Covid-19 Related Experiences, Online Leisure Crafting, and Academic Performance: Role of Uncertainty Avoidance

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ARTICLE DETAILS	ABSTRACT
	Purpose: The purpose of this paper is to investigate the linkage between COVID-19 related experiences and the academic performance of university students. COVID-19, in general, has impacted the whole world financially, socially, and psychologically through its adverse effects in the form of closure of business, financial crisis, downsizing, psychological distress, etc. Evidence suggests the prevalence of COVID-19 related issues among university students who faced stressful conditions due to lockdown and isolation. **Methodology:** Drawing on the behavioral theory of plasticity, the present study adopted a two-wave methodology for data collection. We collected data with the help of structured questionnaires from students (n=1473) of an international university in Australia. We used the structural equation modeling (SEM) technique to test the moderated mediation model in Smart PLS3. **Findings:** Results indicated that COVID-19 related experiences were negatively associated with students' academic performance and positively with online leisure crafting. Whereas online leisure crafting was positively associated with academic performance and partially mediated the COVID-19 related experiences and academic performance. Uncertainty avoidance significantly buffered the effect of COVID-19 related experiences on online leisure crafting. The findings supported the research framework of the study. **Conclusion:** This study helps make clear the 'how' and 'why' of the impact of COVID-19 related experiences on university students' academic performance through the mediation of online leisure crafting and moderation of uncertainty avoidance. The implications for university management and policymakers are discussed.

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1. Introduction

The spread of the COVID-19 epidemic has affected the whole world due to an outbreak of acute pneumonia (Bao, Sun, Meng, Shi, & Lu, 2020). According to the official website of the World Health Organization (WHO), 174, 502, 686 confirmed cases of novel coronavirus (COVID-19) are present in 220 countries all over the world (WHO, 2020). The pandemic has raised a severe threat of death among the public due to viral infection (Pan et al., 2020), along with immense psychological pressure on individuals (Duan & Zhu, 2020).

This international health emergency has posed several challenges for the policymakers, health professionals, and general public due to the alarming situation (Cao, Fang, et al., 2020), and its unprecedented spread has urged schools, colleges, and universities to switch to online learning where possible with the closure of certain businesses. Alongside, the pandemic has impacted the mental health of medical professionals, healthcare providers, adults, and children due to related psychological pressure and anxiety (Moreno-Murcia & Corbi, 2021; Q. Chen et al., 2020). In a similar vein, the sudden outbreak of COVID-19 is likely to have primarily affected the academic performance of the university students studying in other countries, far away from their families, for which existing literature on COVID-19 related experiences and academic performance has a gap that the current study intends to bridge.

The student's academic performance at international universities who are staying away from their families, living in hostels, and working part-time to meet educational and living expenses is not negligible. At the same time, it is equally essential for international universities to attract new students based on the academic performance of existing students. Therefore, the ways such students coped with the COVID-19 related experiences to avoid its adverse effects on their academic performance is timely. In this regard, our study intends to find the impact of COVID-19 related experiences on the academic performance of international university students. Such students could not go back to their homes due to the closure of flight operations, faced lockdown, and switched to online learning.

Existing studies on the academic performance of international university students have highlighted several factors such as intercultural friendship, grit through self-efficacy, achievement orientation (Alhadabi & Karpinski, 2020), and eating disorders (Claydon & Zullig, 2019) as its determinants. In addition, a few recent studies have also unveiled the stress and psychological impacts of COVID-19 on sleep quality among university students (Marelli et al., 2020) with increased anxiety (Cao, Fanga, et al., 2020). However, how did these students cope with bearing lockdown, living away from their family and how did it affect their academic performance is still unclear.

A better understanding of the underlying mechanism that may explain the linkage of COVID-19 related experiences with the student's academic performance is required. Students facing lockdown must have faced social distancing as an SOP and isolation as a precautionary measure. In this way, their leisure satisfaction gained through leisure activities is not ignorable (Munir, Munir, & Rubaca, 2021; Zhao, Li, & Shields, 2020). The individuals best shape leisure activities according to their situational needs and leisure time available. Such activities help personal development, connectedness, learning, and goal achievement (Petrou & Bakker, 2016). Existing literature has widely supported leisure crafting as a potential mediator for employees' stress-strain relationships, thus lending support to study it as a mediator between COVID-19 related

experiences and students' academic performance. Furthermore, leisure crafting literature advocates that crafting leisure activities favor employees' performance, relatedness, competence and enhance their positive attitudes and feelings (Petrou, Bakker, & Heuvel, 2017). However, how online leisure crafting may impact the academic performance of university students amid COVID-19 is unanswered yet.

Several studies have proposed culture as a moderating variable on the relationship of different determinants of employees' performance, such as emotional intelligence and its impact on performance (Munir et al., 2021;). In addition, it supports the role of national culture in shaping individuals' attitudes and behaviors, preferences, and values. Therefore, the research proposed to study culture as a moderating variable to further its role in the underlying mechanism.

Uncertainty avoidance as a moderating variable causes stress among individuals who tend to avoid uncertain situations (Hofstede, Hofstede, & Minkov, 2005; Rodríguez-Rivas, 2021); for example, in our case, university students facing a sudden outbreak of COVID-19 and related lockdown. Therefore, the present study proposed that students high in uncertainty avoidance may meet more stress. To reduce that stress, they will engage in more online leisure crafting, which will positively affect their academic performance.

Plasticity means a flexible behavior and the quality of being adaptive to any situation, but it varies from individual to individual (Munir, Rubaca, Munir, & Munir, 2021). According to behavioral plasticity theory, every individual reacts differently to circumstances that demand patience and perseverance. External factors such as stress, workload, deadlines, time strains affect an individual's behavior, and as a result, some individuals face these situations successfully, whereas others collapse (Dunlap, Austin, & Figueiredo, 2018; Munir et al., 2021). In some instances, an individual's self-esteem and self-confidence either flourishes or deteriorate (Linlin, Jiang, & Chu, 2019). Behaviorally plastic individuals have a rigid attitude towards external factors, and if external circumstances become challenging for them by demanding persistent efforts and flexibility, they may break down.

Similarly, situational factors must have a lesser effect on individuals low on uncertainty avoidance or, in other words, behaviorally more plastic (Zhu, Lyu, & Ye, 2019). It means students high in uncertainty avoidance will be more affected due to the external environment than the students low on this cultural value. Therefore, the present study chose behavioral plasticity theory to explain the impact of COVID-19 related experiences on students' academic performance through online leisure crafting and moderation of uncertainty avoidance as this theory favors buffering the role of individual characteristics to evaluate their performance.

2. Literature Review

2.1. Impact of COVID-19 Related Experiences on University Students' Academic Performance

A plethora of research has significantly identified several factors that affect the academic performance of university students. For example, socio-demographic factors, health behaviors, mental health (Alhadabi & Karpinski, 2020), eating disorders (Claydon & Zullig, 2019), intercultural friendship, and extra compulsory learning (Licari & Mattei, 2020) affect the performance and ultimately retention of students with the university.

Alongside, the recent wave of COVID-19 has resulted in lockdown and isolation for being an international emergency. Restrictions related to COVID-19 have caused anxiety and sleeping disorders due to limiting social life, interrelationships, mental illness, fear of being infected, and prolonged isolation (Bao et al., 2020). Previous studies have unveiled that health emergencies like SARS cause anxiety, psychological distress, post-traumatic stress among individuals, whether infected or not (Brooks et al., 2020). This discussion lends support to studying the impact of COVID-19 related experiences on the students' academic performance, and the present study proposed that it hurts their academic performance.

H$_1$: COVID-19 related experiences significantly affect academic performance.

2.2   Online Leisure Crafting as a Mediator

Quarantine practices due to COVID-19 have resulted in isolation, lockdowns, travel restrictions, and job loss, disturbing the lives of individuals all over the world (I.-S. Chen, 2020). These restrictions have induced boredom resulting in physical and psychological health problems (Williams, Armitage, Tampe, & Dienes, 2020). Most of the existing research on COVID-19 related experiences is about its adverse outcomes that have neglected mainly the goodness that individuals might have found during this pandemic. This issue needs investigation due to human ability to cope with stressful situations. Understanding the underlying mechanism that played a positive role for individuals dealing with such a situation demands attention (Munir et al., 2021). Drawing attention to this phenomenon would be helpful for policymakers and university management to devise strategies for the expected burden of communicable diseases (Boutayeb, 2006; Casal & López, 2021).

The stressful experiences motivate individuals to engage in online social activities to lessen their adverse effects. It means, during the lockdown, university students living in hostels must have engaged themselves in online leisure activities. It is worth considering the difference between leisure participation and leisure crafting, former means to get involved in leisure activities. At the same time, the latter indicates a proactive approach to making leisure activities purposeful, gaining specific targets (Berg, Grant, & Johnson, 2010) such as socialization, chatting, research, learning, support, or fulfilling desires.

Prevailing research on leisure crafting has proven it as a potential mediator for several positive outcomes such as employee satisfaction (Zhao et al., 2020) and career development (I.-S. Chen, 2020), thus lending support to studying this variable as a mediator between COVID-19 related experiences and academic performance. However, existing studies lack any evidence to investigate the role of this variable in the present context. However, employees engaged in online leisure crafting are good in career management (Lee & Ravichandran, 2019). Therefore, the present study hypothesizes that:

H$_2$: Online leisure crafting mediates the relationship between COVID-19 related experiences and academic performance.

2.3.   Uncertainty Avoidance as a Moderator

Cultural values play a vital role in employees' in-role performance (Wang, 2020). Hofstede cultural dimensions are essential in explaining cultural differences that reflect the rules, ritual behavior, and attitudes of a specific culture (Hofstede et al., 2005). For example, uncertainty avoidance is a value that varies across cultures, defined as "the extent to which the members of a culture feel threatened by uncertain or unknown situations" (Hofstede et al., 2005). Cultural values are most studied at a national level, largely neglecting the individual level (Munir et al., 2021; Romero, 2020). Individuals

perceive and react differently to contextual situations based on their characteristics. Similarly, the COVID-19 related experiences are likely to be perceived and reacted differently by the individuals due to varying levels of uncertainty avoidance.

The above discussion directs that individuals high in uncertainty avoidance will try to stick more with the rules to gain desired results academically than the individuals low in this value. This discussion also directs, the individuals high in uncertainty avoidance will face more stress that will lead them to engage in more online leisure activities to cope with the stress than individuals low on uncertainty avoidance. Therefore, the present study hypothesized that:

H₃: **Uncertainty avoidance moderates the relationship between COVID-19 related experiences and online leisure crafting such that this relationship is stronger for individuals high (vs low) in uncertainty avoidance.**
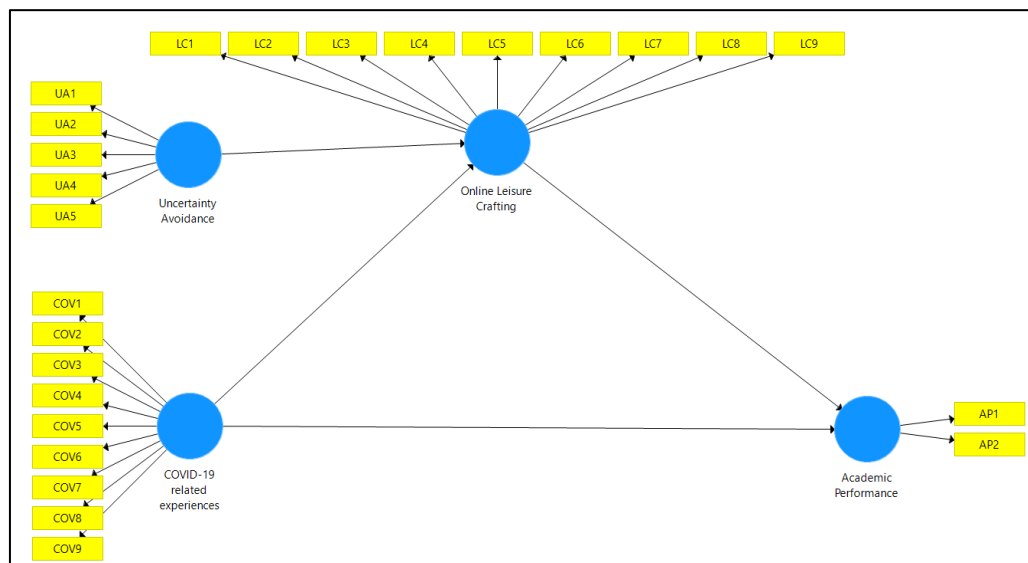
Figure.1. Framework
Source: Author's own elaboration

3. Research Methodology

3.1. Participants and Procedures

Using a two-wave study design, the present study collected data from conveniently selected students studying in an international university in Canberra, Australia. The university switched to online classes due to the COVID-19 outbreak. Therefore, students living on campus, facing strict lockdown, social distancing practices along travel restrictions were contacted through an online community.

The present study distributed 1600 anonymous online questionnaires at time T1 and evaluated all predictor variables, including COVID-19 related experiences, online leisure crafting, and uncertainty avoidance, through the participation of 1473 students (response rate = 92.06%) as shown in Table 1. In addition, after three months, at time T2, the present study collected information about students' academic performance.

Table.1. Demographic Information

	Frequency	Percentage (%)
Gender		
Male	850	57
Female	623	43
Age		
Below 20	263	18
21-25	589	40
26-30	606	41
Above 30	15	1
Race/Ethnicity		
Asia	612	42
Africa	250	17
Latin America	163	11
White	391	27
Other	57	3
Degree		
Postgraduate	867	59
Graduate	606	41
Type of students		
International	1102	75
Local	371	25
Financial aid		
Scholarship	563	39
Loan	213	14
Self-finance	697	7

Source: Author's own elaboration

3.2.   Measures

The present study adapted well-established measures to assess study variables with a Likert scale ranging from '1 = strongly disagree' to '5 = strongly agree'.

COVID 19-related experiences

The present study adapted a 9-item scale (Main et al., 2011), used by (Ye et al., 2020).

Online leisure crafting

The present study assessed this variable with a 9-item scale (Petrou & Bakker, 2016), used by (Chen, 2020).

Uncertainty avoidance

A 5-item scale (Clugston, Howell, & Dorfman, 2000) to assess uncertainty avoidance, used by (Wang, 2020) was adapted.

Academic performance

The present study assessed academic performance with a 2-item scale used by Terry and Peck (2020). Please refer to Table 2 for the reliability test results of the scales.

4. Results & Discussion

4.1.   Average Variance Extracted (AVE)

AVE was greater than 0.50 with significant cross-loadings that established the convergent validity as half the factors of respective indicators explained half the variance (Höck & Ringle, 2006).

Table.2. Reliability Analysis

Latent variables	Items	Factor loading	Cronbach's alpha	Composite reliability	Average variance extracted
Covid-19 related experiences			0.962	0.958	0.717
	COV1	0.962			
	COV2	0.911			
	COV3	0.785			
	COV4	0.756			
	COV5	0.861			
	COV6	0910			
	COV7	0.881			
	COV8	0.812			
	COV9	0.712			
Online Leisure Crafting			0.913	0.964	0.751
	LC1	0.781			
	LC2	0.799			
	LC3	0.845			
	LC4	0.896			
	LC5	0.911			
	LC6	0.913			
	LC7	0.951			
	LC8	0.854			
	LC9	0.836			
Academic Performance			0.911	0.782	0.643
	AP1	0.756			
	AP2	0.845			
Uncertainty Avoidance	UA1	0.865	0.923	0.956	0.812
	UA2	0.864			
	UA3	0.856			
	UA4	0.951			
	UA5	0.963			

Source: Author's own elaboration

4.2. Correlation Matrix and Discriminant Validity

The square root of AVE (Average Variance Extracted) was higher than correlations among constructs yielding satisfying results. Therefore, the present study used Fornell and Larker (1981) criteria, along with the HTMT ratio, to establish discriminant validity (Ringle, 2015) as shown in Table 3.

Table.3. Correlation matrix and discriminant validity

	CoE	LC	AP	UA
Covid-19 related experiences (CoE)	**0.881**			
Online Leisure Crafting (LC)	0.687	**0.926**		
Academic Performance (AP)	-0.546	0.612	**0.914**	
Uncertainty Avoidance (UA)	-0.421	0.236	0.-365	**0.901**

Note: Values on the diagonal (bold) represent the square root of the average variance extracted while the off-diagonals are correlations.

Source: Author's own elaboration

4.3. Structural Model Results and Hypothesis Testing

Results of the table.4 shows there is an indication of multicollinearity

Table.4. Collinearity statistics

	Academic Performance	Online Leisure Crafting
Covid-19 related experiences	2.75	2.13
Online Leisure Crafting	1.72	
Uncertainty Avoidance		1.42
Moderating Effect		2.11

Source: Author's own elaboration

4.3.1. PLS Algorithm, Bootstrapping, and Mediation Analysis.

After validating measurement model, the present study tested hypotheses using bootstrapping to get β values along with *t*-values. The path analysis of structural model indicates negative impact of COVID 19-related experiences on academic performance (β = -0.421, *t* = 3.423, *p* < .001) and positive impact on online leisure crafting (β = 0.356, *t* = 4.231, *p* < .001) whereas online leisure crafting has positive impact on academic performance (β = 0.341, *t* = 4.452, *p* < .001).

Table.5 represents the results of path analysis, except the control variables (age and gender) as these variables had an insignificant relationship with academic performance.

Table.5. Research hypotheses and testing

| Hypothesized path	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	t-statistics (|O/STDEV|)	P Values	Inference
Covid-19 related experiences -> Academic Performance	-0.421	-0.420	0.071	-5.929	0.000	supported
Covid-19 related experiences -> Online Leisure Crafting	0.356	0.355	0.072	4.844	0.000	supported
Moderating Effect -> Online Leisure Crafting	0.363	0.361	0.052	6.979	0.000	supported
Online Leisure Crafting -> Academic Performance	0.341	0.340	0.060	5.681	0.000	supported
Uncertainty Avoidance -> Online Leisure Crafting	0.371	0.370	0.075	4.946	0.000	supported

Source: Author's own elaboration

Following the recommendations of Hayes (2015), the present study adopted the product indicator approach with mean-centered and automatic settings to test the moderating effect of academic performance (Jr, Hult, Ringle, & Sarstedt, 2016). The results show significant moderating effect of academic performance on online leisure crafting (β = 0.363, *t* = 3.298, *p* < .001). Figure 2 provides the results of the relationship established in the present study framework whereas Figure 3 reveals the relationship between COVID 19-related experiences and online leisure crafting will be stronger with higher levels of uncertainty avoidance.
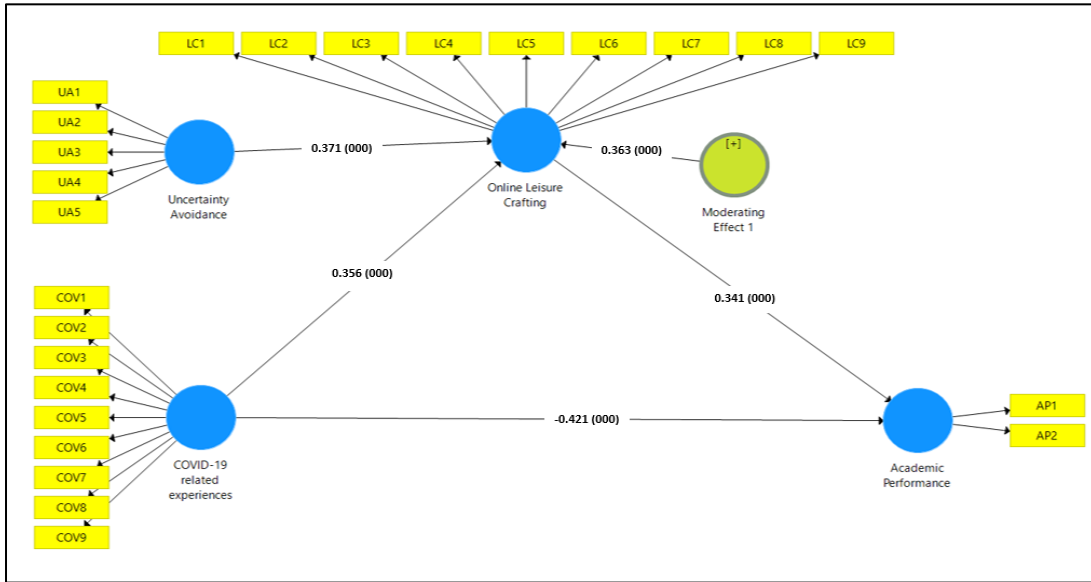
Figure.2. Research framework results
Source: Author's own elaboration
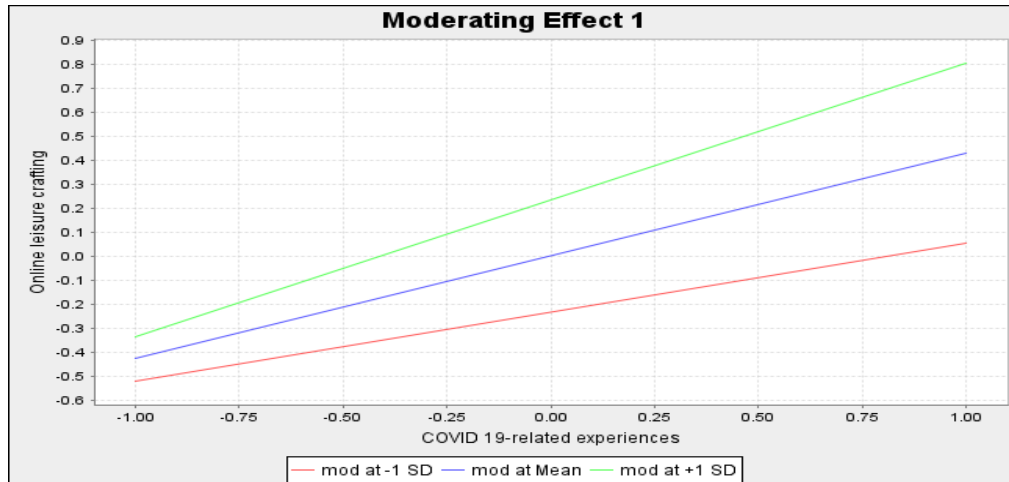
Figure.3. Moderating effect analysis
Source: Author's own elaboration

Moreover, findings of mediation analysis with 1000 resample show partial mediation of online leisure crafting between COVID 19-related experiences and academic performance as shown in Tables 6, 7, and 8.

Table.6. Mediation analysis results

Specific Indirect Effects	Original Sample	T Statistics	P values
Uncertainty Avoidance -> Online Leisure Crafting -> Academic Performance	0.287	2.051	0.002
Covid-19 related Experiences-> Online Leisure Crafting -> Academic Performance	0.296	5.323	0.003
Moderating Effect 1 -> Online Leisure Crafting -> Academic Performance	0.264	4.621	0.039

Source: Author's own elaboration

Table.7. Mediation analysis results

	Total Indirect Effects	T Statistics	P Values
Covid-19 related experiences ->Academic Performance	0.208	2.315	0.002
Moderating Effect 1 -> Academic Performance	0.098	3.058	0.005
Uncertainty Avoidance -> Academic Performance	0.114	4.012	0.023

Source: Author's own elaboration

Table.8. Mediation analysis results

	Original Sample	T Statistics	P Values
Covid-19 related experiences -> Academic Performance	0.323	3.352	0.000
Covid-19 related experiences -> Online Leisure Crafting	0.470	3.488	0.000
Moderating Effect -> Academic Performance	0.418	5.453	0.000
Moderating Effect -> Online Leisure Crafting	0.321	3.450	0.000
Online Leisure Crafting -> Academic Performance	0.436	4.396	0.000
Uncertainty Avoidance -> Academic Performance	0.358	5.401	0.000
Uncertainty Avoidance -> Online Leisure Crafting	0.356	2.073	0.000

Source: Author's own elaboration

4.3.2. Predictive relevance of the model

Please refer to Table 9 for predictive relevance of the model (Sarstedt, Ringle, Henseler, & Hair, 2014), and Table 10 represents f^2 effect size.

Table.9. Variance explained

	R Square	R Square Adjusted
Academic Performance	0.328	0.327
Online Leisure Crafting	0.452	0.451

Source: Author's own elaboration

Table.10. Effect Size

	Academic Performance	Online Leisure Crafting
Covid-19 related Experiences	0.178	0.213
Moderating Effect 1	0.099	0.152
Online Leisure Crafting	0.189	
Uncertainty Avoidance		0.121

Source: Author's own elaboration

Effect size criteria are as follows:
Weak   = 0.02
Medium = 0.15
Strong   = 0.35

4.3.3. Blindfolding Procedure

The present study used the blindfolding procedure (omission distance = 7) to assess predictive relevance (Q^2) of the proposed model, non-zero values of endogenous variables confirmed model predictability. An SRMR (RMS$_{theta}$) value of less than 0.08(0.12) indicates a good fit, which is satisfactory in our study as a standardized root mean square residual of 0.06(0.10).

4.4. Discussion

The present study conducted a two-wave study to demonstrate a time-lagged effect of COVID-19 related experiences on students' academic performance mediated by online leisure crafting. Our study also unveiled that uncertainty avoidance amplified the COVID-19 related experiences' effect on online leisure crafting, which served as a partial mediator to affect students' academic performance positively.

Theoretically, our study contributes to the literature by providing longitudinal support for plasticity theory. Our findings support that COVID-19 impacted students' online leisure crafting positively, which positively impacted their academic performance. Although online leisure crafting as a mediator is well-established through literature, our two-wave study approach and selecting university students to collect data is the first attempt to add to the literature of leisure crafting. The present study has also provided novel insights having positive implications for students' performance. At the same time, limited literature on the effects of COVID-19 related experiences and online leisure crafting on the academic performance of university students was a prevailing gap filled with our unique contribution. Lastly, the present study has provided insightful information for university management and policymakers to consider these findings while devising new policies to attract international students in the future and to assist them financially.

Practically our findings help clarify how COVID-19 related experiences have affected international university students' academic performance, which is an area of concern for international universities worldwide. At the same time, the present study has made clear the positive role of online leisure crafting mediating this mechanism, thus enhancing its importance during the lockdown and social distancing practices. Therefore, the findings of our study are beneficial for the management of potential international universities and policymakers to bring required reforms in their existing practices for continuity of business.

At the same time, the present study suggests the respective government take preemptive measures to provide international students with adequate financial support in fee concession, career management, recruitment assistance, and relaxation in grading procedures. Taking preemptive measures will retain the loyalty of existing students in these universities as existing students are the university's ambassadors, and their 'word of mouth' may bring more business.

Moreover, the present study found that students high in uncertainty avoidance are more engaged in online leisure crafting versus low uncertainty avoidance. This information can be insightful while managing the outsiders having different cultural values than the host country nationals. Therefore, the management of the international universities should make necessary strategic plans to deal with cultural issues specifically for the new students.

5. Conclusion

The university management may encourage students to engage in their study through crafting their leisure time and utilizing it more in leisure activities. Online leisure crafting has several positive outcomes in general and it can be utilized to help students deal with the stress in case of lock-downs and isolation amid COVID-19 and expected outbreaks in coming years. Our findings bring forward the research agenda which enforces to devise online activities according to students' educational needs. Every individual is unique and so are their socioeconomic needs. We suggest that management at the university level revise their loan policies to cater to the maximum financial needs of international students during hard times. At the same time, our study unveiled the positive role of uncertainty avoidance and a closer analysis proves it a moderating variable that helps individuals engage in constructive activities and in this way enable them to face the situation. The findings also highlight the importance of self-motivating training which can be helpful for students to deal with problematic situations alone.

5.1. Limitations and Future Research

The generalizability of our findings could be an issue because the present study selected all the respondents from the same university. Therefore, we strongly recommend testing our model in other universities across the globe. Common method variance due to self-reported data could be a threat, but because all variables were related to the students' personal experience, self-reporting was suitable. The present study adopted a more rigorous approach to deal with this issue due to the time lag effect of 3 months (for example, The present study collected T1 data during the first week of February and T2 data in the second week of May 2020).

Future studies may investigate different mediators and moderators to find the impact of health and other emergencies on academic performance. Future studies may also adopt mix methods approach to have an in-depth understanding of this phenomenon.

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