Post COVID-19: The effect of virtual workplace practices on social sustainable development policy

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ABSTRACT

The virtual workplace (VW) has indicated a worldwide paradigm shift for corporations and policymakers alike, who have needed to take urgent action and formulate rationalized policies for a safe transition for the planet and people's lives. The literature divulges that VW practices and their effects on social sustainable development policy are an emergent field of study, and a limited amount of research has been conducted in the context of developing countries in general and the country of the Arab Republic of Egypt in particular. Therefore, this research surveyed the leading four public sector banks in Egypt. A questionnaire with closed-ended questions was developed and circulated to a random sample of administrators at the top, middle and executive levels of the designated banks. The research empirically tested the independent variables of VW practices across three different levels, focusing on individual factors, intra-/inter-corporation factors, and the external context. The dependent variable was surveyed by examining the effectiveness of social sustainable development policies. Four intermediate variables were investigated, including age, gender, level of education, and position. Data was analyzed using descriptive statistics in Microsoft Excel to categorize the units of analysis using a Likert scale. Based on the results, concrete practices related to the VW and empirical policies for social sustainable development are proposed. Moreover, the research suggests key actions of improvement to be taken into consideration regarding VW practices, especially in the era of COVID-19, at the individual, organizational, and external levels.

Contribution/Originality: This research fills a gap in the literature by investigating the relationship between VW practices and the effectiveness of social sustainable development policy. Moreover, this paper is among the first of its kind to investigate this topic in the Egyptian banking sector.

1. INTRODUCTION

Several studies have stated that the notion of the virtual workplace (VW) originally appeared in the mid-20th century to denote the informal nature of remote working. Cascio (2000) highlighted that VW is the future of organizations whose fundamental goal is end-result-oriented rather than time-oriented. Likewise, Dima, Ţuclea, Vrânceanu, and Ţigu (2019) argued that virtual working is central to the sustainable development of organizations in response to the restructuring of organizations' needs and social relationships in the context of contemporary issues and new market requirements.

A thorough literature review has revealed that scholars denote VW with a variety of terms, including "virtual organization," "virtual team," "teleworking," "remote work," "mobile working," "virtual communication," "telecommuting," "home-based working," and more (see, e.g., Davidow and Malone (1992); Kurland and Egan (1999); Cooper and Muench (2000); Gothoskar (2000); Powel, Piccoli, and Ives (2004); Nami (2008); Nami and Malekpour (2008); Dos-Santos (2015); Morley, Cormican, and Folan (2015); Dulebohn and Hoch (2017); Raghuram, Sharon Hill, Gibbs, and Maruping (2019); Jeyaraj and Zadeh (2020)).

A broad definition of the concept of VW was specified by El Dessouky (2011) as follows: "A workplace where a group of individuals, from the same country or from different countries, are working together using different communication technologies regardless of where they are or when precisely they start or finish their tasks or how they get done their everyday job, and that, regardless of their culture, nationality, race, gender, disability or age" (El Dessouky, 2011; El Dessouky, 2018; El Dessouky, 2020).

Since its emergence in December 2019, the worldwide COVID-19 pandemic has literally changed the world. Individuals and organizations alike have had to alter their strategies to adapt to this global health crisis. The literature review revealed that several scholars support the idea that VW arrangements enhance the work environment since they permit diversity, inclusion, and knowledge sharing while hiring talented individuals from across the globe and in any time zone, regardless of their geographical presence. Likewise, virtual work helps control organizations' costs in a variety of ways; the workers' turnover rates and absenteeism will be reduced while the business's productivity and profitability improve (Bosua, Gloet, Kurnia, Mendoza, & Yong, 2013; Brunelle, 2013; Brunelle & Fortin, 2021; Davidavičienė, Al Majzoub, & Meidute-Kavaliauskiene, 2020; Golden & Veiga, 2005; Morgan, 2004; Morley et al., 2015; Shepherd & Martz Jr, 2006).

Some authors have stressed the importance of social and behavioral science in initiating appropriate guidelines to help cope with the consequences of the pandemic. For these scholars, the COVID-19 pandemic led to a paradigm shift in humans' patterns of behavior and organizations' virtual social context within the VW environment. The research of these authors has focused primarily on social issues of VW, such as the psychological consequences for individuals, the increased social isolation, and virtual leadership during virtual communications (Bavel et al., 2020; Karl, Peluchette, & Aghakhani, 2022; Waizenegger, McKenna, Cai, & Bendz, 2020; Wiederhold, 2020). González-Anta, Orengo, Zornoza, Peñarroja, and Gamero (2021) argued that the sustainability of virtual work depends primarily on the development of employee well-being.

Brunelle and Fortin (2021) found that virtual organizations play a substantial role in employees' satisfaction, where autonomy to perform tasks, competence to manage duties efficiently, and relatedness and connectedness with co-workers are valued concepts. Yasir, Abdullah, and Majid (2011), as well as Baroudi and Lucas Jr (1994) and Ermilova and Afsarmanesh (2007), acknowledged that effective coordination and networking through trust and shared understanding between employees are crucial factors that affect the sustainable development of virtual organizations. The authors stressed the importance of strong links and social influences for the sustainability of virtual enterprises. The research of Dima et al. (2019) found that VW practices are important for the sustainability of individuals and societies. VW can enhance work-family synergy as well as improve employees' potential when working remotely. Likewise, VW can improve manpower sustainability and lead to better alternatives for contemporary social issues.

2. METHODOLOGY

This paper was inspired by the exploratory study of El Dessouky (2011), which examined the relationship between the virtual workplace and the effectiveness of social sustainable development policies in the commercial public banking sector in Egypt, the advantages and challenges of which are shown in Table 1.

This paper empirically surveyed the leading four public commercial sector banks in Egypt that have taken serious actions toward the virtual workplace and e-banking arrangements:

- Bank Misr
- National Bank of Egypt
- Banque Du Caire
- Bank of Alexandria

A questionnaire with closed-ended questions including specific answer choices was circulated to a random sample of 600 administrators at the top, middle, and executive levels of administration, of whom 500 responded to the survey.

Table 1. The virtual workplace (VW) social sustainable development advantages and challenges.

Unit of analysis	Advantages	Challenges
Individuals	1. Women balance careers & domestic responsibilities 2. Time taken for daily transportation is invested in more family & social life 3. Ability to work anytime and anywhere	1. Lack of human contact with colleagues 2. Employee difficulties regulating work time 3. Employee self-control, especially in the absence of a supervisor 4. Lack of privacy
Intra-corporation & inter-corporation	Openness to different cultures at the international level	1. Elaboration of strong ties, networks, and trust in virtual teamwork 2. Elaboration of specific laws, rules, and norms for virtual teamwork 3. Elaboration of new social and benefit systems taking the VW into consideration
External context	1. More social & cohesive society 2. Less stressful society 3. Increased civic contentment	1. Formulation and implementation of new social policies and programs, taking into consideration the VW at the organizational & governmental levels

Source: El Dessouky (2011).

The paper investigated the independent variable by studying VW practices. The dependent variable was assessed using the effectiveness of social sustainable development policies. Four intermediate variables were investigated: age, gender, level of education, and position. The research framework is shown in Figure 1.
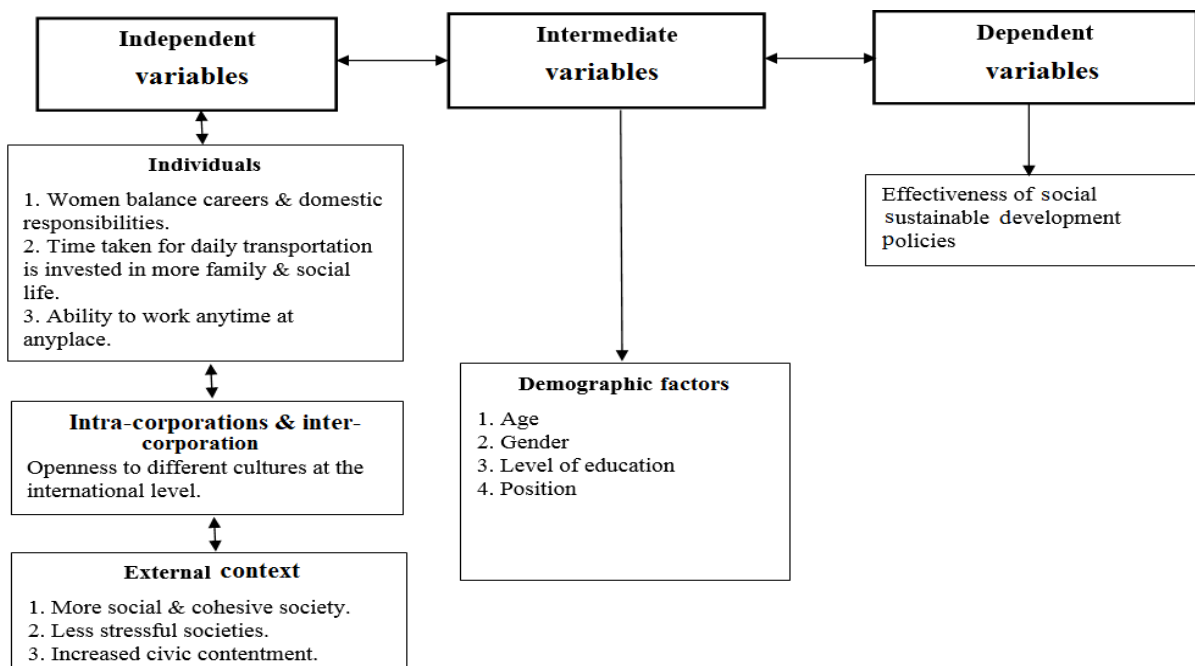
Figure 1. Theoretical framework for studying the virtual workplace and social sustainable development.

The researcher communicated with the human resources divisions of the four banks to obtain their consent to deliver the questionnaire to the prospective administrators. The questionnaire was circulated to a random sample of administrators at the top, middle, and executive levels of administration of the Cairo branches of each bank. The time period of the study was from June to August 2021. Therefore, 150 questionnaires (50 to each administrative level: top, middle, and executive) were distributed to each of the four banks, amounting to 600 questionnaires in total. Five hundred administrators replied as follows: 135 participants from Bank Misr, 140 participants from the National Bank of Egypt, 114 participants from Banque Du Caire, and 111 participants from Bank of Alexandria.

The responses were collected anonymously, and the data was classified and analyzed through descriptive statistics to attain the data in the tables and figures, using Microsoft Excel to cluster and categorize the units of analysis. The independent variables were measured using a Likert scale as follows: 1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, and 5 = strongly agree (Appendix 1, Questionnaire).

3. RESULTS AND DISCUSSION

This section presents and discusses the results of the study to examine the relationship between the virtual workplace and social sustainable development policy in the Egyptian commercial public banking sector.

Table 2. The virtual workplace and social sustainable development – individuals.

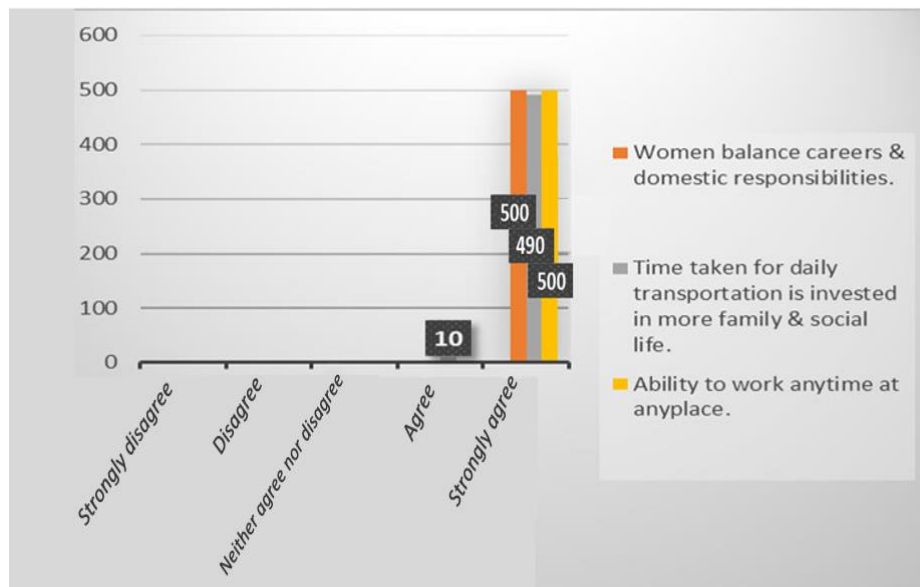| Virtual workplace advantages – individuals	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
	1	2	3	4	5
Women balance careers & domestic responsibilities					500
Time taken for daily transportation is invested in more family & social life				10	490
Ability to work anytime and anywhere					500

Figure 2. VW and the social sustainable development – individuals.

Table 2 and Figure 2 illustrate the results for "individuals" as a unit of analysis of the effect of VW on social sustainable development policy. For the item "Women balance careers & domestic responsibilities," 500 employees selected "strongly agree." For the item "Time taken for daily transportation is invested in more family & social life," 490 employees selected "strongly agree," while 10 selected "agree." For the item "Ability to work anytime and anywhere," 500 employees selected "strongly agree."

The analysis reveals that the three independent variables of "individuals" as a unit of analysis of VW have a significant relationship with the dependent variable of the effectiveness of social sustainable development policy.
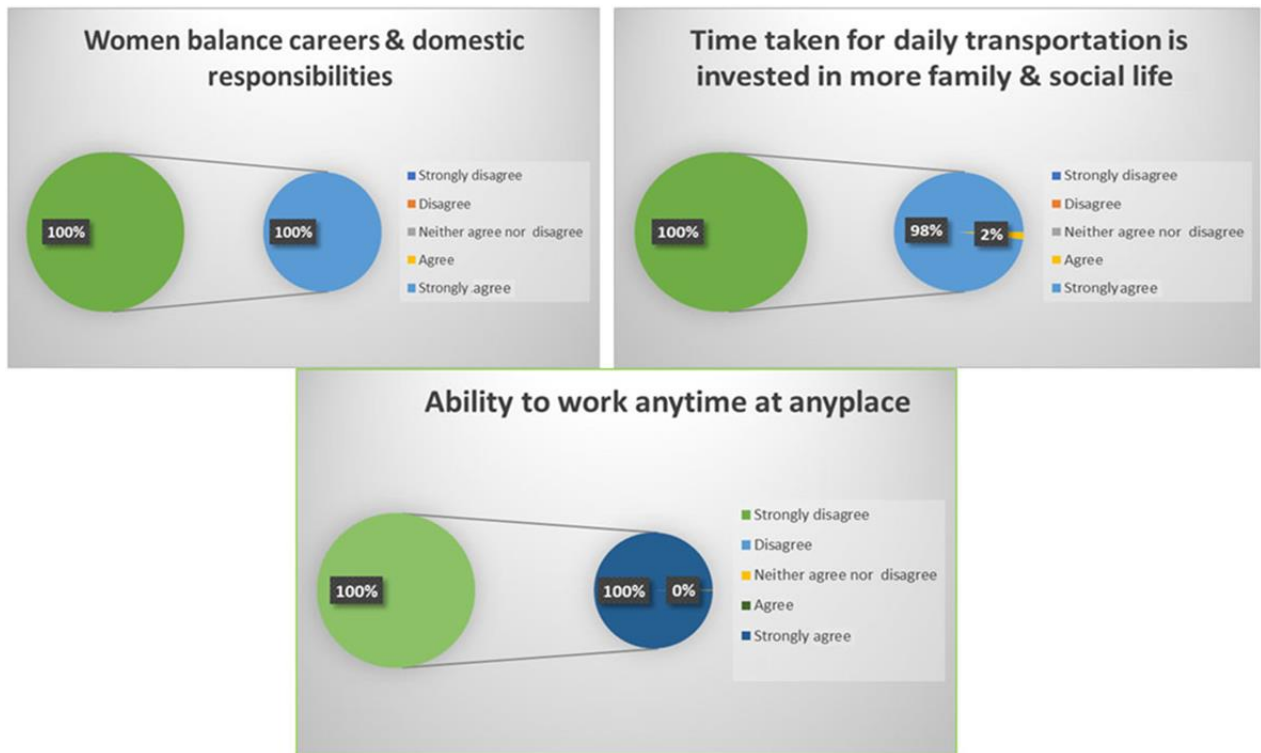

Figure 3. The virtual workplace and social sustainable development – individuals (Percentage).

Figure 3 confirms that for the two independent variables of "Women balance careers & domestic responsibilities" and "Ability to work anytime and anywhere," 100% of employees selected "strongly agree," while for the variable "Time taken for daily transportation is invested in more family & social life," 98% of employees selected "strongly agree," and 2% selected "agree."

We may conclude that the two independent variables of "Women balance careers & domestic responsibilities" and "Ability to work anytime and anywhere" have the highest percentage as 100% of employees selected "strongly agree," which represents 500 employees out of 500.

Table 3. The virtual workplace and social sustainable development - intra- & inter-corporation.

Virtual workplace advantages – intra- & inter-corporation	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Openness to different cultures at the international level	1	2	3	4	5
			20	30	450

Table 3 and Figure 4 demonstrate the results for "intra-corporation & inter-corporation" as a unit of analysis of VW's effect on social sustainable development policy. For the variable "Openness to different cultures at the international level," 450 employees selected "strongly agree," 30 employees selected "agree," and only 20 employees selected "neither agree nor disagree."

The analysis reveals that the independent variable of "Openness to different cultures at the international level" as a unit of analysis of VW has a significant relationship with the dependent variable effectiveness of social sustainable development policy.
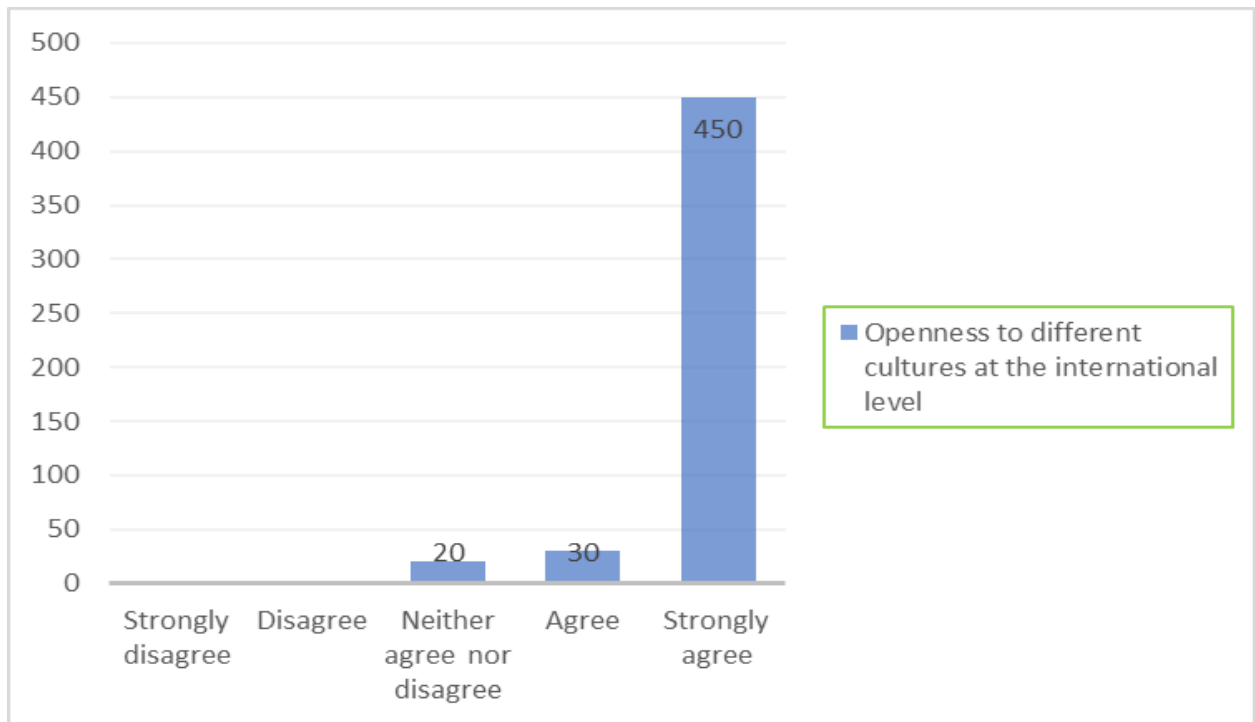
Figure 4. The virtual workplace and social sustainable development - intra- & inter-corporation.
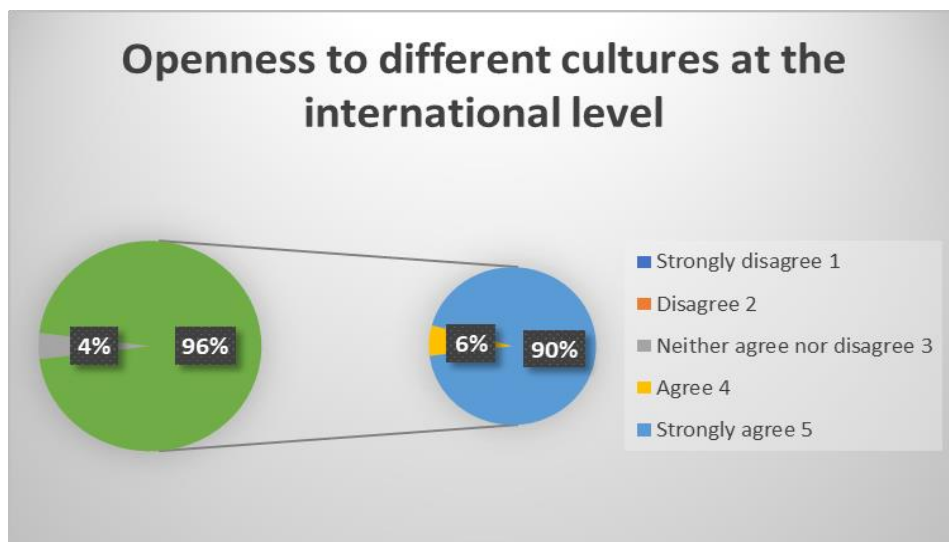

Figure 5. The virtual workplace and social sustainable development - intra- & inter-corporation (Percentage).

Figure 5 confirms that for the independent variable "Openness to different cultures at the international level," 90% of employees selected "strongly agree," 6% of employees selected "agree," and 4% of employees selected "neither agree nor disagree." We may conclude that for the independent variable "Openness to different cultures at the international level," a very high percentage (90%) of employees selected "strongly agree," which represents 450 employees out of 500.

Table 4 and Figure 6 depict the results for "external context" as a unit of analysis of VW's effect on social sustainable development policy. The variable "Less stressful society" had the highest level of agreement as 480 employees selected "strongly agree," and 20 employees selected "agree." Regarding "Increased civic contentment," 350 employees selected "strongly agree," and 135 employees selected "agree," while 15 employees selected "neither agree nor disagree." For the variable "More social & cohesive society," 275 employees selected "strongly agree," 200 employees selected "agree," and 25 employees selected "neither agree nor disagree."

Table 4. The virtual workplace and social sustainable development – external context.

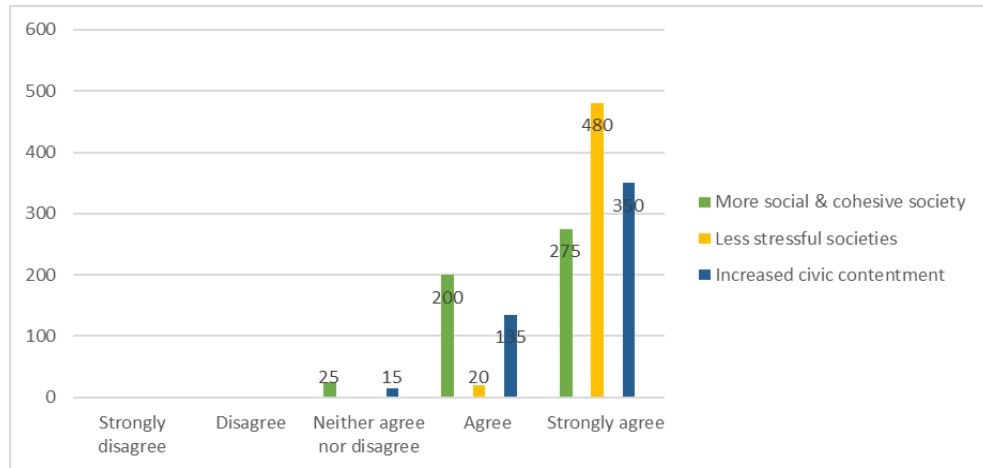| Virtual workplaces advantages – external context	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
	1	2	3	4	5
More social & cohesive society			25	200	275
Less stressful society				20	480
Increased civic contentment			15	135	350

Figure 6. The virtual workplace and social sustainable development – external context.

The analysis thus revealed that the three independent variables of "external context" as a unit of analysis of VW had a significant relationship with the dependent variable effectiveness of social sustainable development policy.
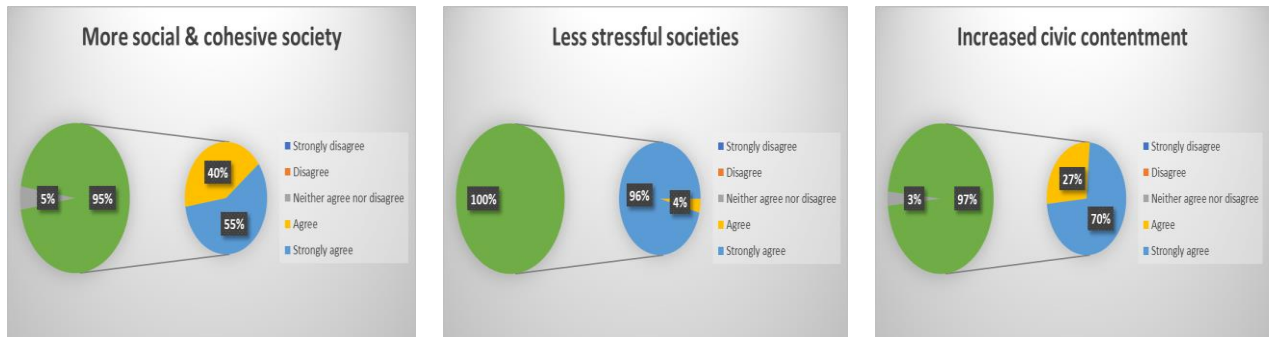

Figure 7. The virtual workplace and social sustainable development – external context (Percentage).

Figure 7 demonstrates that the variable "Less stressful society" had the highest level of agreement as 96% of employees selected "strongly agree," and 4% of employees selected "agree." For the variable "Increased civic contentment," 70% of employees selected "strongly agree," and 27% of employees selected "agree," while 3% of employees selected "neither agree nor disagree." Finally, for the variable "More social & cohesive society," 55% of employees selected "strongly agree," 40% of employees selected "agree," and 5% of employees selected "neither agree nor disagree." We may conclude that the independent variable "Less stressful society" had the highest percentage as 96% of employees selected "strongly agree," representing 480 employees out of 500.

In Table 5, for the mediator variable (Age), the results confirm that the two independent variables in the "Individuals" category of "Women balance careers & domestic responsibilities" and "Ability to work anytime and anywhere" had the highest percentage, as 100% of employees selected "strongly agree," representing 500 employees out of 500. The highest number of employees from this category, 170 out of 500, which represents 34%, were in the

age group of less than 30 years old. We may argue here that the lower the age, the higher the effectiveness of social sustainable development policy regarding the virtual workplace.

The independent variable in the "intra-corporation & inter-corporation" category with the highest level of agreement was "Openness to different cultures at the international level," as 90% of employees selected "strongly agree," which represents 450 employees out of 500. The highest proportion of employees in this category, 160 out of 450, which represents 35.5%, was in the age group of less than 30 years old. We may claim here that the lower the age, the higher the effectiveness of social sustainable development policy regarding the virtual workplace.

Table 5. Mediator variable – age.

Levels of analysis	Independent variables	Mediator variable - age				Total number
		Less than 30	31–40	41–50	More than 50	
Individuals	Women balance careers & domestic responsibilities Ability to work anytime and anywhere	170 (34%)	155 (31%)	75 (15%)	100 (20%)	500
Intra- & inter-corporation	Openness to different cultures at the international level	160 (35.5%)	142 (31.5%)	70 (16%)	78 (17%)	450
External context	Less stressful society	165 (34%)	150 (31%)	75 (16%)	90 (19%)	480

For the category "external context," we may conclude that the independent variable "Less stressful society" had the highest percentage, as 96% of employees selected "strongly agree," which represents 480 employees out of 500. The highest proportion of employees in this category, 165 out of 480, which represents 34%, was in the age group of less than 30 years old. We may confirm here that the lower the age, the higher the effectiveness of social sustainable development policy regarding the virtual workplace.

In Table 6, for the mediator variable (Gender), the results confirm that in the "Individuals" category, the two independent variables of "Women balance careers & domestic responsibilities" and "Ability to work anytime and anywhere" had the highest percentage, as 100% of employees selected "strongly agree," which represents 500 employees out of 500. In this category, 256 out of 500, which represents 51%, were male, in comparison to 244 employees, 49%, who were female. We may argue here that males have a direct relationship with the effectiveness of social sustainable development policy regarding the virtual workplace.

Table 6. Mediator variable – gender.

Levels of analysis	Independent variables	Mediator variable - gender		Total number
		Female	Male	
Individuals	Women balance careers & domestic responsibilities Ability to work anytime and anywhere	244 (49%)	256 (51%)	500
Intra- & inter-corporation	Openness to different cultures at the international level	180 (40%)	270 (60%)	450
External context	Less stressful society	235 (49%)	244 (51%)	480

For the category "intra-corporation & inter-corporation," the independent variable of "Openness to different cultures at the international level" had the highest percentage, as 90% of employees selected "strongly agree," which represents 450 employees out of 500. Of the employees in this category, 270 out of 450, which represents 60%, were male, in comparison to 180 employees, which represents 40%, who were female. We may claim here that males have a direct relationship with the effectiveness of social sustainable development policy regarding the virtual workplace.

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For the category "external context," we may conclude that the independent variable of "Less stressful society" had the highest percentage, as 96% of employees selected "strongly agree," which represents 480 employees out of 500. Of the employees in this category, 244 out of 480, which represents 51%, were male, in comparison to 235 employees, which represents 49%, who were female. We may confirm here that males have a direct relationship with the effectiveness of social sustainable development policy regarding the virtual workplace.

In Table 7, for the mediator variable (Level of education), the results confirm that for the category "individuals," the two independent variables "Women balance careers & domestic responsibilities" and "Ability to work anytime and anywhere" had the highest percentage, as 100% of employees selected "strongly agree," which represents 500 employees out of 500. Of the employees in this category, 255 out of 500, which represents 51%, had a master's degree. We may argue here that employees with a master's degree have a direct relationship with the effectiveness of social sustainable development policy regarding the virtual workplace.

Table 7. Mediator variables – level of education.

Levels of analysis	Independent variables	Mediator variable - level of education			
		Bachelor's degree	Master's degree	Higher diplomas	Total number
Individuals	Women balance careers & domestic responsibilities Ability to work anytime and anywhere	170 (34%)	255 (51%)	75 (15%)	500
Intra- & inter-corporation	Openness to different cultures at the international level	170 (38%)	210 (47%)	70 (15%)	450
External context	Less stressful society	170 (35%)	235 (49%)	75 (16%)	480

For the category "intra-corporation & inter-corporation," the independent variable of "Openness to different cultures at the international level" had the highest percentage, as 90% of employees selected "strongly agree," which represents 450 employees out of 500. Of the employees in this category, 210 out of 450, which represents 47%, had a master's degree. We may claim here that employees with a master's degree have a direct relationship with the effectiveness of social sustainable development policy regarding the virtual workplace.

For the category "external context," we may conclude that the independent variable "Less stressful society" had the highest percentage, as 96% of employees selected "strongly agree," which represents 480 employees out of 500. Of the employees in this category, 235 out of 480, which represents 49%, had a master's degree. We may confirm here that employees with a master's degree have a direct relationship with the effectiveness of social sustainable development policy regarding the virtual workplace. In Table 8, for the mediator variable (Position), the results confirm that for the category "Individuals," the two independent variables "Women balance careers & domestic responsibilities" and "Ability to work anytime and anywhere" had the highest percentage, as 100% of employees selected "strongly agree," which represents 500 employees out of 500. Of the employees in this category, 200 out of 500, which represents 40%, were employees in first-level management. We may argue here that employees in first-level management have a direct relationship with the effectiveness of social sustainable development policy regarding the virtual workplace.

Table 8. Mediator variable – position.

Levels of analysis	Independent variables	Mediator variable - position			
		First-level management	Middle-level management	Top-level management	Total number
Individuals	Women balance careers & domestic responsibilities Ability to work anytime and anywhere	200 (40%)	160 (32%)	140 (28%)	500
Intra- & inter-corporation	Openness to different cultures at the international level.	190 (42%)	140 (31%)	120 (27%)	450
External context	Less stressful society	180 (38%)	160 (33%)	140 (29%)	480

For the category "intra-corporation & inter-corporation," the independent variable of "Openness to different cultures at the international level" had the highest percentage, as 90% of employees selected "strongly agree," which represents 450 employees out of 500. Of the employees in this category, 190 out of 450, which represents 42%, were in first-level management. We may claim here that employees in the first-level management have a direct relationship with the effectiveness of social sustainable development policy regarding the virtual workplace.

For the category "external context," we may conclude that the independent variable "Less stressful society" had the highest percentage, as 96% of employees selected "strongly agree," which represents 480 employees out of 500. Of the employees in this category, 180 out of 480, which represents 38%, were employees in first-level management. We may confirm here that employees in first-level management have a direct relationship with the effectiveness of social sustainable development policy regarding the virtual workplace.

4. CONCLUSION AND RECOMMENDATIONS

This paper has examined the relationship between the virtual workplace and the effectiveness of social sustainable development policy by studying the independent variables at three different levels: individuals, intra-corporation & inter-corporation/organizational, and the external context. The dependent variable was studied by examining the effectiveness of social sustainable development policies. The investigation concluded that the three levels of independent variables related to the virtual workplace had a significant relationship with the dependent variable of the effectiveness of social sustainable development policy.

Seven independent variables of virtual workplace advantages were tested by examining the individual, the intra-/inter-corporation, and the external context levels. At the individual level, this study concluded that the two independent variables of "Women balance careers & domestic responsibilities" and "Ability to work anytime and anywhere" had the highest percentage of agreement on the part of the respondents. Therefore, to increase the effectiveness of social sustainable development policy regarding the virtual workplace, corporations need to design further training programs for their employees, focusing on the lack of human contact, reinforcing trusting relationships with colleagues, and addressing employees' difficulties regulating work time and self-control in the absence of a supervisor, as well as the lack of privacy.

At the "intra-corporation & inter-corporation level," this study confirmed that the independent variable of "Openness to different cultures at the international level" had the highest percentage of agreement. Hence, to increase the effectiveness of social sustainable development policy regarding the virtual workplace, corporations need to formulate rational institutional policies, focusing on building strong relationships between corporations and establishing original strategies for virtual teams.

At the "external context/environmental level," this research determined that the independent variable of "Less stressful society" had the highest percentage of agreement. Accordingly, to increase the effectiveness of social sustainable development policy regarding the virtual workplace, corporations need to emphasize the formulation and implementation of new public social policies and public social programs, considering the virtual workplace at the governmental level.

Furthermore, four intermediate variables/demographic factors were explored in this paper: age, gender, level of education, and position. The study confirmed that the lower the age, the higher the effectiveness of social sustainable development policy regarding the virtual workplace. In this case, organizations need to invest in young employees by providing social training programs relating to the virtual workplace to reinforce the skills and competencies of new employees, especially those under 30 years old.

In addition, the investigation proved that males have a more direct relationship with the effectiveness of social sustainable development policy regarding the virtual workplace than females. Hence, corporations need to direct further social training programs relating to the virtual workplace to male employees to increase the effectiveness of social sustainable development policy.

Moreover, the paper demonstrated that employees with a master's degree have a direct relationship with the effectiveness of social sustainable development policy regarding the virtual workplace. Therefore, organizations need to invest in the training and development of their human capital, especially those who hold a master's degree, by providing the required financial support and further funds for scholarships to increase the effectiveness of their social sustainable development policy.

Finally, the study attested that employees in first-level management have a direct relationship with the effectiveness of social sustainable development policy regarding the virtual workplace. Thus, it is crucial that corporations invest in the preparation and development of the executive levels by providing the necessary social training programs related to the virtual workplace with the aim of enhancing employees' skills and capabilities relating to the effectiveness of social sustainable development policy.

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Appendix 1. Questionnaire.

Age: _____ Gender: _____

Level of education: _____ Position: _____

1 – Strongly disagree; **2** – Disagree; **3** – Neither agree nor disagree; **4** – Agree; **5** – Strongly agree

	1	2	3	4	5
Individuals					
Women balance careers & domestic responsibilities	O	O	O	O	O
Time taken for daily transportation is invested in more family & social life	O	O	O	O	O
Ability to work anytime at anyplace	O	O	O	O	O
Intra-corporations & inter-corporations					
Openness to different cultures at the international level	O	O	O	O	O
External context					
More social & cohesive society	O	O	O	O	O
Less stressful societies	O	O	O	O	O
Increased civic contentment	O	O	O	O	O