture, photography, and genres (Thomason, 2015) Data art can be conceptual or abstract. Data art is sometimes overtly such as with metaverse classroom, but not always (Microsoft in Education, 2010; ECU IT Geeks, S2T4W3). It can be straight forward and functional or intentionally obscure. about artistic data. "Defining what constitutes 'artistic' visualization is hard, (Fernanda & Wattenberg, 2007; Global Markets Asian Timezone, 2020). If only because defining art itself is hard. To sidestep that philosophical question. artistic visualizations are visualizations of data done by artists with the intent of making art"

Independ Link- COVID19 pandemic condition, Metaverse classroom, curriculum knowledge system. Interdisciplinary of transform was linked intervening variable and culture & arts curriculum was make variables contents of dependent. Deep learning, Metaverse include (AR, VR, AI and Big data) (Metaverse weekly times, 2021). As well as variety of variables was with that Media, Claude and 3D (Beavis, 2004).

First, Culture & Arts has been metaverse classroom recognition, and artistic, activities are related to curriculum organized form "METACLASSROOM" were used such as AR, VR, AI & Big data. and knowledge system curriculum can be performance and activities and behavior there are things that happen description of contents such as a theory and practical.

Second, Metaverse classroom was composed tools which is AR, VR, AI, and Big data new era place. system of knowledge curriculum was link between theory and practical was by curriculum were that it was used on the COVID19 condition.

Third, Interdisciplinary curriculum were agreement of awareness various of systems of knowledge, and as a system of knowledge agreement ethics & curriculum with that include metaverse classroom were AR, VR, AI, and Bigdata, and COVID19 pandemic condition lectures on-line. and activities performance and metaverse classroom.

Fourth, COIVD19 pandemic condition were used change the traditional cress room, and changed performance behavior changed of the tools, and technical of system of knowledge changed and will be expanded, through the interdisciplinary.

The study area is the University's classroom in Korea. Participants are MA's, Ph. D, and related field experts. Includes departments in the performing arts, media communications, and film departments, and educators, professionals, and more.

3.3. Research model

The Research achievements in educational curricula. In order to find the possibility, it tried to adapt to the change of the educational curriculum by proving the change of the educational environment in the COICD19 era, agreeing with the opinions of experts. The structure of the proposed framework is shown in <Figure 1> , In total, drawn from constructs of 5 variables are composed, with that 3 independent variables, and one was intervening variable, another was dependent variable. It consists of the possibility of a change in Culture and Arts education curriculum. total 23 of which variables include curriculum necessary has been COIVD19 pandemic condition with contents -2 as each sub-variables, and has been curriculum recognition with contents -7 as each sub- variables, and has been curriculum with contents knowledge system- 5 as each sub-variables, and has been interdisciplinary of transformation -6 as each sub-variables, and has been metaverse classroom tools - 6 as each sub-variables. The theory and practical of culture & arts curriculum are deep tendence constructed by dependent variables. It was the sub-variables of culture & ats were curriculum change were composed, which is COIVD19 condition, Metaverse classroom, knowledge system impacting interdisciplinary towards overview possibility form (Anderson et al, 2021; RESOURCES FOR THE CCA COMMUNITY). Study on the impossibility of the culture & arts curriculum (Harris, 1977; Tervo, 2016).

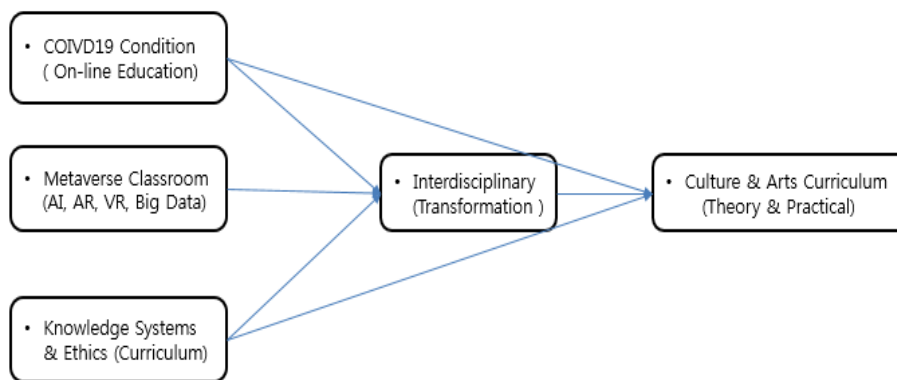


Figure 1. Research model 1

Figure 1. with probability was defined, as below in many ways of definition are used "C" what is C-1, and tossing three, and are used "M" what is "M" listed all the possible "K" rule definition. In case of "I" is product first C-1, M-1, and K-1. individual variables. Second products of two set is the all of intervening enter of another set. Third product of one set is "CA" and "TP" dependent variables enter of the set. It can <figure-1> generate of the product of the case. This study used the number of ways possible outcomes, with three "C-1", "M-1", and "K-1" set and second set "I-1" product can be used "I-1" and

third set "CA-1", "TP-1" in defining sample define actual. help clearly understand to set up the question of "define" each variable with that it has the marked, as it is below.

Independent Variables: "C" = C-1 (Covid19), M-1 (Metaverse), K-1 (Knowledge system)

Intervening Variables: "I" = "I-1" (Interdisciplinary)

Dependent Variables: "CA" = "CA-1" (Culture & Arts curriculum)

Dependent Variables: "TP" = "TP-1"(Theory & Practice)

3.4. Research contents

This study was composed contents factors in accordance with principles for curriculum contents research asking question with experts' groups and by giving lectures or experience of the lecture to those of who have participated in the classroom or on-line was taken to indicate their informed consent. It was composed of curriculum contents, and include activities behavior of performance variables, and it consisted of curriculum using related tools in the metaverse classroom, which were AR, VR, AI, and Bid data, and culture & arts' as curriculum acceptance relationships for information acquisition. Characteristic such as activities behavior, performance dance perception of culture & arts curriculum, path interdisciplinary transform of diversity of curriculum, relevance of COVID19 condition, Metaverse Classroom and knowledge system ethics, and interdisciplinary, attention performance of behavior activities and usefulness as a curriculum. Considering, Intervening contents was composed of interdisciplinary transform and different use lecture tools and variety experience technology level different supply for condition classroom, and dependent factors culture & arts' curriculum creation, and it has two sub-factors. It becoming the lectures experience COVID19 condition, from metaverse classroom to on-line lecture. By being refined, considering the COVID19 era and ending curriculum using the metaverse class. Totals of fives factors were composed. Towards products curriculum was measure on fives items and extracted from previous studies literature survey and familiarity variables is composed of explanations. Tried to increase the basic factors by borrowing them objectivity.

Factors independent of each other are irrelevant. As a result of agglomeration, the basic factors were with that helps curriculum subject actively. In the past AR, VR, AI & Big date were learning only focused on serve with views, but interactive curriculum of the subject were added to this deep learning COIVE19 on-line condition, knowledge system, interdisciplinary and metaverse classroom linking curriculum and variety contents of culture & arts theory and practical backup systems of knowledge online education real time condition metaverse classroom .

In relation to this, the impact on culture & arts curriculum theory & practical by metaverse classroom is indicated by from, frequently, crosstab and regression analysis. General participation statistics are explained by frequency analysis, in other to investigate the effects of COIVD19 condition, metaverse classroom, curriculum knowledge system with ethics and interdisciplinary on in tension, in accordance with three latent variables were specified to prove their validity aa a causal model : COIVD19 condition (2item), curriculum necessary (6item), knowledge system, ethics (5item), interdisciplinary(6item), metaverse (4item) and others form the view (2item). It was assumed. 1) independent variables do the same, 2) frequently analysis has normal distribution, 3) factors analysis captures each variable, and 4) regression analysis assumed the influence of dependent variables. As a result of the analysis it was important to increase the objective knowledge. results, the mediating effects between independent variables and outcome variables are as follows. First, metaverse classroom the mediation effected

between artistic competence performance and activities behaviors has indirect effect. ($p < 0.01$), which has a statistically significant indirect effect and plays a role as a mediator.

AR, VR, AI and Big Data were that four industrial revolution and COVID19 era which are learning system. Curriculum is controlling the standard and content they want to see study themselves. At the same time, learners can record their answers and upload them to the database. also, students to learn in the learning process with audio instructions from the background and provides feedback and guidance to the different choices of the condition. The setting of some interactive sessions similar to deal of fun to the learning system; and can also leave messages and feedback. Also, they can answer questions and take quizzes and an examination, which greatly reduces the possibility of cheating. Teachers can easily grasp students' learning situation from the back-end database. It solves the online education problem of the difficulty of assessing students' learning situation during the COVID-19 pandemic.

Has been recognition 1) Curriculum necessary: The cultural and artistic activities are Curriculum, the cultural, and artistic activities are related to AI. 2) Curriculum performance: The cultural and artistic activities are related to Video Media, the cultural and artistic activities are related to 3D, The cultural and artistic activities are AR, The cultural and artistic activities are related to VR, Activities are related to technology can be performances, and Activates behavior are related to performance of Curriculum. 3) Curriculum knowledge system : Curriculum is a link between AI and System of knowledge, The culture & Arts curriculum is the used of AR, The culture & Arts curriculum is the use of VR, The culture & Arts curriculum is the use of the AI, and The culture & Arts curriculum is the used of Big Data, 4) Interdisciplinary transform : Curriculum is an agreement of various system of knowledge, Curriculum is an agreement of various system of knowledge AR, Curriculum is an agreement of various system of knowledge VR, Curriculum are related to performance of technology knowledge, Curriculum are related to activities of behavior knowledge system, and Curriculum are related to Metaverse classroom, 5) Metaverse Classroom: Curriculum was changed by on-line lecture, Curriculum was changed by tools such as (AR, VR, AI, Big data), Curriculum was changed by technology of system of knowledge, Curriculum will be expanded by activities COVID19 condition. Stoned, perceived factors control was measure on the 5 items based on collected literature form overview and curriculum creation convened was measured by five different items as proposed factors.

As a result, this kind of interaction can effectively improve' proactivity and enable them to learn actively, making them actively think, experience, and imagine, gain deeper insights and inspirations, carry out high-level thinking, and ultimately enhance their learning performance. For metaverse classroom was provide to students, the proposed was shown instead of practical performance AR, VR, AI & Big data and performance of activities and can be supply images, activities, behavior etc. metaverse classroom learning system in this study is feasible and effective. The fact that AR, VR, AI, & Big data were used technology increases learning performance has also been proved by many kinds of curriculum. However, the limitations of the present study need to be noted. First of all, future studies can consider conducting a long-term experiment.

3.5. Tools analysis

Data analyses were conducted using the statistical package for social sciences (SPSS, 22) and analysis of moment structures software, to achieve the purpose and to test analysis of this study. variables were used for descriptive analysis to analyze preliminary results and to figure out the demographic characteristics of the sample, more and more detailed review, with frequently, factor analysis, and

regression was used to progress and to assess the adequacy of measurement for confirming the reliability, convergent and divergent validity, followed by using metaverse classroom to test the study of subject curriculum contents. The reliability of the test and questionnaires were verified using analysis of the data was extracted from culture & arts' curriculum of activities and performance possibility.

3.6. Statistical analysis

In statistics related to variables results, each variable was affected between independent variables, intervening variables, dependent variables and outcome variables, though metaverse classroom the mediation effected as a curriculum between artistic competence performance and activities behaviors has indirect which has a statistically significant indirect effect ($P < 0.05$). shows indirect effects, total effects, and statistical significance as well as direct effects among these variables. In statistics related to COVID19 condition, Metaverse and Curriculum knowledge system with ethics. It sees the different creation of culture & arts curriculum, by COVID19 condition.

The result agrees with our previous sample resolving, if we make the problem a bit more strangled. However, may be the formula will be more useful. Gender case output result was male & female as follows, male was 40.1 (%), female was 59.9 (%), age was 20s, 50.5 (%), was 30s, 16.5(%), was 40s, 16.8 (%), was 50s, 7.5 (%), was over 60s, 8.6 (%). The analysis result can be summarized and explained. 20s was interesting condition probability them 50s, and over 60s, and others groups. the result of occupation was as follows, students was 48.4 (%), office worker was 13.3 (%), public education office was 2.5 (%), professional was 10.0 (%), artist was 12.2 (%), and others 13.7(%). The details of the result are shown. Students was more interesting condition them professional, public educational office and artists. The details of the research are shown.

Table 1. Frequency Analysis 1

	Division	Frequency Person	Valid Percent
Sex	Male	112 Persons	40.1 (%)
	Female	167 Persons	59.9 (%)
	Total	279 Persons	100(%)
Age	20s	141 Persons	50.5 (%)
	30s	46 Persons	16.5 (%)
	40s	47 Persons	16.8 (%)
	50s	21 Persons	7.5 (%)
	Over 60	24 Persons	8.6 (%)
	Total	279Persons	100(%)
Occupation	Student	135 Persons	48.4 (%)
	Office worker	37 Persons	13.3 (%)
	Public educational official	7 Persons	2.5 (%)
	Professional	28 Persons	10.0 (%)
	Artist	34 Persons	12.2 (%)
	Others	38 Persons	13.7 (%)
	Total	279Persons	100(%)

(*SPSS, Result)

Frequency analysis assumed a good reason for including both of them our little test, after test are administrated score, culture & arts' curriculum necessary was 90.7(%), interdisciplinary was 45.5 (%), Metaverse classroom was 10.0 (%), and knowledge system was 77.8(%). Therefore, COVID19 condition will be necessary was more interesting of each variable are shown. Inferring to the result, the necessary of the curriculum, interdisciplinary, and knowledge system is agreed, but view on the metaverse classroom are still insufficient.

Table 2. Frequency Analysis 2

	Yes	253 Persons	90.7 (%)
Culture & art curriculum Necessary	No	26 Persons	9.3 (%)
	Yes	127 Persons	45.5 (%)
Interdisciplinary	No	152 Persons	54.5 (%)
	Yes	10 Persons	3.6 (%)
Metaverse Classroom	No	269 Persons	96.4 (%)
	Yes	217 Persons	77.8(%)
Knowledge system	No	62 Persons	22.2(%)
	Total	279 Persons	100.0 (%)

*Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization

It was indicated

The basic factors were aggregation and the variables were aggregated, the resulting in factors of 0.5 less or higher, which is expressed, first it can be interpreted as having probability, it was indicated. COVID19 condition are ($P > 0.313$), ($P > 0.461$) respectively, it is used a variable used statistic validity. Second, it was that result are ($P < 0.563$), ($P < 0.489$), ($P < 0.584$), ($P < 0.576$), ($P < 0.410$, and ($P < 0.584$), respectively, therefore, it is used a variable, and Curriculum performance has statistic validity. Third, it has strong connection, ($P < 0.598$), ($P > 0.418$), ($P < 0.703$), ($P < 0.703$), and ($P < 0.843$), it is expressed as a variables standard for curriculum knowledge system. In increased the like hood. It is displayed. The value of the variables with that interdisciplinary were ($P < 0.843$), ($P < 0.533$), ($P < 0.688$), ($P < 0.827$), ($P < 0.827$), and ($P < 0.827$). it has strong explained also. These values have statistic significant as explanatory variables. Increase the variables explanation of the metaverse are explanted ($P < 0.688$, ($P < 0.740$), ($P < 0.875$), ($P < 0.872$), and ($P < 0.764$) by indicators. it enhances the cohesion of variables explanation. The result variables are shown. In this study is highly regarded as a factor that can be used as the curriculum creation production.

Table 3. Frequency Analysis 2

Indicator	Cohesion Variables	Factor 1	Factor 2
Curriculum Necessity	The cultural and artistic activities are Curriculum	.312	.232
	The cultural and artistic activities are related to AI	.461	.460
Curriculum Performance	The cultural and artistic activities are related to Video Media	.563	.460
	The cultural and artistic activities are related to 3D	.489	.444
	The cultural and artistic activities are related to VR	.584	.576
	The cultural and artistic activities are AR	.576	.521

	Activities are related to technology can be performances	.584	.563
	Activates behaviour are related to performance of Curriculum	.598	.557
Curriculum Knowledge System	Curriculum is a link between AI and System of knowledge	.418	.413
	The Culture & Arts curriculum is the used of Big Data	.703	.694
	The Culture & Arts curriculum is the use of VR	.703	.593
	The Culture & Arts curriculum is the used of AR	.843	.694
	The Culture & Arts curriculum is to use of the AI	.843	.649
Interdisciplinary	Curriculum is an agreement of various system of knowledge	.533	.501
	Curriculum is an agreement of various system of knowledge VR	.688	.679
	Curriculum is an agreement of various system of knowledge AR	.827	.740
	Curriculum are related to performance of technology knowledge	.827	.679
	Curriculum are related to activities of behaviour knowledge system	.688	.660
	Curriculum are related to Metaverse classroom	.740	.657
Metaverse Classroom	Curriculum was changed by on-line lecture	.875	.684
	Curriculum was changed by tools such as (AR, VR, AI, Big data)	.872	.684
	Curriculum was changed by technology of system of knowledge	.764	.488
	Curriculum will be expanded by activities COVID19 condition	.410	.377

Regression analysis supported the degree of impact definition are used first

As a result of agglomeration, the basic factors were aggregated and variables were aggregated resulting in a factor of ($P < 0.05$) or higher, in which is expressed. First it can be interpreted as having probability, which has a statistically significant indirect effect and plays a role as a mediator.

Figure 2. the regression analysis was explained, which were curriculum necessary. 0.28 (%), activities performance 20.6 (%), metaverse classroom 0.07 (%), knowledge system 12.5 (%), interdisciplinary transform 13.8 (%), and comprehensive variables on culture & arts' curriculum of dependent variables show 67.85 (%) impacted. It was that the result, and the standard path coefficient indicated positive effects among the constructs structure model. In total were supported. The significant of the regression was ($P < 001$) indicated that the culture & arts of curriculum was supported. According to positive estimate of coefficients interaction between the five variables it shows the ability to explain curriculum necessary 32.5 (%), and activities performance 29.4 (%), metaverse classroom 32.8 (%), knowledge system 30.8 (%), and interdisciplinary transform 30.6 (%) had significant positive effects was supported ($P < 001$). The impact of the perceives culture & arts' curriculum will be creation for activities and performance supported, adjusting R^2 Square total show 67.85 (%). ($P < 001$) had significant positive effects on culture & arts' curriculum through the metaverse.

Table 4. Regression Analysis

Model	R ²	Adjusted R ²	Beta	Change Statistics			
				R ² Change	F	Df	F
Necessary	.035	.028	.325	.035	5.021	273	.007
Activities performance	.221	.206	.294	.221	15.237	269	.000
Metaverse classroom	.014	.007	.328	.014	1.972	273	.141
Knowledge system	.141	.125	.308	.141	8.837	270	.000
Interdisciplinary	.148	.138	.306	.148	15.700	272	.000
Total	0.874	67.85	1,561	0.559	46,767	1375	-

“on -line education “C” tossing, what is “C-1” product independent variables second: in case of “M” is product Metaverse classroom of four set, and are used “M-1” what is the total all composed list all of possible, “M-1”. Rule definition third: product of “knowledge system” “K” set is the all variable enter of the one set. What is “ K-1” product of one set is used ‘K-1” independent variables. product of “interdisciplinary transform” one set is the all of intervening variables enter of the anthers set, and used “I” what is “T-1” listed all the rule. Product of two set is “CA” to warding culture & arts curriculum and “TP” dependent variables enter of the theory and practical set. What is “CA-1” and TP-1” listed up set. culture & arts’ curriculum created through metaverse classroom.

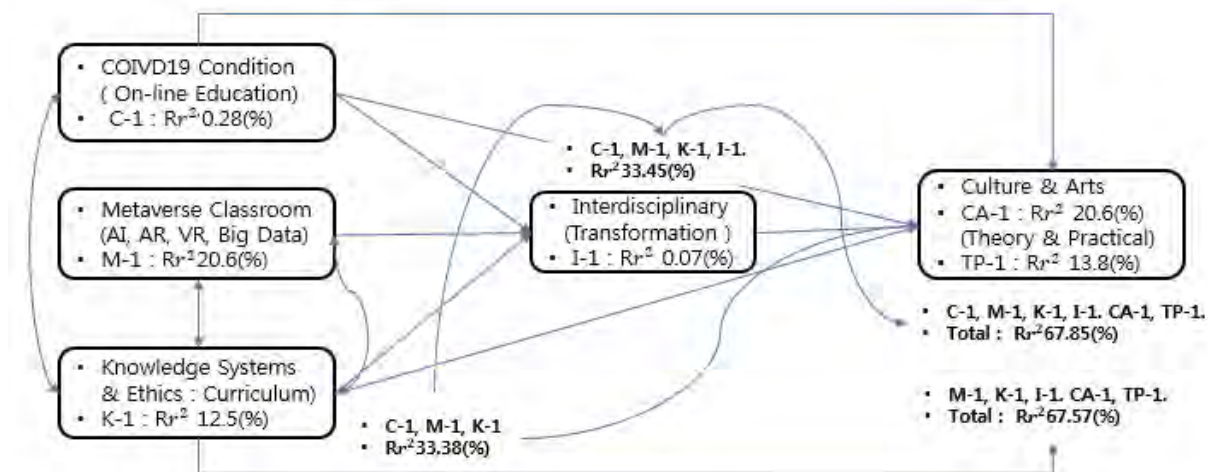


Figure 1. Regression Analysis

4. Conclusion

The meta-classroom was provided by COVID-19 environment the need for non-face-to-face education. It was constituted by the educational technology-intensive environment of the meta-classroom. The meta-classroom was created by AR and VR education, and not only provided, but also

provided in the meta-classroom by utilizing AI and big data. It was found that it had indirect effect on the new environment. Bringing theory and practice

It shown to the explained COVID 19 condition on-line education was 0.28 (%), and Metaverse classroom was 20.6 (%), and knowledge system 12.5 (%), the impact of deceived of the interdisciplinary transform $R^2 = 33.38$ (%). ($P < 001$) had significant positive effects on the interdisciplinary response. Culture & arts' curriculum showed significant positive influence on COVID 19 condition "on-line" teaching, metaverse classroom and knowledge system with interdisciplinary transform towards culture & arts' curriculum impact, products, On-line teaching, was 0.28 (%). Met classroom was 20.6 (%). Knowledge system was 12.5 (%). However, it had indirect effects through interdisciplinary transform was 33.45 (%) product. towards the culture& arts' curriculum theory & practical was 67.85 (%) product. Assuming culture & arts' curriculum was support. "C-1","M-1", and K-1" to wards path "I-1", and towards "CA-1" "TP-1" had significant positive responded.

"CA-1", "TP-1" was support. Positive estimate of each variables and activities performance, knowledge system towards metaverse effective product 33.38 (%), (C-1+M-1+K-1) was support. The impact of experience and approach path for curriculum necessary, through metaverse classroom product had significant positive effects 33.45 (%) (C-1+M-1+K-1+I-1). Concerned had significant positive interdisciplinary effect on 33.45 (%) curriculum transform and towards culture & arts' curriculum theory & practical creation effect on 67.85 (%).

Finally, environment COVID19 pandemic condition culture & art' curriculum showed significant positive influence on curriculum necessary, activities performance, metaverse classroom, knowledge system and interdisciplinary and toward the culture & arts' curriculum of theory and practical, products 67.85 (%), and the curriculum effect on 67.57 (%), thus supporting, 33.45 (%) (C-1+M-1+K-1), 33.45 (%), and (C-1+M-1+K-1+I-1) . , 33.45(%), and "CA" , towards culture & arts' curriculum creation "" CA-1" ,and "TP-1" .

The result of the study, include lack of academic and theoretical instability, I would like to finish with a suggestion. The necessary of detail follow- up studies to overcome the theoretical limit between the culture & arts' curriculum and metaverse classroom in the era of COVID19 pandemic. However, it had indirect effects activities performance through metaverse classroom, knowledge system, interdisciplinary transform towards the culture & arts' curriculum theory and practical to product.

Author Contributions: The following statements should be used "Conceptualization, and methodology, Y. S, Kim ; software, validation, J. H, Lee, and J. Y, Yoo; formal analysis, Y.S, Kim; investigation, resources, J. H, Lee, data collection, J, Y, Yoo; writing—original draft educational curriculum preparation, Y. S, Kim ; writing—review and editing, Y. S, Kim; visualization, and supervision, Y. S, Kim ; project administration, Y. S, Kim; funding acquisition, Y. S, Kim. All authors have read and agreed to the published version of the manuscript." Please turn to the term explanation. Authorship must be limited to those who have contributed substantially to the work reported. The researchers discussed more than 15 times. In relation to media, performances, educational content, curriculum, knowledge system, interdisciplinary exchanges, Meta-Classroom. etc.

Yong, Y. J., Lee, J. H., & Kim, Y. S. (2022). A study on the possibility of a change in culture and arts education curriculum by shooting "METACLASSROOM" in the COVID19 pandemic era. *Cypriot Journal of Educational Science*, 17(5)1603-1521 <https://doi.org/10.18844/cjes.v17i5.7239>

References

- Achten, H., & Kopriva, M. A. (2010). Design Methodological Framework for Interactive Architecture. *Education in Computer Aided Architectural Design in Europe(eCAADe)*, 12-14.
- ACM SIGCSE Special Project Grants. <http://www.sigcse.org/join/SpecialProjects.shtml>
- Acuf, J. B. (2014). (Re)Constructing Cultural Conceptions and Practices in Art Education: An Action Research Study. *Visual Arts Research*, 40(2), 67-78. <https://doi.org/10.5406/visuartsrese.40.2.0067>
- Allahyari, M., & Rouke, D. (2015). The 3D Additivist Manifesto. <http://www.morehshin.com/3d-additivist-manifesto>
- Allen, I. E., & Seaman, J. (2011). Going the Distance: Online Education in the United States, 2011. Babson Survey Research Group.
- Anderson, J., Rainie, L., & Emily, A. V. (2021). Experts Say the 'New Normal' in 2025 Will Be More Tech-Driven, With More Big Challenges. Hopes and worries for the evolution of humans and digital life in the wake of the arrival of the COVID-19 pandemic. Internet and Technology Research Elon University's Imagining the Internet Center. Haley Nolan, Communications Associate.
- Available online: http://sloanconsortium.org/publications/survey/going_distance_2011 (accessed on 13 January 2021).
- Beavis, C. (2004). Critical perspectives on curriculum and ICTs: the 3D model, literacy and computer games. *Interactive Educational Multimedia*, November 9, 77-88.
- Blummer, B., & Kenton, J. M. (2019). Big data and libraries: identifying themes in the literature *Big Data and Libraries: Identifying Themes in the Literature*, 23, 15-40. <https://doi.org/10.1080/10875301.2018.1524337>
- Bruder, I. (1989). Distance learning: What's Holding Back This Boundless Delivery System?. *Electron Learn*, 8, 30-35.
- Bryant, A., & Charmaz, C. (2010). *The SAGE Handbook of Grounded Theory*. SAGE Publications.
- Burdea, G., Coiffet, P. (2003). *Virtual Reality Technology*. John Wiley & Sons: Hoboken, NJ, USA, 2003.
- Cmiaux, B. (2021). The Use of Artificial Intelligence in the Cultural and Creative Sectors. *Discover Our at a Glance Notes*.
- Cox, M. D. (2003). *Faculty Learning Community Program Director's and Facilitator's Handbook*. Miami University, Ohio.
- Cox, M. D. (2004). Introduction to Faculty Learning Communities. in M. D. Cox and L. Richlin, (Eds.) *Building Faculty Learning Communities. New Directions for Teaching and Learning*, 97, 5-23. <https://doi.org/10.1002/tl.129>
- Criollo, C. S., Abad, V. D., Martic, N. M., Velásquez, G. F. A., Pérez, M. J., & Luján, M. S. (2021). Towards a New Learning Experience through a Mobile Application with Augmented Reality in Engineering Education Santiago. *Applied Sciences*, 11, 1-18. <https://doi.org/10.3390/app11114921>
- Criollo, C. S., Lujan, M. S., & Jaramillo, A. A. (2018). Advantages and Disadvantages of M-Learning in Current Education. In *Proceedings of the IEEE World Engineering Education Conference (EDUNINE)*, Buenos Aires, Argentina. 1-6. <https://doi.org/10.1109/EDUNINE.2018.8450979>
- Daniel, S. J. (2020). Education and the COVID-19 pandemic. *Prospects*, 49, 91-96. <https://doi.org/10.1007/s11125-020-09464-3>

- Yong, Y. J., Lee, J. H., & Kim, Y. S. (2022). A study on the possibility of a change in culture and arts education curriculum by shooting "METACLASSROOM" in the COVID19 pandemic era. *Cypriot Journal of Educational Science*, 17(5)1603-1521 <https://doi.org/10.18844/cjes.v17i5.7239>
- Ehlers, U. D., & Kellermann, S. (2019). Future Skills - The Future of Learning and Higher Education. *Results of the International Future Skills Delphi Survey, March*, 1-5.
- EKU IT Geeks, S2T4W3: Gamification, Funware, Puzzle Building, Professor Teaches. 2010. the Geeks at Eastern Kentucky University (EKU) in Richmond.
- Fernanda, B. V., & Wattenberg, M. (2007). Artistic Data Visualization: Beyond Visual Analytics. Visual Communication Lab, IBM Research, 1 Rogers St, Cambridge, MA 02142, USA. https://doi.org/10.1007/978-3-540-73257-0_21
- Garber, E. (1995). Teaching Art in the Context of Culture: A Study in the Borderlands. *Studies in Art Education*, 36(4), 218-232. <https://doi.org/10.2307/1320936>
- Geropanta, V., & Papamanolis, A. (2018). Prototyping in Architectural Pedagogy – Strategies and Frameworks for Design Pedagogy in the 4th Industrial Revolution, 5(1-2), 59-76.
- Global Markets Asian Timezone(2020). The Metaverse Is Coming And It's A Very Big Deal.Cathy Hackl Contributor. CMO Network I'm a tech futurist & speaker with expertise in AR VR & the Metaverse.
- Gous, I. G. P. (1992). A Survey of Research on the Book of Lamentations. *Old Testament Essays*, 5(2), 184-205. https://hdl.handle.net/10520/AJA10109919_463
- Gous, I. G. P. (2018). Learning Explained: A schema-building scaffolding framework to make sense of personalized guidance and support for learning. In J. M. Duart, & A. Szűcs (Eds.). *Towards personalized guidance and support for learning*, Proceedings of the 10th European Distance and E-Learning Network Research Workshop, 289-311.
- Gous, I. G. P. (2019). Yesterday, Today and Tomorrow: The Blossoming Art of Teaching and Learning Required to Prepare Students for the 4th Industrial Revolution. Connecting through Educational Technology Proceedings of the European Distance and E-Learning Network 2019. Annual Conference Bruges, June, 16-19. <https://doi.org/10.38069/edenconf-2019-ac-0015>
- Guest, W., Wild, F., Vovk, A., Lefrere, P., Klemke, R., Fominykh, M., & Kuula, T. A. (2018). Technology Acceptance Model for Augmented Reality and Wearable Technologies. *Journal of Universal Computer Science*, 24, 192–219. <https://doi.org/10.3217/jucs-024-02-0192>
- Harris, A. (1977). The Impossibility of a Core Curriculum. *Oxford Review of Education*, 3(2), 171-180. <https://www.jstor.org/stable/1050247>
- Harun, A., & Mansor, Z. (2019). Individual Readiness for Change in the Pr. e-Implementation Phase of Campus Enterprise Resource Planning (ERP) Project in Malaysian Public University. *International Journal of Advanced Computer Science and Applications*, 10(1), 128-134. <https://doi.org/10.14569/IJACSA.2019.0100116>
- Hrstić, I., Golubić, M. M., Mestvirishvili, N., Sylla, C., Marmer, E., Seukwa, L. H., Chatterjee, C., Dyahadroy, S., Romanovska, A., Deák, D., Ferrer-Fons, M., Uçarol, A. B., Oral, A., Kurban, S. B., Mete, H., Esmer, E., Stamou, E., Popov, A., & Soytemel, E. (2019). Qualitative research in formal ed - Chief Project. CHIEF (Cultural Heritage and Identities of Europe's Future), Deliverable 2.1 14th January.
- Jagadish, H., V, Gehrke, J., Labrinidis, A., Papakonstantinou, Y., Patel, J. M., Ramakrishnan, R., & Shahabi, C. (2014). Big Data and Its Technical Challenges. *Communications of the ACM*, 57(7), 86-94. <https://doi.org/10.1145/2611567>
- Jirousek, C. (1995). The Evolution of Visual Art in the Modern Era. <http://char.txa.cornell.edu>
- Karle, A. (2021). Art of the 4th Industrial Revolution and its Contributions to Humankind. Conceptual Art Technologies, San Francisco, California USA.

- Yong, Y. J., Lee, J. H., & Kim, Y. S. (2022). A study on the possibility of a change in culture and arts education curriculum by shooting "METACLASSROOM" in the COVID19 pandemic era. *Cypriot Journal of Educational Science*, 17(5)1603-1521 <https://doi.org/10.18844/cjes.v17i5.7239>
- Kitchin, R., & McArdle, G. (2016). What makes Big Data, Big Data? Exploring the ontological characteristics of 26 datasets. Original Research Article. *Big Data & Society*, 3(1), 1-10. <https://doi.org/10.1177/2053951716631130>
- Kim, Y.S. (2020). The Study on the Social Science Methodology: Focusing on change in the behavior of Policymaker. *Technium Social Sciences Journal Vol. 6*, 1-17, April. 1-17.
- Kim, Y.S. & Kim, G.C (2013). Research Underlining the Importance of Inter-subjectivity of Trade Agreements to Methodology. *Korean Journal of Local Government & Administration Studies*, Vol 29 (4),372-382.
- Leetaru, K. (2019). AI & Big Data-I write about the broad intersection of data society. Why Data Visualization Is Equal Parts Data Art And Data Science. *Forbes*.
<https://www.forbes.com/sites/kalevleetaru/2019/02/24/why-data-visualization-is-equal-parts-data-art-and-data-science/?sh=7c1c46e66dec>
- Leonidis, A., Antona, M., & Stephanidis, C. (2012). Rapid Prototyping of Adaptable User Interfaces. *International Journal of Human-Computer Interaction*, 28(4), 213-235.
<http://dx.doi.org/10.1080/10447318.2011.581891>
- Liu, H. (2021). Talking about the Application of VR Technology in Art Derivative Cultural Creation AICNC 2020 Journal of Physics: Conference Series. <https://doi.org/10.1088/1742-6596/1852/4/042038>
- Mallery, P, George, D. (2000). *SPSS for Windows Step by Step*. Allyn & Bacon: Boston, MA, USA, 2000.
- Marx, V. (2013). Biology: The Big Challenges of Big Data. *Nature*, 498(7453), 255-260.
<https://doi.org/10.1038/498255a>
- Mayadas, F. (1997). Asynchronous Learning Networks: A Sloan Foundation Perspective. *Journal of Asynchronous Learning Networks*, 1(1), 1–16.
- McTighe, J., & Thomas, R. S. (2003). Backward Design for Forward Action. *Using Data to Improve Student Achievement*. 60(5), 52-55.
- Mena, J., Singh, B., & Clarke, A. (2020). New Challenges for Teacher Education Introduced by the Use ICT in the Classrooms. *Eighth International Conference on Technological Ecosystems for Enhancing Multiculturality*, October, 859–861. <https://doi.org/10.1145/3434780.3436716>
- Metaverse weekly times, Radoff, R. (2021, june). The Metaverse and Artificial Intelligence.
- Mixrosoft in Education - Education Archives - Microsoft Industry Blogs - United Kingdom
- Nasrullah, B. (2014). Role of Multimedia Tutorials in Distance Education. *International Journal for Infonomics*, 7(3/4), 933–941. <https://doi.org/10.20533/iji.1742.4712.2014.0110>
- Nilson, P. (2015). Making Sense of Implementation Theories, Modes, Models, And Frameworks. *Implementation Science*, 10(53), 1-13. <https://doi.org/10.1186/s13012-015-0242-0>
- Radianti, J., Majchrzak, T. A., Fromm, J., Wohlgenannt, I. (2020). A systematic Review of Immersive Virtual Reality Applications for Higher Education: Design elements, lessons learned, and research agenda. *Computers & Education*, 147, April 2020. <https://doi.org/10.1016/j.compedu.2019.103778>
- Raghupathi, W., Raghupathi, V. (2014). Big Data Analytics in Healthcare: Promise and Potential. *Health Information Science and Systems*, 2(3), 1-10. <https://doi.org/10.1186/2047-2501-2-3>
- Schonfeld, I. S., & Mazzola, J. J. (2013). Strengths and Limitations of Qualitative Approaches to Research in Occupational Health Psychology: Measurement, design, and data analysis, 268-289.

- Yong, Y. J., Lee, J. H., & Kim, Y. S. (2022). A study on the possibility of a change in culture and arts education curriculum by shooting "METACLASSROOM" in the COVID19 pandemic era. *Cypriot Journal of Educational Science*, 17(5)1603-1521 <https://doi.org/10.18844/cjes.v17i5.7239>
- Second Life Learning Community. <http://www.library.ohiou.edu/sllc> (contact Chang Liu for access)
- Shahabadi, M. M., & Uplane, M. (2015). Synchronous and Asynchronous e-learning Styles and Academic Performance of e-learners. *Social and Behavioral Sciences*, 176, 129-138. <https://doi.org/10.1016/j.sbspro.2015.01.453>
- Shahabadi, M. M., & Uplane, M. (2015). Synchronous and Asynchronous e-learning Styles and Academic Performance of e-learners. *Procedia -Social and Behavioural Sciences*, 176, 129-138.
- Shelton, K., Saltsman, G. (2005). *An Administrator's Guide to Online Education*. Information Age Publishing, Greenwich, CT, USA.
- Snijders, C., Matzat, U., Reips, U. D. (2012). "Big Data": Big Gaps of Knowledge in the Field of Internet Science. *International Journal of Internet Science*. 7(1), 1-5.
- Tervo, J. (2016). On the Impossibility of Life in Art and Education. *Visual Arts Research*, 42(1), 104-116. <https://doi.org/10.5406/visuartsrese.42.1.0104>
- The STEAM project. <http://www.ent.ohiou.edu/~steam>, The World Bank Group's Response to the COVID-19 (coronavirus) Pandemic. <https://www.worldbank.org/en/who-we-are/news/coronavirus-covid19>
- Thomas, G., & James, D. (2006). Reinventing Grounded Theory: Some questions about theory, ground and discovery. *British Educational Research Journal*, 32(6), 767–795. <https://doi.org/10.1080/01411920600989412>
- Thomson, J. K. (2015). The Philosophy of Digital Art. *The Stanford Encyclopedia of Philosophy*. First published Mon Feb 23, 2015; substantive revision Thu Aug 1, 2019. <https://plato.stanford.edu/entries/digital-art/>
- Vakaliuk, T. A., Shevchuk, L. D., & Shevchuk, B. V. (2020). Possibilities of Using AR and VR Technologies in Teaching Mathematics to High School Students. *Universal Journal of Education Research*, 8(11B), 6280–6288. <https://doi.org/10.13189/ujer.2020.082267>
- Wang, M., Sinclair, R. R., Zhou, L., & Sears, L. E. (2013). Person-centered analysis: Methods, applications, and implications for occupational health psychology. In R. R. Sinclair, M. Wang, & L. E. Tetrick (Eds.), *Research methods in occupational health psychology: Measurement, design, and data analysis*, 349–373. Routledge/Taylor & Francis Group.
- Wu, W. L., Hsu, Y., Yang, Q. F., Chen, J. J., & Jong, M. S. Y. (2021). Effects of the Self-regulated Strategy within the Context of Spherical Video-based Virtual Reality on Students' Learning Performances in an Art History Class. *Interact Learn Environments*, Feb, 1–24. <https://doi.org/10.1080/10494820.2021.1878231>