PONTE

Vol. 78 No. 4, 2022 Florence, Italy
ISSN: 0032-423X *E-ISSN:*0032-6356 International Journal of Sciences and Research

DOI: https://doi.org/10.5281/zenodo.7464349

A FRAMEWORK FOR VIRTUAL TRANSFORMATION OF A UNIVERSITY IN THE EASTERN CAPE, SOUTH AFRICA

Nteboheng Patricia Mefi, Walter Sisulu University, Butterworth Campus
Samson Nambei Asoba, Walter Sisulu University, Butterworth Campus

ABSTRACT

This study was formulated to determine the challenges for a virtual transformation of a university in the Eastern Cape Province of South Africa. It stemmed from the realization that virtualization has increased across all sectors owing to both technological advancements as well as the need for remote work that arose as a result of the Covid-19 of pandemic. The study used the challenges and recommendations provided by respondents to propose a framework for virtual transformation. The study was based on interviews with academics at a university in the Eastern Cape. Eleven academics took part in the study and the results indicated that there were challenges that include inadequate community engagement, funding and connectivity. The recommendations provided by the respondents resulted in the preparation of a framework that involves strengthening stakeholder engagements, good planning, ensuring specialized training and strengthening existing virtual systems.

Keywords: Virtualization, Higher education, Technology, Remote learning, University.

INTRODUCTION

Virtual transformation of universities has faced challenges. The study explored challenges for effective virtual transformation of a university in the context of the Fourth Industrial Revolution (4IR) as well as post Covid-19 operational environment, the two of which have accelerated virtualization and shape the notion of Education 4.0 which is characterized by strong technological systems. The basis of the study was that of aiding organizations to successfully overcoming challenges to virtualization is likely to lead to achievement of the virtual transformation. There are knowledge gaps about the experiences of academics on the use of electronic learning systems and virtualisation (Maphalala & Adigun, 2021:1). As a result, efforts to develop academics who are competent in addressing the socio-economic needs of South Africa have been futile (Scott, 2018:4). Virtual and electronic systems have increased the effort required from academics in HEIs in South Africa (Maphalala & Adigun, 2021:1). To meet the demands associated with virtual systems (including the development of learning objectives, learning material, assessments, learner guidance and support systems academics), academic employees' job satisfaction is a variable of concern. It is widely acknowledged that the experiences of academic employees can be an institution's greatest intangible asset to the key strategy, success and remedial factors in an organization (Watson, 2020:7). As suggested by Picincu (2020:1) unhappy academics equal unhappy customers. Stressed or disengaged workers, especially those who work directly with customers, may fail to do their job or deliver exceptional service. Organizations may not perform

optimally and this may translate into poor productivity. Picincu (2020) adds that disruption to work results in negative impacts on organizational productivity and performance. Therefore, the impact of job dissatisfaction in an organization should be the priority of an organization.

LITERATURE REVIEW

Dlamini and Ndzinisa (2020:54) report that educational institutions switched to learning management systems (LMS) as critical to remote teaching and learning in conforming to the COVID-19 pandemic. This change to virtualized learning and instructional methods was associated with some changes to the traditionally known fundamentals of job satisfaction among academics.

Moro, Stromberga and Stirling (2017:3) classify virtualization as being desk-top based and mobile-based and explain that both systems can be used in the academic environment, offering challenges and benefits which include cost and accessibility. Moro *et al*. (2017:2) found support for virtual learning and claim that it promotes enriched learning which offers certain linkages such as three-dimensional learning and access to a variety of content.

While virtualization was significantly aided with the advent of Web 2.0 at the beginning of the millennium (Lottering, 2020:109), the COVID-19 pandemic accelerated the need for virtual systems. A study by Lottering (2020:109) on the use of social media to enhance student engagement and quality found that social media has the capacity to improve student interest in content, improve academic performance and also widen critical thinking skills. Since virtual work arrangements involve the use of technologies for curriculum delivery, the inclusion of social media in the learning matrix could be beneficial in enhancing learner interest and boosting the satisfaction of academics.

The COVID-19 pandemic has also created new phenomena in the world of work, which include working from home, virtual teamwork and virtual leadership and management (Kniffin *et al.*, 2020:65).

Challenges of virtualization of Universities

The distortion of the higher education system had significant implications on job satisfaction as it resulted in unprecedented psychosocial It has been recorded that COVID-19 has resulted in serious mental health problems than other epidemiologies (Lingard, Zhang, Räisänen, Goh, Bowen & Bhandari, 2021:193). Research has found that COVID-19 led to such psychosocial distress, depression, stress and increased anxiety. Social isolation has led to social loss due to limited interaction with co-workers, family and friends. It has been observed that the impact of COVID-19 has varied vulnerability and some social groups of workers suffer more than others. These groups include older workers, immigrant workers, females and persons with disabilities. The higher education sector is critical for industry and there is a critical need to establish lasting solutions for its sustainability. In response to the pandemic, virtualization was adopted, including home-based supervision strategies with only maintenance tasks being done at HEI sites. Virtualization involves home-based supervision with only maintenance tasks being done at

institutions. Academics in HEIs often work as social teams and work through social interactions. Social distancing and the limitations of social gatherings impacted negatively on employee satisfaction and productivity. The COVID-19 pandemic resulted in fear and stress among employees, which led to reduced productivity and worker effectiveness and affected employee satisfaction. There were further observations that the COVID-19 pandemic had implications on gender and racial minorities. With the recorded loss of employment among most people, the financial burden for households seems to have switched to females. Females also faced increased child care responsibilities and there was an increase in cases of domestic violence during lockdown.

Some studies found evidence of increased drug and substance abuse, thereby breaking social values in many communities. Brodeur, Islam, Gray and Bhuiyan (2020:23:24) claim that the socio-economic impact of the pandemic includes mental health distress, increased economic inequalities and severe challenges on certain socio-demographic groups. Brodeur *et al*. (2020:27) classify the socio-economic impact of the pandemic into labour market effects, mental health and wellbeing, racial inequalities, gender roles and environmental implications. Labour market impacts included job losses and reduced working hours. It has been observed that the pandemic has led to significant job losses and reduced working time, resulting in loss of income and household consumption or expenditure levels (Brodeur *et al*., 2020:28).

Some studies found that employees with low education levels, younger adults and immigrants often dominate in occupations where home-based work cannot be applied. The literature review in Brodeur *et al*. (2020:29) emphasised that shocks from pandemics affect population groups disproportionately with the financially vulnerable sections suffering more significantly than the higher economic groups. Research into the psychosocial impacts of COVID-19 has found that stress, fear and uncertainty characterise pandemics (Brodeur *et al*., 2020:29). Social distancing and lockdown have been found to affect social life and cause discrimination, exclusion, boredom and frustration.

Carnevale and Hatak (2020:183) conducted a study on employee adjustment and wellbeing in the era of the COVID-19 pandemic and the implications of this on human resources management. The study appreciated that virtualization has resulted in an altered work environment that was novel to employees. Such an environment has new considerations of the factors for employee job satisfaction as they faced several unprecedented challenges. For a long time, the work environment has been known to be one of close social ties, but these were broken by the need for social distancing (Carnevale & Hatak, 2020:184). As a result, some academics and lecturers felt lonely and stressed owing to the severance of previously established work ties. These findings are supported by Kim and Jung (2020:104) who found that COVID-19 resulted in social isolation, which led to increased stress and anxiety among employees.

These psychosocial factors influence employee job satisfaction among working people in organizations. Virtual work arrangements changed known work environment situations and resulted in work-from-home arrangements that were stressful, with research establishing that a

significant number of lecturers and academics could not balance home and work life (Carnevale & Hatak, 2020:185). Kim and Jung (2020:105) argue that working virtually at home created conflict between the need for family and home issues with the need for attaining deliverables. In respect of academics, this meant that virtual work arrangements could result in a conflict of interest related to performing home duties or attending to family needs as well as the need to deliver online lessons and online marking.

METHODOLOGY

The study was done through interviews in line with Spiegelberg's (1965) conceptualisation of the work of the German philosopher, Edmund Husserl. Phenomenological data collection processes was considerd as the basis for the analysis of the perceptions of the academics in relation to the virtualization of the selected HEI. Williams (2007:1) explains that phenomenology focuses on the participant and perceptions or experiences which are analysed to generate a deeper understanding and appreciation of phenomena. In this study, the population comprises the academic persons at a selected HEI, while the sampling frame consisted of the academics at the selected HEI. As in many qualitative studies, non-probability sampling methods dominate the selection of study participants. This study employed convenience and purposive sampling in the selection of participants. The academics were approached and requested to participate in the study and eleven became available for the study. The demographical characteristics of the respondents are provided in Table 1.

Table 1: Demographical characteristics of respondents

	Job title	Gender	Race	Year experience
Participant 1	Lecturer	Female	Back	6 years
Participant 2	Assistant lecturer	Female	Coloured	13years
Participant 3	Assistant Lecturer	Male	Coloured	3years
Participant 4	Professor	Female	Coloured	2years
Participant 5	professor	Male	Black	11years
Participant 6	Lecturer	Male	Black	20years
Participant 7	Lecturer	Female	Coloured	30years
Participant 8	Lecturer	Female	Coloured	28years
Participant 9	Assistant Professor	Female	Coloured	12years
Participant 10	Deputy Directors	Male	Black	14years
Participant 11	Professor	Male	Black	12 years

Findings

Challenges in implementing virtual platforms to enable online work in higher education were alluded to by participants through the interviews. Table 1 shows the interview responses provided by participants on the research question: What are the challenges that you face adopting?

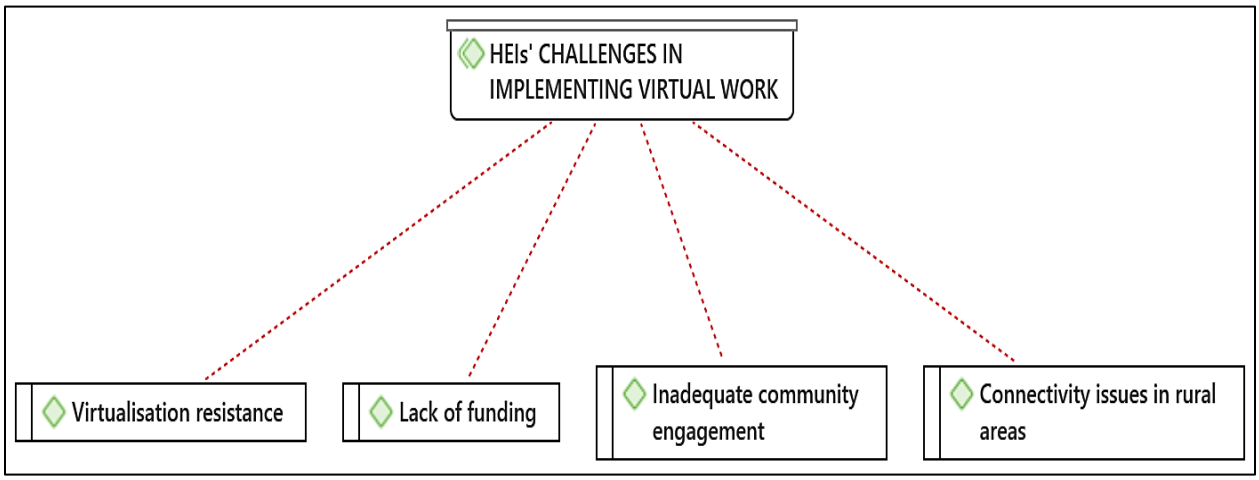
PONTE
Vol. 78 No. 4, 2022 Florence, Italy
ISSN: 0032-423X *E-ISSN:*0032-6356 International Journal of Sciences and Research

Table 2: Excerpts of the interview responses

What are the challenges that you face adopting?		
	Excerpts	theme
P1	"Our communities are rural areas who have connectivity issues and are not rained in using virtual world. This probes a challenge as this pilar still requires a face-to-face mode."	connectivity
P11	Community engagement became a challenge as it requires contact with community members and connectivity	Inadequate community engagement
P2	Virtualisation affected community engagement negatively as academics have not yet figured out how to engage communities in a virtual world	Inadequate community engagement
P10	However, our university has funding challenges. The university has not reached its full potential in virtualisation.	Lack of funding
P7	Community engagement is the most problematic pillar of academic duties in virtualisation	Inadequate community engagement
P6	Teaching and learning is affected by connectivity as some students are from rural areas."	connectivity
	Academics were comfortable with how they did their work which is face to face. Then suddenly the pandemic arrived, and they were forced into going onto virtual platforms. The fear of the unknown and resistance to migration was there. Techno savvy staff migrated easily. The older staff members were afraid to embrace the change. Also, when staff began being comfortable with using blackboard. Then the university suddenly the university changed the LMS to Moodle which can't cope with the stress and lad of the university. This destabilised operations.	Resistance
P5	The challenge has been infusing community engagement	Inadequate community engagement
P4	"Connectivity is an issue…No support. You can't just give people laptops and routers and expect them to do their best. The workshops were problematic due to connectivity."	connectivity
P3	Community engagement is also a challenge as some of the issues in the community need to be tackled face to face interaction.	

As provided in Table, themes that arose from the interviews showed that the participants faced problems in the form of poor connectivity, a lack of funding, inadequate community engagement, and resistance from the relevant colleagues as well as from students. Based on the responses, Figure 1 was prepared.

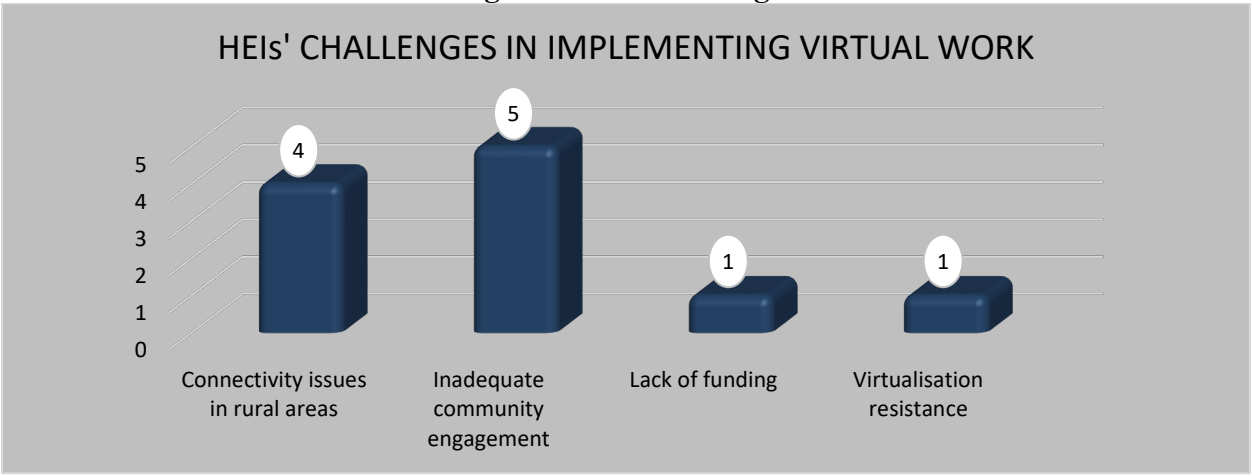
Figure 1: Higher education virtual challenges faced in work virtualisation



PONTE
Vol. 78 No. 4, 2022 Florence, Italy
ISSN: 0032-423X *E-ISSN:*0032-6356 International Journal of Sciences and Research

The relative frequency of each of the challenges that were provided were also considered and Figure 3 shows that the problem of inadequate community engagement was widely mentioned while lack of funding and resistance to virtualization were the least mentioned challenges.

Figure 3: HEI challenges



Connectivity issues in rural areas

Community engagement is one of the core values of a higher education institution. This is due to the fact that the majority of the institutions are located in the heart of the communities. Engagement between HEIs and the larger community is a process that necessitates constant communication. However, the introduction of virtualisation posed an impediment to achieving this due to poor connectivity in the area and difficulty in engaging with the community due to the communities' lack of knowledge in using these virtual platforms.

Inadequate community engagement

Community engagement is one of the core values of a higher education institution. This is due to the f act that the majority of the institutions are located in the heart of the communities. Engagement between HEIs and the larger community is a process that necessitates constant communication. However, the introduction of virtualisation posed an impediment to achieving this due to not only poor connectivity in the area but also difficulty in engaging with the community due to the communities' lack of knowledge in using these virtual platforms.

Lack of funding

It has been discovered that one of the obstacles that are confronted by these institutions is obtaining funding for the purpose of supporting change that would allow for the virtualisation of work in HEIs. For instance, Participant 1 explained:

Virtualisation resistance

There has been some reluctance among some staff employees or academics to use the internet platforms in order to carry out their day-to-day responsibilities, and this resistance has been voiced.

PONTE
Vol. 78 No. 4, 2022 Florence, Italy
ISSN: 0032-423X *E-ISSN:*0032-6356 International Journal of Sciences and Research

The dread of the unknown and the fear of change, as indicated by Participant 4, is the root cause of this reluctance.

Given the challenges which were provided by the respondents, recommendations were sought on what can be done to ensure effective virtual transformation. Table 2 shows some of the responses that were provided by the respondents.

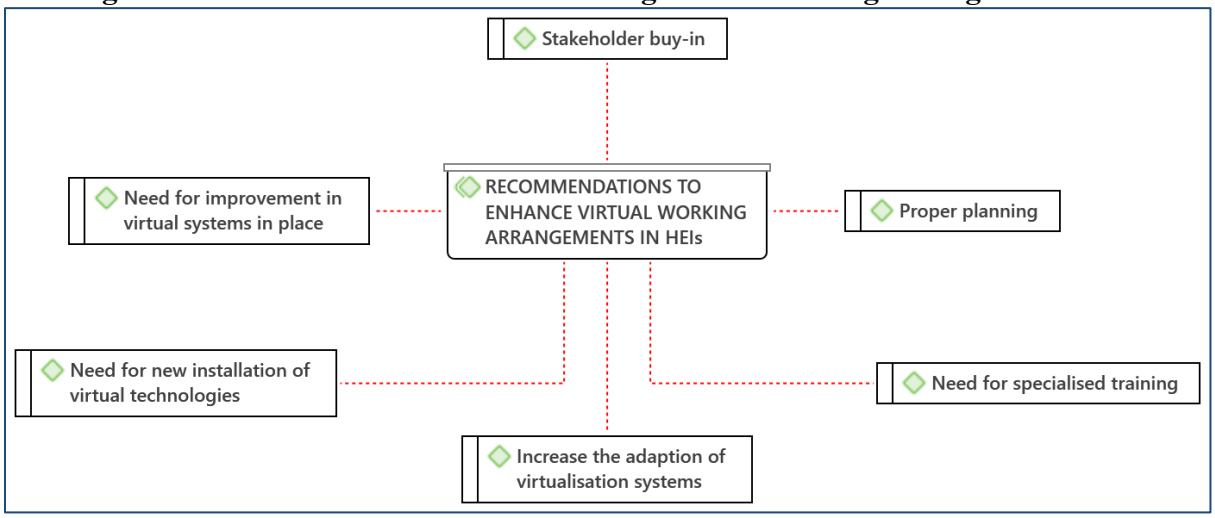
Table 3: What do you recommend to be done in order to ensure virtual transformation of the HEI

What do you recommend to ensure effective virtual transformation		
P1	Motivate academics to use systems the university has invested on and to integrate such system to specialized programs for different departments and units.	Increase the adaption of virtualisation systems
P2	Learning management system (LMS) in place requires an improvement because sometimes students marks disappeared and test are difficult to administer as the current LMS crashes when a big number users log on at the same time for exams. some academic issues head of departments deal with are mainly related to the virtualisation and would have not occurred if it was face to face.	Need for improvement in virtual systems in place
P2	University needs to do a survey to evaluate how competent academics are with regards to using moodle in their specialized programmes. if you train someone you have to monitor continuously.	Need for specialized training
P3	There should be more training on how to teach applied courses online i.e project management and computer language and programming courses. it is difficult to integrate such courses in the lms available in the university. training should be specialized not generic.	Need for specialised training
P4	Have a stable virtual infrastructure before embarking in virtualisation. investment in infrastructure and advancement in technology. University should walk the talk.	Need for improvement in virtual systems in place
P5	"….However our university has funding challenges. The university has not reached its full potential in virtualisation."	Need to fund new systems
P6	The academics are on the operational level and are the users of technology. They are differently trained and differently skilled. therefore, the training given to them should be tested other than deliver and go. trainers should test academics if they can use the system they are trained for and certify them. also training them on the skills and programmes they offer not on a generic programme will make virtualisation effective.	Need for specialized training
P7	the university has to conduct a thorough research before implementation. moodle has a lot of challenges than the blackboard that was used before. university should begin to stop looking at the price when procuring lmses, softwares and equipment. they should look at many other variables. they should assess if this lms will achive its intended outcomes.	strategic planning

P8	awareness campaigns should be done to engage both staff and students.	Stakeholder holder buyer
P9	an upgrade of moodle is needed. more investment on lmses is needed. next time the university introduces a new system they must take at least two years to migrate from the old to the new lms. this will assist students and academics to adjust to the migration easily and comfortably. any organization that migrates to virtualisation must do basics right.	proper planning

As in Table 2, participants in this study explored what they viewed as needs to be done by the university to enhance virtual work arrangements. The results of the data analysis revealed that participants recommend that there be an increase in the adaption of virtualisation systems, they noted a need for improvement of the virtual systems in place, a need for new installation of virtual technologies, a need for specialized training, proper planning, and stakeholder buy-in These recommendations are as shown in Figure 3.

Figure 3: Recommendations for enhancing virtual working arrangements in HEI



Participant 2 made the suggestion that the institution increase the adaption of virtualisation systems through motivating academics. It was also indicated that there is a need for improvement in virtual systems in placeas noted by participant 2. The participant notes that more support is required for the improvement of the Learning Management System (LMS). Participant 9 expressed that institutions should make investment in stable virtual infrastructure before they start the project of virtualisation. Additionally, Participant 1 indicated that there was a need for new installation of virtual technologies in the institution. Participants 2, 4 and 9 affirmed the need for specialized training for lecturers on how to carrying out their teaching responsibilities on virtual platforms. Specifically, participant 2 concurred that there was a need to training teachers of applied courses on how to execute this in the LMS available at the institution. It was also provided by Participant 4 that the need for user testing of the developed virtual infrastructure to equip academics with the necessary skills required for its use. To add more, Participant 9 suggests a competency survey be conducted to ascertain users abilities to use Moodle in their teaching. Participant 4 and 5 alludes to the need for proper planning by the institution to integrate the system adequately into the work

of the institution. It was also provided by Participant 5 who noted that the need to "conduct a thorough research before implementation" in order to mitigate any challenges that arise with the new system wa necessary. Lastly, it was mentioned by Participant 3 that it is importance to encourage stakeholder buy-in and to ensure awareness of both staff and students.

CONCLUSION

The study supported the observation that virtualization has become a key component of the environment owing the technological breakthroughs which has become a key element and HEIs cannot be left out in this process of transformation. There was evidence that virtualization and remote learning pose many challenges and many interventions have become necessary. Evidence from the study indicated that there were challenges that include inadequate community engagement, funding, lack of stakeholder buy-in and connectivity. The recommendations provided by the respondents resulted in the preparation of a framework that involves strengthening stakeholder engagements, good planning, ensuring specialized training and strengthening existing virtual systems.

REFERENCES

1. Dlamini, R. & Ndzinisa, N. 2020. Universities trailing behind: Unquestioned epistemological foundations constraining the transition to online instructional delivery and learning. *South African Journal of Higher Education*, 34(6):52-64.
2. Lottering, R.A. 2020. Using social media to enhance student engagement and quality. *South African Journal of Higher Education*, 34(5):109-121.
3. Maphalala, M.C. & Adigun, O.T. 2021. Academics' experience of implementing e-learning in a South African higher education institution. *International Journal of Higher Education*, 10(1):1-13. https://doi.org/10.5430/ijhe.v10n1p1
4. Moro, C., Stromberga, Z. & Stirling, A. 2017. Virtualization devices for student learning: Comparison between desktop-based (Oculus Rift) and mobile-based (Gear VR) virtual reality in medical and health science education. *Australasian Journal of Educational Technology,* 33(6):1-10.
5. Picincu, A. 2020. *What are the benefits of performance appraisals to the organization?* [Online]. Available from: https://smallbusiness.chron.com/benefits-performance-appraisals-organization-15409.html Accessed: 13 April 2021.
6. Scott, I. 2018. Designing the South African higher education system for student success. *Journal of Student Affairs in Africa*, 6(1):1-17.
7. Watson, J. 2020. *Learning through television in low-income contexts: Mitigating the impact of coronavirus (COVID-19).* [Online]. Available from: https://edtechhub.org/2020/03/31/learningthrough-television-in-low-income-contexts-mitigating-the-impact-of-COVID-19/ Accessed: 5 May 2021.
8. Lingard, H., Zhang, R.P., Räisänen, C., Goh, Y.M., Bowen, P. & Bhandari,S. 2021. Special issue: what have we learnt from the COVID-19 global pandemic: Improving the construction industry's abilities to foresee, respond to and recover from future endemic catastrophes. *Construction Management and Economics,* 39(2):192-197.

9. Brodeur, A., Islam, A., Gray, D. & Bhuiyan. 2020. A Literature Review of the Economics of COVID-19. IZA institute of labour economics. IZA DP No. 13411. ISNN: 2365-9793
10. Carnevale, J.B. & Hatak, I. 2020. Employee adjustment and well-being in the era of COVID-19: Implications for human resource management. *Journal of Business Research,* 116(2020):183-187.
11. Kim, H.H. & Jung, J.H. 2020. Social isolation and psychological distress during the COVID-19 pandemic: A cross-national analysis. *Gerontologist*, 61(1):103-113
12. Spiegelberg, H. 1965. The pure phenomenology of Edmund Husserl (1859-1938). In *The phenomenological movement.* Dordrecht: Springer: 73-167. https://doi.org/10.1007/978-94-015-7394-8_4
13. Williams, C. 2007. Research methods. *Journal of Business & Economics Research (JBER),* 5(3). https://doi.org/10.19030/jber.v5i3.2532