A Path Analytic Investigation of Non-Qatari Mothers' Perceived Adjustment to Blended Learning During the COVID-19 Pandemic

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Abstract

Purpose: This study aims to better understand the factors influencing non-Qatari mothers' perceived adjustment to blended learning during the COVID-19 pandemic in Qatar.

Method: A 34-item questionnaire was administered to 446 non-Qatari women living in Qatar during the pandemic. Exploratory Factor Analysis was used as a data reduction technique and to test the validity of the instrument. The Kaiser–Meyer–Olkin measure of sampling adequacy and Bartlett's test of sphericity were calculated.

Findings: Four out of seven hypotheses were confirmed using Multiple Regression Analysis. Four independent variables (1) mothers' perception of school support during COVID-19 (2) work-life balance (3) students' perceived adjustment to blended learning and (4) independent (innovative) learning significantly affect mothers' perceived adjustment to blended learning during the pandemic.

Implications: This study provides strategic insights regarding non-Qatari mothers' perceived adjustment to blended learning during the COVID-19 Pandemic. Findings of the present study should encourage schools and employers in Qatar to better understand expat mothers' challenges during crises such as COVID-19.

Keywords: Expat mothers, Work-Life Balance, Independent Education, Blended Learning, COVID-19, Qatar

1.   Introduction

Within the framework of Qatar's struggle and measures taken to reduce the spread of the novel Coronavirus in the country, educational institutions have been closed until further notice. "Online learning has become a new habit during this Pandemic" [1]. The resolution taken by Qatar's government has left many parents balancing working from home with helping their children in blended learning. As Expats, who have already used to distance themselves from their home countries, Covid-19 has taken them by surprise and working Expat mothers have been struggling in handling their children's online classes. This additional workload is accumulated upon the already multifaceted duties of the Expat working mothers who live on the edge of burnout due to the challenge of balancing domestic and work responsibilities [2]. It is not surprising that shouldering extra responsibilities instantly resulted in struggles and conflicts for adults as most families do not have someone to take on the full-time role of supporting remote education [3]. The closure of schools and higher education institutions left

people with no choice but to adapt quickly, and remote work and distance learning became the new tradition [4]. There is an increased pressure globally on families due to the school closures and public health measures, especially on women [5]-[9]. Working mothers were withstanding the worst of the new burdens enforced on them by the new arrangement of work, the everyday activities and how parents and children spend time together. The Institute of Fiscal Studies (IFS) found that working mothers in the United Kingdom are more likely to lose their jobs or take permission during the pandemic. The study also shows that proportionately to male counterparts, working hours for women had a more significant decrease and higher amounts of interruption by childcare [10]. Researchers [11] argued that gender inequality in the labour force increased during the pandemic, with a notable impact on mothers. Previous publications looked at parent's engagement with their children during distance learning [3], [12]-[16], most of them have shown that mothers are more involved than fathers in their child's education [17]. While father's engagement in work and life was considered the most important reason for not to be directly involved in their children's education and schooling [18]. What's more, the application of Moser [19] gender analysis framework, showed vulnerabilities of women during disaster times [20]-[21]. Yagoub Ali Gangi discovered that building knowledge economy in Qatar "requires improvement in the national innovation system [22]. Birks and Rimmer claim that the speediness of change in the gulf states, facilitated by receipt of oil revenues "makes analysis of educational development especially interesting in itself" [23]. As to be expected, COVID-19 epidemics have resulted in striking improvements in education systems globally [24]. Mavin and Yusupova believe that COVID-19 hindered the progress towards gender equality [25]. Adisa, T. A., Aiyenitaju, O. and Adekoyo, O.D. through the lens of the role theory conclude that "Remote working has contributed to women's role congestion and role conflict" [26]. Adding new responsibilities to current ones creates competition and mothers, expatriates with no extended family to help or support, striving to balance their work – family responsibilities at the same time as making sure to provide sufficient support for their children's distance learning, were the most impacted by the job layoffs [27]. Additionally, Tripathi and Singh [28] found that the psychological stress of the COVID-19 virus affected foreign workers who did not have a resilient social network and family in their surroundings more than others. Furthermore, to the best of the authors' knowledge, there has been very limited research conducted to investigate how work-life balance has impacted Qatar Expat Mothers' adjustment to blended learning during Covid-19.

2. Literature Review

In an effort to control the spread of the COVID-19, education moved towards online mode rather than moving to cessation [29]. Due to the sudden shift to online or blended learning in Qatar, parents became the more responsible ones who can be with their kids during the COVID-19 pandemic [16]. As a result, many parents felt exhausted [12], [13] & [3]. With home teaching, mothers became more responsible for the care and at-home learning of their children [30]. Previous research has shown that parents believe that home-schooling is of poor quality [31] and needs better learning school support [32] but the majority of parents were satisfied with the support they were receiving from the schools and teachers [33]. There were three critical reasons for the rejection of online learning: children's ineligible self-regulation, their lack of professional knowledge to support online platforms and the shortcomings of

interaction [13]. Bergman [34] has found that many parents never log in to the online tool provided due to unstable access to technology or the internet and failure to understand how to utilize these platforms and act on the provided data for their children. Additionally, some families with multiple children at school could not provide more than one device to access the online classroom and found that sharing one device was challenging. What's more, with home-schooling it becomes difficult to ensure that all students have access to high-speed and stable internet connections [35]. Previously, students attended all school programs and activities. Parents are now required to guide and monitor their children's learning at home [36]. Stay-at-home parents have to adapt to online-learning while they perform household tasks. Spinelli, M., Lionetti, F., Pastore, M., & Fasolo, M. [37] pointed out that parents who had barriers in supporting their children's learning during the pandemic were more stressed. The increased stress in parents leads to poorer parental outcomes, which in turn puts a strain on the parent-child relationship [32]. The shift to online lessons caused students as young as three years old to spend more time using screens. Dong, C., Cao, S., & Li, H. [13] found that among all concerns, parents' fear over their children's eye vision was most common. Elkind (as cited in [13]) and [38] argue that children should not be exposed to online learning at a young age. Furthermore, parents had to hold practical lessons such as languages and math and resulted in more absences [39]. According to previous research, independent learning can be defined as a method where individuals control and own their learning process [40]. Meyer, B., Haywood, N., Sachdev, D., & Faraday, S. [41]   believe that the key factor of independent learning is the shift between teachers and students regarding the learning responsibilities, which requires students to study by themselves, and motivate themselves to learn and collaborate with teachers to structure and support them in their learning environment. Another study aimed to explore independent learning as a moderator between child competence and parents' satisfaction with the system suggested that considering the child's ability to be able to learn independently when designing an online learning system could increase the satisfaction of parents [42]. Similarly, Garbe, A., Ogurlu, U., Logan, N., & Cook, P. [3] found that some parents had no struggles during online learning in the time of COVID-19 closure with their children who are in grades 7 and 9, as they are working independently and parents have to do little for them. In contrast, most children in kindergarten and primary school were not capable of completing the learning tasks and assignments independently [32]. In addition, parents think that online education is not suitably prepared to enhance independent learning among young students [43]. Having more interactive activities in online learning would increase parents' satisfaction with this type of system [32]. Furthermore, Samosir, R. A., Bukit, J., Situmorang, M., & Simorangkir, M. [44] found that learning packages that contain mini projects for chemistry topics were effective and motivated students to learn independently.

3.   Methods

The data explored in this paper was collected through an online (web) survey of 446 non-Qatari women during the COVID-19 pandemic in 2020. Non-Qatari mothers aged 18 years and older participated in the online survey. Non-Qatari mothers were recruited via posts placed on the most widely used social media platforms in Qatar. The advertisements have been geographically restricted through Internet (IP) addresses so that only respondents located inside

Qatar were able to receive the ad and were asked to take part in the study. Informed consent has been obtained from respondents before starting the survey, and respondents were assured that all of the answers that they will provide will be treated confidentially and that the resulting data will be stored securely.

The ages of the respondents ranged between 18 and 59. A total of 41% of the respondents have only one child in school, 39% had two or more students and the remaining 20% of the respondents have three or more students in school. Approximately 88% of the respondents are full-time employees and the remaining 12 % of respondents reported otherwise (part-time employees, self-employed, housewives and unemployed. Almost 47% of the respondents have a university degree, 35% master's degree, 4.4% Ph.D., and 13.6 % have other types of qualifications. It is worth noting that before creating the online survey, it was important to review other surveys conducted on the same topic to establish familiarity, broaden knowledge, and understand the existing debates relevant to the current research topic. Based on the review of literature [3], [32], [45]-[58], thirty-four questionnaire items were developed in English using 4 point Likert type scale. A team of experts at our Social and Economic Survey Research Institute (SESRI) were asked to validate and translate the questionnaire in Arabic.

3.1 Establishing the construct validity and reliability of the instrument

Using multivariate actor analysis, the researchers factor analyzed twenty-seven items with no missing data. The index KMO (Kaisers-Meyer-Olkin) and the Bartless test of sphericity were used to determine the appropriateness of factor analysis. First, the computed KMO (Kaisers-Meyer-Olkin) measure of sampling adequacy score of 0.843 score was well above the recommended level of 0.50. Second, the computed Bartless statistical test of sphericity was significant (Chi Square = 2049.846; P = 0.00), indicating that there are satisfactory inter-correlations between the measured statements. The oblique rotation was used to determine how many factors to extract and which statements to throw out. As a result, seven factors were extracted and retained using Eigen value greater than 1 "the one criterion" and factor loadings greater than 0.59. Together, all seven factors determined and explained 65.668% of the total variation and were easy to label. The first dimension was labelled Mothers' Perception of School Support during COVID-19; Cronbach alpha = 0.681. This factor accounts for 7.461% of the total variance and is defined by three items with factor loadings ranging from 0.685 to 0.850. The three items are:

- Q1. Follow-up by the school and teachers [45],[46]
- Q2. School's steps to prevent COVID-19 [46]
- Q14. Parents-Teachers communications [47]

The second factor heavily weights statements related to Work-Life Balance; Cronbach alpha = 0.821. This component accounts for 6.95% of the total variance and is defined by three items with factor loadings ranging from 0.824 to 0.867. The three items are:

- Q4. Balancing parent's employment demands and child learning needs [3]
- Q5. Balancing requirements of different children's school work [3]

- Q6. Parents feel overwhelmed [3]
-

The statements on the third factor seems to indicate Technology; Cronbach alpha = 0.757. This factor accounts for 6.268% of the total variance and is defined by three items with factor loadings ranging from 0.681 to 0.850. The three items are:

- Q9. Access to technology hardware for online learning [3]
- Q10. Internet quality [3]
- Q11. Access to online educational resources provided by the school [48]
-

The fourth factor is labelled Various Aspects of Digital Economy; Cronbach alpha = 0.741. It accounts for 5.371% of the total variance and is defined by three items with factor loadings ranging from 0.595 to 0.707. The three items are:

- Q18. Students maintaining mental health [49]
- Q19. Students maintaining social connections and friendships [3]
- Q20. Students having too much screen time [50]

The fifth factor labelled Students' Perceived Adjustment to Blended Learning; Cronbach alpha = 0.834. This dimension accounts for 4.564% of the total variance and is defined by six items with factor loadings ranging from 0.668 to 0.785. The label provides an accurate description of the underlying theoretical dimension. The six items are:

- Q3. Children cope with online learning system [51]
- Q7. Children's motivation is specifically related to online learning [3]
- Q8. Children's motivation towards learning in general [3]
- Q15. Child/ren acquisition of the required learning outcomes and skills [52]
- Q16. My children adjusted quickly to online learning [53]
- Q17. My children adjusted quickly to blended learning [54]

The statements on the sixth factor really lean towards the fact it should be named Independent (Innovative) Education; Cronbach alpha = 0.523). It accounts for 3.955% of the total variance and is defined by six items with factor loadings ranging from 0.640 to 0.706. The six items are:

- Q24.Schools need to focus more on independent learning [55]
- Q25. Parents need to be more involved in their child's education [56]
- Q28. Online Learning gave a new perspective to education [57]
- Q29. Schools need to focus more on innovative ways of learning [32]

The items on the seventh factor seems to belong to the particular theme Non- Qatari Mothers' Perceived Adjustment to Blended Learning during COVID-19: Cronbach alpha = 0.797. This factor accounts for 31.097% of the total variance and is defined by five items with factor loadings ranging from 0.597 to 0.789. The five items are:

- Q21. The shift between traditional learning to online learning has been done smoothly [3]
- Q22. Online learning is suitable for children without needing parents' supervision [60]
- Q23. Blended learning is easy to deal with [54]
- Q26. You were able to adjust to online learning quickly [58]
- Q27. You were able to adjust to blended learning quickly [53],[58]

4.   Results

4.1   Multiple regression analysis

Four out of seven hypotheses have been confirmed from Multiple Regression analyses. Four independent variables (1) mothers' perception of school support during COVID-19 (2) work-life balance (3) students' perceived adjustment to blended learning and (4) independent (innovative) education significantly affects mothers' perceived adjustment to blended learning during the COVID-19 pandemic.

Table 1.   Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.717[a]	.514	.495	.47430
a. Predictors: (Constant), Independent (innovative) Learning, Technology, Work Life Balance, Mothers' Perception of School Support during Covid-19, Various Aspects of Digital Economy, Students' Perceived Adjustment to Blended Learning				

Table 2.   ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	36.381	6	6.064	26.954	.000[b]
	Residual	34.418	153	.225		
	Total	70.800	159			
a. Dependent Variable: Non-Qatari Mothers' Perceived Adjustment to Blended Learning						
b. Predictors: (Constant), Independent (innovative) Learning, Technology, Work Life Balance, Mothers' Perception of School Support during Covid-19, Various Aspects of Digital Economy, Students' Perceived Adjustment to Blended Learning						

Table 3. Multiple Linear Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.350	.245		1.429	.155
	Mothers' Perception of School Support during Covid-19	.139	.048	.186	2.898	.004
	Work Life Balance	.104	.049	.144	2.126	.035
	Technology	.052	.038	.087	1.369	.173
	Various Aspects of Digital economy	.053	.060	.064	.886	.377
	Students' Perceived Adjustment to Blended Learning	.250	.051	.365	4.892	.000
	Independent (innovative) Learning	.230	.067	.203	3.460	.001
a. Dependent Variable: Non-Qatari Mothers' Perceived Adjustment to Blended Learning						

4.2 Path analysis- SEM

Researchers in the current research decided to develop a causal model to investigate how "Students' Perceived Adjustment to Blended Learning" directly and indirectly affects "Non-Qatari Mother's Perceived Adjustment to Blended Learning", especially during the COVID 19 pandemic whereas mothers are shouldering a plentiful portion of the burden at home. It is worth mentioning that "Women are doing significantly more domestic chores and family care, because of the impact of the pandemic" [60].
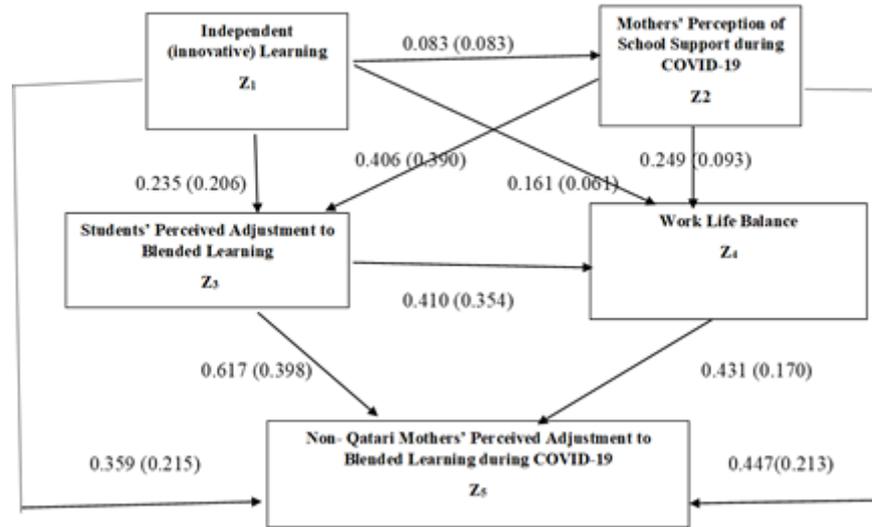
Fig. 1. Path Analysis- SEM

Figure 1 shows the direct and indirect effects between all variables in the Path Analysis- SEM model. The number between parentheses represents the true direct effect between two variables while the other number outside parentheses exemplifies the Pearson simple total effect (direct plus indirect effects) between the two variables.

Findings of the current study show different influences of antecedent factors towards "Non-Qatari Mothers' Perceived Adjustment to Blended Learning during COVID-19". Additionally, path coefficients and t-values show that "Students' Perceived Adjustment to Blended Learning" has the more significant and the stronger direct and indirect contribution to "Non-Qatari Mothers' Perceived Adjustment to Blended Learning during COVID-19" as compared to "Work-Life Balance" that has the least direct effect. Furthermore, the total effect between "Work-Life Balance" and "Non- Qatari Mothers' Perceived Adjustment to Blended Learning during COVID-19" is bigger than the direct effect due to the other mediating variables. Giannini believes that most teachers, parents and caregivers do not have the necessary ICT skills to remain connected and engaged in different countries [61],[62].

5. Discussion

Internet technology has greatly transformed people's learning methods, breaching the time and location limits of traditional learning methods [63]. Nevertheless, previous research argues that Expat mothers are struggling to cope with the new education system and the added responsibilities [2]. For this reason, this research aimed to investigate how work-life balance has impacted Qatar Expat Mothers' adjustment to blended learning during Covid-19. The study findings showed that students' perceived adjustment to blended learning is strongly significant and has a strong direct and indirect effect on mothers' perception towards blended learning compared to the "work-life balance" variable. In other words, when children are satisfied and cope easily with the system, parents are more likely to be satisfied. This finding is consistent with a study focused on the parent-child dynamics regarding school closures during the

COVID-19 period and found that parents' anxiety was positively related to child anxiety [15]. Similarly, a study conducted by Kennedy [54] found that both parents and students had positive attitudes towards blended learning even though students were struggling with handling the self-regulation involved. It is worth mentioning that work-life balance had the least direct effect on mothers' perceived adjustments towards blended learning. This is in line with a study conducted in Iceland that focused on understanding the gendered realities of work-life balance during COVID-19 and found that working mothers struggled to maintain a balance between their own work and their household responsibilities [64]. Even though the current study didn't find that work-life balance strongly affects the mothers' adjustments to blended learning, it is still important to acknowledge the fact that working mothers usually carry the burden of taking care of the children, especially the younger ones. Likewise, Del Boca, D., Oggero, N., Profeta, P., & Rossi, M [65] showed that working women that have children under 6 years old were faced with more difficulties in achieving work-life balance during COVID-19. What's more, mothers' perceived adjustments were also significantly affected by their perception of school support and independent innovative learning. In other words, perceived school support plays a role in mothers' adjustment to blended learning during the COVID-19 outbreak. This is consistent with a study that focused on parents' perception of special schools in Ireland, which found that there is good communication, and support between parents and school [33]. Another study revealed that there is a relationship between parents' perception of home-schooling and school support as they found that parents were dissatisfied with home-schooling due to a lack of school support [31]. Moreover, the findings regarding the significant effect of independent innovative learning on mothers' perceived adjustments towards blended learning are consistent with other studies [66]-[68]. Thus, having innovative and creative teaching methods [69] and tools will help students as well as their parents to adjust to online learning as well as blended learning systems as one of the systems for teaching children.

In conclusion, as mothers are often faced with the responsibility of taking care of their children. their experiences with their children during remote learning are worth exploring to estimate future policy decision-making, this study was an endeavor to understand the parents' work – Life balance within remote learning during school closure due to COVID-19. The physical closure of schools resulted in an immediate shift to remote learning laid further responsibility for learning on parents, specifically mothers. Research can be a source of great insight into the dynamics of current issues in the blended learning experience. Understanding the antecedents of "Non- Qatari Mothers' Perceived Adjustment to Blended Learning during COVID-19" provides policymakers in Qatar with insights to inform blended learning strategies, in addition to providing replicable observations. Shedding the light on non-Qatari mothers' experience is an essential contribution to policymakers in Qatar to further understand their perspectives on education changes and adjustments. Policymakers may also use the results of the Multiple Regression analysis to draw policies and strategies to ensure that more children can acquire education during crisis in general. This study draws on data collected using a 34-item questionnaire from a sample size of 446 non-Qatari women living in Qatar during the pandemic to document the impact on this population. The findings show that several factors significantly affect mothers' perceived adjustment to blended learning during the COVID-19 pandemic. The extent, to which mothers are adjusting blended learning, and the way blended learning

integrates into the existing curriculum, are determined by their children's ability to cope with the new system. Lack of school support and absence of independent innovative learning can also be a source of added responsibility on parents during the uncertain times of COVID-19. When children have a hard time adjusting to the new learning system and struggle with their new responsibilities, many mothers take the load of having to guide their children through the blended learning system.

6.   Acknowledgement

7.   Ethical Clearance

It is worth mentioning that the original project obtained an IRB clearance from the Qatar University Review Board and the Research Ethics approval number is QU-IRB 1490-EA/21. Moreover, participants were provided with an appropriate informed consent prior to starting the survey. They were informed that their name will not be printed or used in any documents or associated with any of the answers to our questions and that the results of the data will only be presented in an aggregate format.

8.   Disclosure Statement

The authors report there are no competing interests to declare.

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