

# Panel Session—Pluriversal Design Transitions for Higher Education Motivated by COVID-19

Lupita Guillen Mandujano  
Dept. of Graphic Communication Design  
Universidad Autonoma Metropolitana,  
Campus Xochimilco  
Mexico City, Mexico  
lguillen@correo.xoc.uam.mx

Paola Sanoni  
International Strategy Office  
Kyoto University  
Kyoto, Japan  
psanoni@gmail.com

Erdas Kuruc  
Dept. of Architecture  
Eastern Mediterranean University  
Famagusta, Cyprus  
erdas.kuruc@emu.edu.tr

Xanat Vargas Meza  
Faculty of Library, Information and  
Media  
University of Tsukuba  
Tsukuba, Japan  
meza@digitalnature.slis.tsukuba.ac.jp

Jun-Li Lu  
Faculty of Library, Information and  
Media  
University of Tsukuba  
Tsukuba, Japan  
jllu@slis.tsukuba.ac.jp

**Abstract**—This panel provides an overview of how immersive learning technologies can be used for higher education in several non-Westernized contexts in the middle of the COVID-19 pandemic. Through the outline of pluriversal design combined with design transitions, we aim to explore how a world within which many worlds coexist can resurge from the present educational challenges and become a fairer, sustainable place for all.

**Index terms**—design, transitions, higher education, COVID-19, immersive technologies

## I. AIMS AND TARGET AUDIENCE

This panel has two short-term and two long-term objectives: a) to provide an overview of immersive learning technologies for higher education (HE) in non-Westernized countries amid the COVID-19 pandemic; b) discuss gaps and opportunities for these technologies in HE from a pluriversal design transition point of view; c) advance alliances to conduct research on non-Westernized countries related to the panel topics; and d) create a network for coronavirus response in HE. The panel will be useful for education-related actors in the design and engineering fields, actors from non-Western countries, and interested allies from Westernized countries.

## II. TIMELINESS AND RELEVANCE

### A. Covid-19 and the Exposure of Systemic Failures in HE

A decrease in state funding negatively affects public HE [1]. A report in the early stages of the COVID 19 pandemic found that most developed countries were moving to full online instruction, while some developing countries lacked a nationwide strategy, others moved the start dates of new semesters, while only a few moved to online instruction [2]. Concerns not only about the long-lasting impact on funding and the issue of climate change, but also a higher disposition to share academic work was prevalent among researchers [3]. This highlights the issues as well as the opportunities that existed before COVID-19 were present in academic scenarios.

### B. The Role of Immersive Learning in HE

Virtual reality has been used to teach engineering, chemistry, and medicine [4]-[9]. It has been noted that VR systems are useful in self-study scenarios to increase student engagement and confront them with real-world situations without taking risks. While conventional e-learning happens through a 2D screen, VR learning allows students to interact, manipulate, and build objects, or have access to objects and contexts that might not be available in the classroom. Recently, a long-term study [8] on medical training demonstrated that VR learning could result in more than 50% retention after one year of training, in contrast to 20% without VR.

While there has been some interest shown in Asia in implementing VR in HE, some traditional modes of learning are difficult to change. Meanwhile, educators in Latin America are discussing the possibility that immersive technologies could be used to teach vulnerable communities such as people with special abilities and indigenous peoples. However, public and private infrastructure that can reach such students is limited.

It is esteemed that pandemics and other disasters related to climate change will occur with increasing frequency. Our experiences as design and education-related actors using online learning techniques during the COVID-19 pandemic should serve to plan strategies to support the resilience of our communities. Previous sessions of this conference targeted diversity, inclusivity, and cultural differences. However, it is necessary to engage other participants from non-Westernized backgrounds and discuss immersive technologies to adapt and create new HE contexts both during and after the pandemic.

### C. Design Transitions and Pluriversal Design

According to Meadows [10], the most radical and effective change emanates from shifting and transcending paradigms. Within this context, design transitions were proposed as an educational framework, focusing on the need for lifestyles based in regional territories with a global awareness aided by the exchange of information and technology [11]. Transition design assumes that business as usual causes slow-motion crashes, which can be survived only by those with sufficient means to

deal with their consequences. Therefore, it seeks pre-emptive change at multiple levels toward a preferred future by, for example, lending design expertise to existing community initiatives [12]. Although ambitious in its scope, transition design often fails to treat as urgent the needs of communities that are the initial and most affected by so-called slow-motion crashes. Even when people have voices and insights of their own regarding complex issues, individuals or organizations often filter such voices with different interests.



Fig 1. The KAPAC paradigm

Zapatistas in Chiapas, Mexico, claimed to focus on the process of mutual learning and multidirectional solidarity, where “research projects should... seek to reverse the production of knowledge and practices that keep... communities in subservient positions” [13]. They also stated that “*El mundo que queremos es uno donde quepan muchos mundos*” (The world we want is one where many worlds fit) [14] This is where the idea of the pluriverse came from. Thus, design can be defined as creating ways of being. Vargas Meza [15] operationalized the pluriversal design ideals into the KAPAC paradigm (Fig. 1), understood as Knowledge not necessarily acquired through official institutions; Artisanal in terms of acts augmented/extended through traditional and modern technology; Plural because it embodies the many voices it serves; Abundant because it preserves diversity to foster prosperity for all life; and Communal because communities are at the center of its governance.

Through the KAPAC paradigm, designers create transitions to other possible worlds. What is collectively referred to as WEIRD (Westernized, Educated, Industrialized, Rich, Democratic) communities are involved with non-WEIRD communities and advance together a world where there are no absolute binaries. That is why the pluriversal perspective should entail radical interdependence, autonomy, and the creation of relationships not only between products/services and humans, but also with other non-human living beings, and ultimately, the living planet (see [16], [17]). The pluriversal design approach involves methods such as scenario analysis and prototyping. This implies an encounter with potentially devastating realities, a process where individuals can experience pain and must embrace it in an empathic way. It also means exploring more positive ways of living (also known as Buen Vivir, [18]). Such processes entail designers thinking, feeling, and acting while designing, which is deemed Sentipensar (Feelthink) [19], [20]. Based on the perspective of Latin American, immigrant, and marginalized communities, this panel will discuss the COVID-19 situation in HE, the technological advances that have mitigated its impacts, and the gaps that still have to be filled.

### III. PANEL DESCRIPTION AND SESSION PLAN

#### A. Panel Workflow

The moderator (Xanat Vargas Meza) will monitor the time with a clock and run the PowerPoint slides, which will provide a few case studies with examples of immersive technologies in HE. The panelists will introduce themselves and ask the audience questions to acknowledge their place or culture of origin (5 minutes). The panelists will then engage in each of the main discussion points. Participants will be able to write questions at any time. Jun-Li Lu will moderate questions and choose a couple to be answered briefly at the end of each main discussion point. Ten minutes will be allocated for final remarks and answering questions that require longer dialogs.

#### B. Points of Discussion for This Panel

- Coincidences in strategies employed by HE institutions to mitigate COVID-19 impacts (4 min):
  - Attendance suspension – replaced with online or hybrid programs
  - Temporary delay of assessment for students
  - Short-term and exchange programs suspended
  - Limited or suspended academic mobility
  - Considerations for international students
  - Partial availability of financial support for international students
  - Tolerance with course delay/late withdrawal
  - Use of online resources for professors and students
  - Psychological assistance for crisis management
- Differences in strategies employed by HE institutions to mitigate COVID-19 effects (12 min):
  - Methods for delivery of academic programs
  - Access for professors to online resources
  - Support for students
  - Speed of response
- Relevant gaps/areas of opportunity for the mitigation of COVID-19 in HE (12 min):
  - Overcoming isolation
  - Evaluation of global competence abilities
  - Education control
  - Cost vs. value
- What can design from a pluriversal perspective contribute to the mitigation of COVID-19 in HE (12 min):
  - Multicultural approach to diffusion of prevention measures
  - Inclusive approach of the online programs
  - Complexity of educational infrastructure planning and management

- Promotion of inclusive research

- Dialog and Closing Remarks (15 min)

#### IV. PANELISTS CONTRIBUTIONS

Our panelists are from diverse non-Westernized backgrounds and have experience in design, engineering, HE and research scenarios.

- Lupita Guillen Mandujano is a Master of Science in administration and graphic communication designer and is currently a research professor at the Autonomous Metropolitan University, Campus Xochimilco, Mexico City. She has been training in virtual and augmented reality for use as an educational tool in Mexico.
- Erdas Kuruc is a freelance architect and a faculty member of Eastern Mediterranean University for 20 years. He teaches and advise on curriculum building in two other universities in North Cyprus. He also aids and instructs candidates in digital platforms and media in their journey of architecture education, as well as developing a curriculum based on digital media in architectural education in North Cyprus.
- Jun-Li Lu received his Ph.D. degree in informatics from Kyoto University, Japan in 2020. He is a researcher in Research and Development Center for Digital Nature, University of Tsukuba, Japan. He worked in Advanced Smart Mobility Co., Ltd, Japan from 2018, Institution for a Global Society Corporation, Japan from 2017, and CITI, Academia Sinica, Taiwan from 2010. His research interests include human-computer interaction, information retrieval, and machine learning.
- Paola Sanoni obtained her Ph.D. in international public policy from the University of Tsukuba and a Diploma in global health from the University of Tokyo. She is currently a junior associate professor at Kyoto University at the International Strategy Office. She worked in several educational and research scenarios in America, Australia, Japan and her native Peru. With more than 16 years of experience in international HE, she made a significant contribution to the internationalization of Japanese national universities since 2015.
- Xanat Vargas Meza is a graphic communication designer graduated from the Autonomous Metropolitan University, Campus Azcapotzalco, Mexico City. After working in the industry, she earned a Master of Arts on media and communication in Yeungnam University, Korea. She acquired a Ph.D. in Kansei Science from the University of Tsukuba in 2019, focusing in sustainable design education and has been involved in the HE of designers and engineers at several Japanese institutions. Her latest research includes participatory and decolonial methods.

#### ACKNOWLEDGEMENT

This work was supported by JST CREST Grant Number JPMJCR1781, Jp.

#### REFERENCES

- [1] G. Thomas Sav. "Declining state funding and efficiency effects on public higher education: government really does matter." *Intl. Advances on Economic Res.*, 2016, vol. 22, no. 4, pp. 397-408.
- [2] J. Crawford, J. Butler-Henderson, J. Rudolph, B. Malkawi, M. Glowatz, R. Burton, P. Magni and S. Lam. "Covid-19: 20 countries' higher education intraperiod digital pedagogy responses." *J of Applied Learning and Teaching*, 2020, vol. 3, no. 1, pp. 1-20.
- [3] C. Rijs and F. Fenter. "The academic response to Covid-19." *Frontiers Public Health*, 2020 [Online]. Available: <https://www.frontiersin.org/articles/10.3389/fpubh.2020.621563/>
- [4] C. Ziguras. "Educational technology in transnational higher education in South East Asia: the cultural politics of flexible learning", *J of Edu. Tech. & Society*, 2001, vol. 4, no. 4, pp. 8-18.
- [5] J. A. F. Cruz, P. C. Gallardo and E. A. Villarreal. "La realidad virtual, una tecnología innovadora aplicable al proceso de enseñanza de los estudiantes de ingeniería", (in Spanish), *Apertura*, 2014, vol. 6, no. 2, pp. 1-10.
- [6] S. Posada-Calderón, Y. Monsalve-Suárez and S. P. Mateus-Santiago. "Entorno virtual 3D de la tabla periódica como apoyo en la educación de la química", (in Spanish), *Revista Politécnica*, 2019, vol. 15, no. 30, pp. 41-54.
- [7] S. Ruiz-Cerrillo. "Enseñanza de la anatomía y la fisiología a través de las realidades aumentada y virtual", (in Spanish), *Innovación educativa*, 2019, vol. 19, no. 79, pp. 57-76.
- [8] BBC. "Clic, Episode 16/09/2020." *BBC World News*. <https://www.bbc.co.uk/programmes/m000mtv6> (accessed Feb. 09, 2021)
- [9] J. Gaudiosi. Here's why hospitals are using virtual reality to train staff. *Fortune*. <https://fortune.com/2015/08/17/virtual-reality-hospitals/> (accessed Feb. 09, 2021)
- [10] D. H. Meadows. *Thinking in systems: a primer*. Chelsea green publishing, 2008.
- [11] T. Irwin. "Transition design: a proposal for a new area of design practice, study, and research." *Design and Culture*, 2015, vol. 7, no. 2, pp. 229-246.
- [12] C. Tonkinwise. "Design for transitions-from and to what?" *Design Philosophy Papers*, 2015, vol. 13, no. 1, pp. 85-92.
- [13] M. Mora. *Kuxlejal politics: indigenous autonomy, race, and decolonizing research in Zapatista communities*. University of Texas Press, 2017.
- [14] EZLN. "Cuarta declaracion de la Selva Lacandona." *Documentos y comunicados* (in Spanish). Mexico City, Mexico. January 1st, 1996.
- [15] X. Vargas-Meza. "Development of an educational intervention to enhance interest on sustainable design," PhD dissertation, Dept. of Kansei, Brain and Behavioral Sciences, University of Tsukuba, Tsukuba, Ibaraki, Japan, 2019. [Online]. Available: [https://tsukuba.repo.nii.ac.jp/?action=pages\\_view\\_main&active\\_action=repository\\_view\\_main\\_item\\_detail&item\\_id=51158&item\\_no=1&page\\_id=13&block\\_id=83](https://tsukuba.repo.nii.ac.jp/?action=pages_view_main&active_action=repository_view_main_item_detail&item_id=51158&item_no=1&page_id=13&block_id=83)
- [16] A. Escobar. "Transiciones: a space for research and design for transitions to the pluriverse." *Design Philosophy Papers*, 2015, vol. 13, no. 1, pp. 13-23.
- [17] A. Escobar. *Designs for the pluriverse: radical interdependence, autonomy, and the making of worlds*. Duke University Press, 2018.
- [18] L. Chavez-Ixcaquic and M. Gabe. 2015. "El paradigma del buen vivir: alternativa indígena al capitalismo" (in Spanish), in *Ante la crisis global el cambio llega en bicicleta. Derechos humanos, genero y desarrollo*, Ondoan ONGD-GGKE Ed., 2015 [Online]. Available: <https://calcutaondoan.org/wp-content/uploads/2018/06/cambio-bicicleta-2015.pdf>
- [19] V. M. Moncayo. "Presentacion Fals Borda: hombre hictotea y sentipensante", (in Spanish), in *Una sociologia sentipensante para America Latina*, O. Fals-Borda and V. M. Moncayo, Eds., Mexico Siglo XXI, 2009, p. 10.
- [20] A. Escobar. "Sentirpensar con la tierra: las luchas territoriales y la dimensión ontológica de las epistemologías del sur", (in Spanish), *AIBR: Revista de Antropología Iberoamericana*, 2016, vol. 11, no. 1, pp. 11-3