

Modelling academic delivery challenges during COVID-19: a binary logistic approach

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Abstract

This study identifies significant challenges that academicians working in higher education experienced during the COVID-19 pandemic, as physical classrooms transformed into virtual ones. The study includes evidence from the experiences of higher education academicians from three countries: namely, India, Malaysia, and the United Arab Emirates. The study adopts a quantitative research method to analyse the challenges that impacted the ease of coping with pedagogical delivery and the significant differences across the three countries. The study uses binary logistic regression modelling to evaluate the significance of the identified factors. The findings indicate that academicians experienced challenges working from home while adapting to the new model of teaching. Contrary to the established results – gender, lack of formal training, work experience and home environment, which did not seem to impact consistently across the three geographical locations. This also is the highlight of the study, as we used the log odds to illustrate the probabilities of impacting factors in each geographical location on the Ease of Coping – the dependent variable. The findings of this study may be directed to comprehend the most substantial factors specific to ease of coping. As the universities prepare themselves for the ‘new normal’, this study will contribute towards a paradigm shift in higher education, thereby enhancing the development of a framework for an effective teaching model to address pedagogical transition.

KEYWORDS: Higher Education, Transition during Pandemic, Work from Home Challenges, Binary Logistic Regression.

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1. Introduction

In the wake of the digital era with Industry 4.0 and globalisation, there have been transformations and changes in the adoption of communication technologies, impacting learning environments in the education sector (Balyer and Oz, 2018). The higher

education sector has embraced the transformation to adopt e-learning due to its flexibility and availability beyond geographical boundaries.

The concept of online learning has become increasingly popular amongst the world’s leading universities, and it is revolutionising the contemporary higher education sector. Ananga and Biney (2017) described ‘distance education’ as a concept of academic delivery wherein teaching and learning activities are separated in time and space, and technology is a primary factor that where in blended learning and online delivery is likely to be the future

Technology is the media that is instrumental in the field of distance education, and this can enhance the learners’ experience (Bozkurt, 2019).

Despite the advent and acceptance of online teaching, many universities continued with classroom teaching. Face-to-face teaching was yet to be adopted, while

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some universities considered the implementation of blended learning. This integrated form of blended learning was led by instructors who guided face-to-face communication in combination with computer-mediated experiences (Bryan & Volchenkova, 2016). Dzibun (2018) argued that blended learning has opportunities and challenges and is an individual phenomenon that students experience.

The global higher education community saw a sudden and unprecedented shift from classroom teaching to online teaching due to the COVID-19 pandemic in March 2020. This study focuses on the experiences of academicians and the challenges that they faced in this sudden transition. The main attributes of the study are working from home, lack of formal training to deliver classes online, and engaging students in this new virtual setting. One of the aspects of the study is also to understand if gender has been an influencing factor from a work-from-home perspective. The research focuses on the experiences of academicians who are full time faculty members in universities/colleges and institutes of higher education and teaching face to face from India, Malaysia, and the United Arab Emirates who were forced to transition to online teaching due to COVID restrictions. The study also attempts to compare if there were any specific differences in the attributes impacted due to the regional contexts.

COVID-19 has caused disruption, and generally, disruptions create opportunities (Rao & Sreekanth, 2020). The disruption in the higher education sector has seen a paradigm shift of technological and technical advancements in the model of academic delivery within a short period. The online delivery model has given access to digital resources to upgrade knowledge, adapt to new technologies online, and consider the best practices to work from home, as an instructor. With the agility in remote learning, universities will have to work on addressing global solutions for global challenges that are beyond the transformation of the traditional classroom setting to online teaching (Buitendijk et al., 2020). The pedagogical transition and innovation in higher education is the outcome of the current scenario where in blended learning and online delivery is likely to be the future.

2. Materials and Methods

2.1 Materials (Related Studies)

Transition to Virtual Classrooms during the COVID-19 Pandemic

COVID-19 pandemic resulted in a massive and disruptive shift to the online delivery model as universities shut down their physical campuses. Faculty members started delivering classes online in a matter of a few days without adequate preparation in terms of the teaching content or technology competencies to complement this change (Bao, 2020). Since online

teaching emerged as a response to an immediate requirement, there were barriers such as lack of online teaching experience for academicians and technical support to deliver on those platforms, among others. Ali (2020) argued that an online teaching environment is not about technology. Pedagogical and instructional challenges that demand universities to have more coordination and careful decision making are essential in this transformation. Some of the difficulties include readiness of the faculty members to deliver classes online, confidence while delivering on e-platforms, student accessibility, and motivation. Girdharan (2020) discussed the ease of coping for transnational higher education institutions that had prior experiences of learning with peers and faculty members in their offshore campuses. As students and faculty members were aware of these models of education, it was more convenient to facilitate online platforms.

E-learning has encouraged the use of the latest technologies and, if delivered with quality, technology can be an essential tool to support or replace traditional teaching methods, according to Gorska (2016). One of the significant challenges in online teaching is the changing faculty role in the transition from face-to-face to online classes. According to Young (2006), the students have an added increased responsibility for self-learning, and hence, it is crucial to enhance the overall effectiveness of the online classes. The (lack of) readiness of teachers to accept computer-based teaching and the unavailability of various related support systems could hinder the effectiveness of online teaching-learning endeavours (Leontyeva, 2018).

COVID-19: Impact on Higher Education in India, Malaysia, and the United Arab Emirates

The higher education community saw a rapid transition to deliver online education in various universities across the world to continue learning. Crawford et al. (2020) discuss responses by the higher education sector in India during the COVID-19 pandemic, which saw the closure of campuses and the postponement of the commencement of classes and examinations. Further, the government authorities in India launched several virtual platforms that were accessible to students, and higher education institutes started training their faculty members as new technologies challenged the traditional classroom setup. Some of the problems encountered in India were network issues, internet connection speed discrepancies, and the inability to reach underprivileged children who lacked technical gadgets to continue learning online, as stated by Jena (2020).

The United Arab Emirates (UAE) suspended all physical classes across schools and universities in the first week of March and ensured the transition to online teaching. Bensaid and Brahimi (2020) concluded in their assessment of universities in the Gulf region during the pandemic that due to the digitalisation-established distance education and digital

transformation in the region, the transition to online learning has been effective. They stated that universities created their digital delivery platforms for the online delivery of education. Investment in the model of online teaching, policies for universities, high internet penetration rate, and provision of resources were factors that accelerated the smooth transition for universities in the GCC.

Malaysia saw the closure of both public and private universities and all teaching and learning activities, examinations, student activities, and research programmes continued online from March 2020, as explained by Crawford, et al. (2020). Da-Wan (2020) noted that the disruption began with the Movement Control Order and it occurred during the beginning of the new semester. Universities took the approach of postponing the examinations and some of the major challenges included internet connectivity and access for the students in rural areas.

Work from Home: Challenges and Opportunities for Academicians

The concept of 'work from home (WFH)' existed for several years, but during the COVID-19 pandemic, the global workforce worked remotely as many countries announced restrictions and lockdowns. This became a necessity and was accepted by both employees and employers worldwide. Lippe and Lippényi (2019) found that one of the drawbacks of working from home is lack of peer learning - that individuals may not be able to learn the skills that they could have from their colleagues at their workplace, and this impacts their performance. Another aspect is time management as individuals must now transform/innovate/change their skills and knowledge to suit the current demands, and this can intensify the hours of work. Savic (2020) identified the advantages of WFH, which include flexibility, improved work-life balance, and enhanced productivity. In contrast, disadvantages include isolation and lack of division between time for work and home life, resulting in long working hours. In their study focusing on teachers' willingness to work, Shareen and Mahammad (2020) concluded that respondents who had children were not willing to work from home as compared to those that did not have children or were single.

Time management is important because those who can manage time well can be more efficient in the home environment. Further, saving on travel time can also help to reduce stress and enhance productivity (Purwanto et al., 2020). However, Belzunegui-Eraso and Erro-Garcés (2020) argued that WFH in social isolation can impact health and productivity. According to Allenet et al. (2015), WFH can build strong ties with the family to create family-centred communities, but at the same time, can replace workplace-related ties and contribute to an individualised society that breaks social norms.

Role of Formal Training in Online Teaching

Online teaching practices require academicians to go through formal training or professional development programmes. The necessary knowledge and skills for the pedagogical transformation can be enhanced (Níshéet et al., 2019). Zhu and Liu (2020) suggested providing learning opportunities to future teachers at all levels. However, at the same time, the curriculum and pedagogy need an update to be more successful online pedagogy models for future practices. The findings of the study by Bailey and Lee (2020) conducted during the COVID-19 pandemic conclude that teachers unfamiliar with online teaching express frustration with e-learning, while those with experience of online education influence students' expectations. This indicates that there is a relationship between online teaching experience and expected outcomes of the course delivery.

Time management, adopting appropriate teaching styles, and enhancing student engagement and student satisfaction are challenges that academicians have experienced (Kebritchi et al., 2017). The effectiveness of the teachers in an online teaching-learning environment is always a concern. With the rapid increase in online teaching, faculty members must have skills and be more competent in their roles for positive student outcomes (Frazer et al., 2017). Some of the challenges that the faculty members face in the online model are managing different time zones, adhering to the administrative policies of the university and working with limited resources and other academic duties (Steel, 2010).

The experience in an online class is different for students than that in a traditional classroom. One of the challenges that academicians have experienced in conducting online courses is keeping students engaged in the virtual environment, according to Rogers (2011). Harris (2011) emphasised professional development programmes for faculty members, including online certification programmes that can train faculty members on the use of the integration of emerging technologies in discipline-specific learning outcomes. The support from peers and mentoring colleagues to exchange best practices and technological improvements can enhance the students' experience (Young and Bruce, 2011).

Student Engagement in a Virtual Environment

Gillette-Swan (2017), Wall et al. (2006) cited in Croft et al. (2015), and (Jones, 2017) discussed that many of the face-to-face models of practices are adapted in the online teaching model. Yet the 'one size fits all' approach by academicians who are unfamiliar with the online environment cannot be adopted, as the context of online teaching differs in an online model. Hence, there is a need for pedagogical strategies to address students who experience isolation. Social isolation has been one of the most significant challenges that students experience in an online environment; this leads

to the discontinuation of studies (Ali and Smith, 2015). Motivation impacts students' engagement in an online learning environment, which may be both extrinsic and intrinsic. Extrinsic factors are influenced by the establishment of time frames in the model of flexible online learning, whereas individual factors are based on individual feedback by faculty members (Keiset et al., 2017).

Motivation plays a vital role in engaging students and further, factors such as personal, social, and other circumstances, can influence students' motivation (Harnett, 2016). The balance of social and family commitments with educational commitments also impacts student engagement in online classes (Parkes et al., 2014). Online teaching also has weaknesses, one of which is a lack of real-time interaction between faculty members and students. The learning environment online is not engaging for students as it lacks two-way interaction, faculty feedback, and community presence; Despite its challenges, some of the advantages of online education seen during the COVID-19 pandemic are the flexibility offered for students, saving of travel time, and engagement of experts who were otherwise unavailable for face-to-face classes (Khatiani Bhatta, 2020). Studies on online education indicated that students, like faculty members, also require orientation and training to adapt to the online environment. In their study, Kim et al. (2019) concluded that students who are competent and well versed in digital skills have digital readiness and more possibilities for academic achievements.

2.2 Methods

This study aims to answer two specific research questions, as follows:

1. What factors significantly affect the ease of coping (EoC) with academic delivery during the COVID-19 pandemic? The factors identified are 'work from home' (WFH-H1), 'ease of student engagement' (ESE-H2), 'formal training for online teaching' (FT-H3), 'work experience' (WE-H4), and 'home environment' (HEnv-H5).
2. Is there a significant difference in these effects across the three countries? (GL – H6)

While increased flexibility and family time have been observed as motivators of WFH, the high frequency of work meetings, the tendency to overwork, physical lethargy, and difficulty in managing family time are some of the outcomes (Butler & Jaffe, 2020). Shifting the workspace to one's home and maintaining the demanding work conditions is challenging, given the work orientations required (Bick, et al., 2020). Alipour et al. (2020) confirmed that not all jobs are suitable for WFH and both challenges at home and the work characterisations affect the performance of employees, including high-skilled workers.

H1: WFH challenges impact EoC.

As described earlier, motivation, student preparedness,

and pedagogy are vital to student engagement during academic sessions. The push to transition from physical classrooms to online platforms is unprecedented, brought about by the COVID-19 pandemic. Due to the presence of a dynamic learning environment, online learning and flipped classrooms primarily show a high level of student engagement (Burke & Fedorek, 2017). The unprecedented transition to a remote model of delivery has disrupted the face-to-face instruction model, thereby impacting the continuity of student engagement in the online environment (Gares, et al., 2020). Student engagement is vital to good teaching experiences, both in terms of pedagogy and content delivery. The study hypothesises that the degree of student engagement impacts the EoC.

H2: ESE impacts EoC.

Buzzetto-Hollywood (2007) discussed the importance of supporting faculty members in their transition to the new online learning environment, both technically and pedagogically, by learning through examples, workshops, forums to share experiences, and resource sharing. Mentoring and peer support can further be helpful while being able to experience the learning process themselves by enrolling in online programmes. Mehić and Hadžić (2020) agreed that teachers should develop competencies for training, not only for the use of information, communication skills, and technologies but also for competencies in pedagogical methods.

H3: FT impacts EoC.

Digital transformation is not new to academia. However, a large proportion of this fraternity was engaged in the traditional model of delivery, up until the pandemic forced the members to transition., Christensen and Knezek (2018) established the associations between supportive professional development, enthusiasm, and willingness as key factors in the integration process. The study also confirmed that academics with a higher affinity to technology tend to implement faster (Panichkina, et al., 2018). Abrupt transitions without prior training and a suitable teaching and learning strategy pose adaptation problems.

H4: WE impacts EoC.

Stadlander et al. (2017) stated that while working virtually, separating areas of work and family life by time and creating virtual communities to address loneliness can help faculty members. Nakrošiene et al. (2019) identified factors that should be considered in the WFH situation, which include professional aspects such as time management, enhancing productivity from home, and reduced communication with colleagues as well as personal aspects such as saving on travel time, work-life balance, and taking care of family members.

H5: HEnv impacts EoC.

Countries around the world have responded differently to the pandemic. This study hypothesises that the geographical locations where the respondents are based have an impact on and moderate the effect of the

independent variables (IVs) on the Dependent Variable (DV). H6 is formulated as follows

H 6: GL moderates the impact of the IVs.

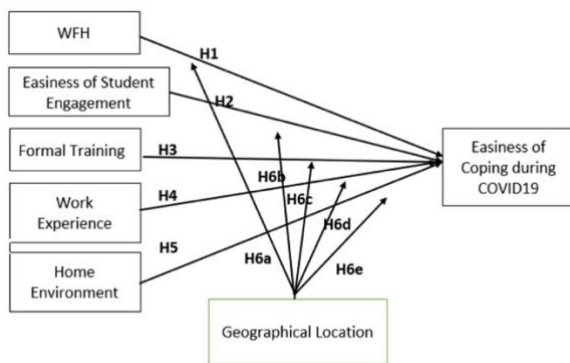


Figure 1 - Conceptual Framework and Hypothesis.

In addition to evaluating the effect of the independent variables (IV), namely, WFH (H1), ESE(H2), and WE The uniqueness of the study

This study adds to the current literature by analysing the impact factors on the easiness of dealing with the unprecedented changes triggered by the COVID-19 pandemic in pedagogical delivery by academics in higher education. The results help to justify the factors identified using the Binary Logistic regression model and thus to calculate the potential of the faculty facing challenges in the current situation.

2.3 Research Methodology

Sampling

600 academicians primarily engaged in the classroom and face-to-face models of teaching were approached via digital platforms. The academicians are also those who were forced to migrate to the online mode of teaching during the lockdown period owing to the COVID-19 pandemic. Given the restrictions of movement and outreach challenges, the respondents were contacted through a convenience sampling technique. Respondents hailed from India, Malaysia and the UAE. 446(74.35%) completed and valid responses were used to further the study.

Survey Instrument

The questionnaire used in this study was based on the factors identified through the literature review outcomes. Three constructs Work from home - WFH (Lippe & Lippényi, 2019), Student Engagement – ESE (Gillette-Swan, 2017; Croft, Dalton & Grant, 2015) and Ease of Coping – EoC (Kim, Hong & Song, 2019) were reviewed and developed consistent with the prior studies.

Thirteen items are used to evaluate the degree of challenge for the WFH construct, ten items for the ESE construct, and six items for the EoC construct. Each item was rated by the respondents on a scale of one to

five.

(H4), this study also hypothesises the impact of two variables, FT(H3) and HEnv (H5), measured as a function of the family constitution. (See Fig 1)

Method of Analysis

The Binary Regression Model: the Dependent variable EoC (Y) is dichotomised into two values: 1(mean score more than 3) and 0(mean score less than or equal to 3). Individual Logistic regression models are constructed for each geographical location to predict a discrete outcome, from a set of variables that may be continuous, discrete, dichotomous, or a mix of any of these.

$$E(Y_{GL}/X_{GL}) = \text{Log Odds } \frac{1-\pi_j}{\pi_j} = b_0 + b_1x_1 + b_2x_2 + b_3x_3 \dots \dots + b_kx_k$$

$$\log \left[\frac{1 - \pi_j}{\pi_j} \right] = b_0 + b_{WFH}WFH + b_{ESE}ESE + b_{FT}FT + b_{WE}WE + b_{HEnv}HEnv$$

$$\frac{\pi_j}{1-\pi_j} = e^{x_j^T \beta} \quad \text{Hence } \pi_j = \frac{e^{x_j^T \beta}}{1 + e^{x_j^T \beta}}$$

The mean scores of the constructs (WFH, ESE) are used to generate the regression models.

3. Results

A total of 446 complete usable responses were received (74.3% response rate). Table 1 presents the demographic summary.

The constructs show satisfactory Cronbach Alpha values (See Table 2), indicating high construct validity and good internal consistency. The factor loadings (Table 3) indicate sufficient variance for each of the factors defined. There were no items with loadings less than 0.5 and hence no item was deleted/omitted from the original list.

The Kaiser–Meyer–Olkin measure of sampling adequacy (Table 4) that indicates the proportion of variance in the variables, which may be caused by underlying factors is 0.923. High values (close to 1.0) generally indicate that factor analysis is useful with the data. Bartlett’s test of sphericity verifies the hypothesis that the correlation matrix is an identity matrix, indicating that the variables are unrelated and therefore unsuitable for structure detection. The chi-square value shows a significant value (p<0.05), thereby indicating the usefulness of the factor analysis for the given data.

ANOVA and Binary Regression analysis. Country-wise analysis

This study hypothesises that the countries differ among themselves concerning their academics’ EoC. This hypothesis is validated using ANOVA (one way). The

Factor	Demographic Summary n = 446				
Gender	Females: 235 (52%)		Males: 211 (47.5%)		Prefer not to say: 2 (0.4%)
Age	25–35: 95 (21.3%)	35–50: 283 (63.5%)		50–60: 54 (12.1%)	Below 25 or above 60: 14 (10.1%)
Based out of	India: 168 (37.7%)		Malaysia: 160 (35.9%)		UAE: 118 (26.5%)
Received formal training	Yes: 150 (33.6%)		No: 195 (43.7%)		Learned on their own: 101 (22.6%)
Experience in academia: 235 (53%)	0–2 years: 48 (11%)	2–5 years: 54 (12%)	5–10 years: 88 (20%)	10–15 years: 118 (27%)	>15 years 138 (31%)
Experience in industry and academia: 211 (47%)	Up to 2 years: 4 (1%)	2–5 years: 80 (18.4%)	5–10 years: 37 (8.5%)	10–15 years: 28 (6.3%)	>15 years: 62 (14%)

Table 1 - Demographic Summary of the Respondents.

Construct	Overall Mean	s.d.	Cronbach's Alpha
WFH	2.52	0.923	0.917
ESE	2.68	0.891	0.930
EoC	2.18	0.772	0.921

Table 2 - Construct Reliability and Factor Loadings.

	Component		
	1	2	3
WFH1: Time management	.687		
WFH2: Working in a home environment	.973		
WFH3: Productivity while working from home	.757		
WFH4: Working in isolation	.705		
WFH5: Socialising with peers	.605		
WFH6: Level of comfort working from home	.775		
WFH7: Upgrading knowledge and peer learning	.715		
WFH8: Learning new tools and technologies	.769		
WFH9: Adaptation to technology	.801		
WFH10: Internet connectivity, speed, etc.	.737		
WFH 11: Content delivery online	.767		
WFH12: Support from university	.639		
WFH13: Support from peers	.719		
ESE1: Adaptation to the model of online delivery		.682	
ESE2: Motivation of students		.762	
ESE3: Students interaction during ESE4: sessions/classes		.811	
ESE5: External issues such as connectivity, speed, etc.		.735	
ESE6: Peer learning		.754	
ESE7: Response to online assessments		.724	
ESE8: Access to continual learning through resources online		.699	
ESE9: One-to-one student feedback		.765	
ESE10: Personal engagement with students		.778	
EoC1: Accepting the change			.724
EoC2: Staying positive			.831
EoC3: Getting a fresh perspective			.828
EoC4: Focusing on what I can control			.789
EoC5: Setting new goals			.756
EoC6: Staying connected with co-workers			.668
Extraction method: Principal component analysis. Rotation method: Varimax with Kaiser normalisation. a. Rotation converged in five iterations.			

Table 3 - Factor Loadings Rotated Component Matrix^a.

Kaiser–Meyer–Olkin measure of sampling adequacy		.923
Bartlett’s test of sphericity	Approximate chi-square	9746.913
	Df	378
	Sig.	.000

Table 4 - KMO and Bartlett’s Test.

Country	N	Mean EoC Score	SD
India	168	2.1826	.823
Malaysia	160	2.3519	.730
UAE	118	1.9493	.692
Total	446	2.1816	.772

Table 5 - Country Statistics.

	Sum of Squares	Df	Mean Square	F	Sig.
Between groups	11.006	2	5.503	9.596	.000
Within groups	254.039	443	.573		
Total	265.045	445			

Table 6 - One Factor ANOVA (Effect of GL on EoC).

	(A)	(B)	(C)	(D)	(E)	(F)
	<i>Cell values indicate $Exp(\beta)$</i>					
No	Factor	India -initial model	India Reduced model	Malaysia - initial model	UAE-Initial model	UAE Reduced model
1	Intercept	0.003*	0.079	0.192	0.011*	0.069
2	Gender	2.046		0.980	3.587*	3.103
3	Age	1.327		1.819	2.823	
4	HEnv	1.751		0.787	0.796	
5	FT	1.295		1.261	1.022	
6	Exp	0.920		1.001	0.893*	0.945826
7	WFH_Average	1.641*	1.469	1.085	0.932	
8	STD_Average	1.117		0.806	1.004	
Goodness of fit						
9	Hosmer	99.447	32.209	72.178	61.612	38.932
10	Df	81.000	31.000	77.000	60.000	36.000
11	p-value	0.080	0.407	0.634	0.418	0.339

Table 7 - Country-Wise Binary Regression Analysis – *significant at 5% los; ** significant at 1% los

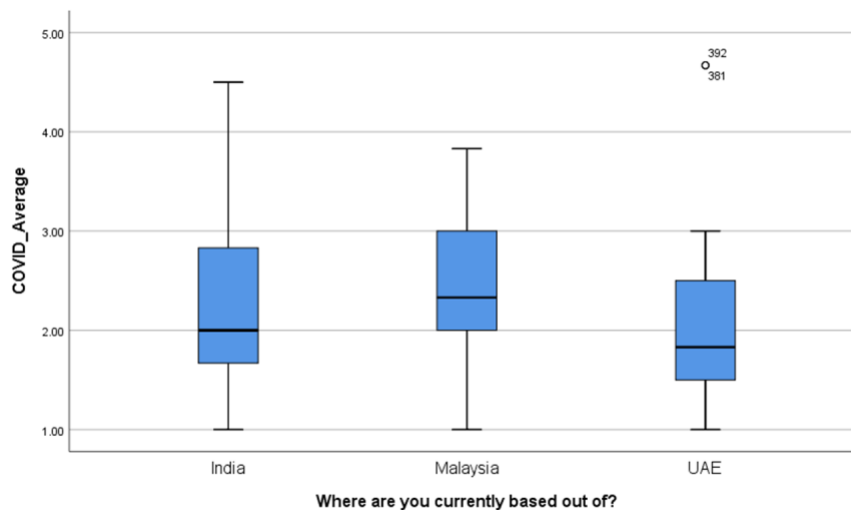


Figure II - Box plot diagram, Country-wise distribution.

country-wise descriptions are indicated in Tables 5 and 6. The ANOVA results presented in Table 6 show a significant difference between the mean scores of the countries.

The post hoc analysis shows significant differences ($p < 0.05$) based on pair-wise comparisons. Using case-wise listing, a binary logistic regression model is developed for each country to evaluate the significance of the impacting factors and verify the hypothesised moderating effect of GL. Table 7 shows the region-wise analysis for the respective initial and reduced models.

The Hosmer-Lemeshow statistic suggests a good fit if the value of significance is more than 0.05. Here, the model matches the data properly (Hosmer, Lemeshow & Sturdivant, 2013). All p-values (see row 11 of Table 7) show p-values higher than 0.05 indicating a good fit by the data.

In addition, some of the findings in this study are contrary to a few established studies. Across all three locations, Age, formal training (Buzzetto-Hollywood, 2007) and home environment (Nakrošiene, Buciuniene & Goštautaitė, 2019) did not show (statistically) a significant impact on the easiness to cope.

Interpretations

Responses from Indian respondents indicated Work from Home as a significant challenge. For every unit increase in the challenge faced while working from home, these academicians indicated a 146% (see Col C, Row 7) increase in their difficulty to cope with the transition. Their counterparts in the UAE indicated Gender and experience as more significant. Gender was coded as 1-Female and 2-Male. The value 3.103 (in Col F row 2) indicate that men found it three times more difficult to cope with the transition as compared to women while working during the lockdown. The value corresponding to age in the same column is 0.94: indicating that employees with lesser work experience found it more challenging to adapt to the new scheme of affairs. Incidentally experience across the three countries (See columns B, D and F, Row 6) show equal or less probabilities – indicating that members with more experience at work showed more flexibility to the change. In the case of Malaysia, although none of the factors indicated any statistical significance (p -values > 0.05), the overall model bears a good fit.

5. Discussion and Conclusions

With the COVID-19 pandemic disrupting classes and activities on campus, the only option available for faculty members and students was to be acclimatised to online platforms as soon as possible. This unusual and unprecedented shift from the comforts of the face-to-face classroom model to the e-learning method was not devoid of challenges, given the paucity of time within which the academicians were expected to adapt to the latter. This is a comparative study based on

observations from three countries. Data was collected through a self-administered survey form and informal discussions with the participants. Technical issues included connectivity problems, low bandwidths, data plans insufficiencies, and expenses to upgrade one's technical facilities. Unfamiliarity with the online platforms that were created was the primary concern when the transition began. Time management and Working in home environment were reported to pose the most difficulties from among the 13 potential challenges listed in the survey. (See Appendix 1)

This study establishes the causal effect between the EoC and the difficulty level experienced in the challenges while WFH, ESE, and WE. WFH is identified as more challenging for the academicians due to their settings in the home environment, which led to difficulties in their transition. Adapting to new technologies in the home environment also impacted the EoC. Further, keeping the students engaged in participative learning and ensuring they stayed motivated throughout the sessions was also seen as a challenge by the academics. Faculty members were concerned that students tend to be easily distracted. Dhawan (2000) identified that some of the challenges of student engagement in a virtual environment can be related to technological issues, including problems logging in, issues with audio and video, and network connectivity.

The study does not show a significant association between FT and EoC. Although FT is important for the transition, academicians probably adopted this through their pedagogical approaches. Those who experienced greater difficulties tended to find it difficult to cope. However, a certain amount of resilience was observed with age. The factor value indicated a negative association between age (measured in increasing order, from young to old) and EoC (measured, from easy to difficult). Saiyadetal. (2020) cited Bawane and Spector (2009) who stated that pedagogy and knowledge of the content, along with technology are competencies identified for the faculty members' role in online teaching. Therefore, experienced faculty members found it easier to cope in the virtual environment due to their experience and knowledge of course content.

This study attempted to evaluate the differences in GL as a differentiating factor regarding the EoC. The ANOVA results showed a significant difference across the three locations. Although the factors (significantly) impacting EoC were the same for all the three locations (see Table 5), the degree of the effect varied. The faculty challenges were similar in their EoC. A significant difference in the UAE as opposed to India and Malaysia was that some universities had adopted online learning and the faculty members were aware of how to deliver content online (Crawford et al., 2020).

Quattrone et al. (2020) argued that higher education institutes could take the opportunity that has been created by the COVID-19 emergency to be more sustainable and resilient to new changes. However,

face-to-face interaction, which is the human aspect of traditional teaching, can never be entirely replaced by an online platform (Onyema et al., 2020). The educational landscape of the post-COVID-19 times includes a post-pandemic pedagogy and the rethinking of the current practices, according to Murphy (2020). The future will witness technology-based learning that the COVID-19 crisis has brought about, even though institutions may commence face-to-face operations (Daniel, 2020). Further, universities should evaluate the strategies adopted in remote teaching and enhance their contingency plans, which will enable their teachers to adapt to various online solutions and strengthen student engagement and learning experiences for quality education (Salceanu, 2020).

In conclusion, the findings in this study have valuable implications for academicians and university administrators. Universities can therefore build their infrastructure to facilitate flexible learning by enhancing the competencies of academicians to adapt to the new normal for effective delivery. This can also be explored through curating the teaching-learning process to align with ever changing technological advancement. Online teaching and blended learning models existed but were never fully adopted. Today in this context Higher Education has a 360-degree transformation with blended learning as the future and is widely being accepted by the faculty and student's community. Therefore, the study is instrumental in identifying challenges and experiences of academicians that have brought many opportunities for effective teaching-learning in Higher Education.

6. Recommendation for future research

Respondents from the three different geographical locations considered for the study have indicated similarities in most factors and conflicting on a few. This study restricts itself to establishing the hypotheses cited and does not investigate further into the socio-cultural aspects of the cause of variation/similarity. This will be a good start for further studies in this direction.

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