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Impact of Leader-Member Exchange on Innovative Work Behaviour of Employees during the COVID-19 Pandemic: Evidence from Information Technology-Business Process Management Industry, Sri Lanka

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A B S T R A C T

An empirical study is carried out to examine the effect of leader-member exchange (LMX) on innovative work behaviour (IWB) of employees in the information technology-business process management (IT-BPM) industry in Sri Lanka in the light of the COVID-19 pandemic which is the latest disastrous pandemic. COVID-19 shifted the world of work to be virtual where employees work through online mode without physical communication with their supervisors. Sri Lanka's IT-BPM industry has been labelled as a beacon of resilience against COVID-19. Remote work influences the employee behaviour and fostering the IWB of employees is salient during COVID-19 since traditional organizational practices are no longer possible. The role of the leader is vital to stimulate the IWB of employees. However, the limited scope of research studies demonstrates an empirical gap which is addressed by this study. This study develops one hypothesis to be tested and collects primary data from the sample using a structured questionnaire, data analysis includes descriptive statistics, correlational analysis, and simple regression analysis which were done using SPSS software. Findings of the study present a positive relationship between LMX and IWB with a positive and significant effect of LMX on the IWB of employees. Future studies are encouraged to examine the IWB of employees in different sectors from various perspectives since IWB is inevitable during COVID-19.

***Keywords*:** COVID-19 pandemic, innovative work behaviour, IT-BPM industry, leader-member exchange, Sri Lanka

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1. Introduction

Organizations have to unexpectedly face a disastrous viral infection in later 2019 by realizing how the environment is changing rapidly. In December 2019, The novel Coronavirus disease was recognized in Wuhan, China and WHO declared it as a pandemic situation by March, 2020 announcing the severe risk involved with new viral infection (Kularatne, 2020; WHO, 2020). As a result of the COVID-19 pandemic, people have to maintain social distancing thereby organizations have to move from physical workplaces to virtual spaces -remote work including work from home; teleworking; satellite office etc. COVID-19 pandemic, which is the catastrophic prevailing situation in which conventional organizational practices are not easily possible to proceed, has kept a space to boost organizational innovations to gain competitive advantage (Oukes, 2010; Darwish et al., 2020; Tang et al., 2020). Innovation is the key, which is a "must-have" feature of today's organizations to gain a competitive edge in the profoundly volatile and uncertain environment where the organizational survival is highly dependent on innovative work behaviour (IWB) of employees (Agarwal et al., 2012; Fajar et al., 2020; Nazir et al., 2020; Ratnasari & Wulansari, 2019; Sanders et al., 2010; Schuh et al., 2018; Tang et al., 2020). It is said that eighty percent of the ideas are generated by employees (Oukes, 2010). A recent study conducted during the COVID-19 pandemic era has found that flexible work arrangements make a positive impact on the innovative work behaviour of banking sector employees in Indonesia. It further states that the more employees are free to regulate, the more innovative behaviour is visible when they face a certain problem (Fajar et al., 2020). Generally, the job role performed by the employee is under the control of the supervisor or the manager who is called the leader (Schuh et al., 2018) thereby the role of the leader is vital to foster the IWB of employees. It has been validated by a plethora of empirical research studies that leadership is one of the most investigated antecedents of IWB (Li et al., 2019; Nazir et al., 2020). However, the scholar's attempts to investigate the influence of leader-member exchange (LMX) on employee innovations in the face of the COVID-19 situation is limited. It depicts a need for more research to examine whether IWB can be determined by the quality of leader-member exchange.

At the same time, a recent study states that software companies have limited empirical evidence on how to support their employees through this pandemic (Ralph et al., 2020). It emphasises the remote working during COVID-19 pandemic is not the normal remote working which was practiced earlier. When employees work at home, they associate with both working pressure and work-life conflict. Most software developer's work interrupts their personal lives through working 24/7 with unpaid overtime, exhaustion, sleeplessness etc. (Ralph et al., 2020). They have further stated that software developers are influenced by their emotional stability to be innovative. However, COVID-19 affects emotional stability critically (Kularatne, 2020). Software developer's innovative capacity is indeed during the prevailing virtual world of work where all competitors attempts to bring novelties to the market. A new technology lasts as an innovation until competitors imitate or bring a substitutional product to it. COVID-19 has opened the door to think newly and fulfil unknown and unexpected requirements of individuals. There are some jobs that can't be converted into online mode however it requires a way to work remotely with the risk involved with Coronavirus spread.

IT-BPM (Information Technology-Business Process Management) industry in Sri Lanka has been recognized as a shining beacon of resilience against COVID-19 by catering to the global demand in terms of digital transformation and upskilling talent (SLEDB, 2020). Sri Lanka's IT-BPM industry is serving more than 80,000 employment opportunities with more than 400 companies reporting 13% employee growth and export revenue of US$ 1.2

Billion (SLEDB, 2017). In the past decade, the IT-BPM industry in Sri Lanka has seen substantial expansion and had some of the strongest growth among all export sectors. Therefore, the innovative work behaviour of software developers should be addressed systematically during this pandemic era (UNCTAD, 2021). As above mentioned, emotional stability affects the innovative ideas of software developers and the leader's role is essential to boost the IWB of employees, it is needed to investigate the IWB of employees, fostered by the leader's role in the IT-BPM sector in Sri Lanka during COVID-19. Overall, this study addresses an empirical gap to be filled through an empirical study.

Based on the study background explained above, this study is carried out to examine whether innovative behaviour of employees in the IT-BPM sector can be accelerated by the leader-member exchange during the COVID-19 situation. Therefore, this study attempts to answer "What is the effect of leader-member exchange on innovative work behaviour of employees in the IT-BPM industry in Sri Lanka during the COVID-19 pandemic?"

1.1. Research objective

In order to address the research problem, the study develops the research objective as follows.

> *RQ1:* To examine the effect of leader-member exchange on innovative work behaviour of employees in the IT-BPM industry in Sri Lanka during the COVID-19 pandemic.

2. Literature review and hypothesis development

2.1. Social exchange theory and leader-member exchange

Social Exchange Theory was firstly introduced in the 1961s by Human to conceptualize how social units interact as an exchange process. The essence of this social exchange theory is related to reciprocation. Individuals offer a benefit to others with the hope of returns back which are equivalent-value benefits (Tarver et al., 2009). Latterly, this theory was combined with leadership by Blau in 1964 and Hollander and Julian in 1969 to explain the dynamics of leader-member relationships, interdependencies and mutual influence of one individual on another. Leader-member exchange (LMX) describes the social exchange between the leader and the subordinate (Agarwal et al., 2012). It demonstrates that leaders provide benefits including information, rewards, recognition, latitude etc. to subordinates by expecting a good performance from subordinates. In the theory, two types of LMX have been described: (1) High-quality LMX which enhances performance, innovations, citizenship behaviour, loyalty, commitment (2) Low-quality LMX which promotes destructive, exploitive and abusive work behaviour, affects psychological well-being of employees (Mitchell et al., 2012; Taştan & Davoudi, 2015).

2.2. Innovative work behaviour

It has not been validated a universally accepted definition for innovative work behaviour (Oukes, 2010; Suhaimi & Panatik, 2016; Taştan & Davoudi, 2015) however individual innovations are identified as discretionary behaviour extra-role behaviour in the literature. Most of the academic research have been conducted to examine the effect of or the relationship between organizational performance and innovation-specific behaviours. When individual innovation is conceptualized, it can be considered as a personality-based skill or a talent and output-based measure (Badir, 2019; Oukes, 2010). Innovative work behaviour has three dimensions: (i) Idea exploration, (ii) Idea generation, and (iii) Idea implementation. Innovation by individuals begins often with the exploration of an idea, like looking for

improvements on current products, services and work processes or trying to think about them in new ways. Next, the idea is generated which means generating concepts related to new products, services, work processes, the entry of new markets and the like for improvement. Thereafter the idea is implemented. During this stage new products, services, work processes and such like are developed, tested and modified (Oukes, 2010).

2.3. Leader-member exchange and innovative work behaviour

It has been found that leaders are considered to be one of the most vital antecedents of innovation in the workplace which implies that they require knowing how to provide a context for the creativity and innovation of employees (Nazir et al., 2020). LMX theory states when the leaders and subordinates have a good relationship, subordinates will be granted more prominence and freedom in the workplace and greater resources. These factors facilitate innovative behaviour to a greater extent in an organization (Sanders et al., 2010). In general, leaders have a great influence on employees' work behaviour s and IWB is no exemption and innovation needs the freedom to use resources, which are generally controlled by the leaders (Agarwal et al., 2012). Another study found that employees engaging in IWB are expected to spend more time on non-routine tasks to think out of the box and propose novel and practical ideas to improve existing organizational processes, and they want freedom and a less restricted environment to flourish their creative abilities (Tang et al., 2020; Tang & Li, 2021). Flexible working patterns designed by leaders can make an impact on the innovations during the COVID-19 pandemic (Fajar et al., 2020; Tang & Li, 2021). Based on the literature review, the study hypothesis is developed as follows and shown in the conceptual framework in Figure 01.

> *H1:* There is an effect of Leader-Member Exchange on Innovative Work Behaviour of employees in the IT-BPM industry in Sri Lanka during the COVID-19 pandemic.

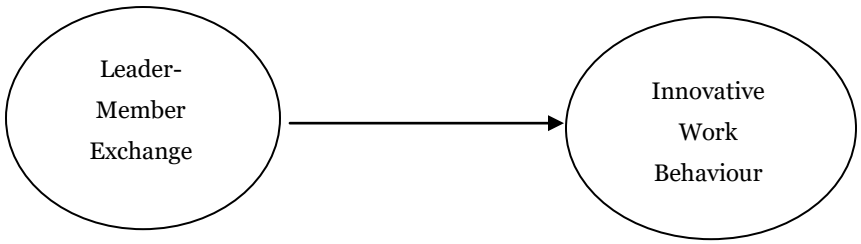

Figure 01- Conceptual Framework

Source: Author Complied

3. Methodology

The research philosophy used for this study was positivism since this study was a quantitative study that develops hypotheses to be tested at the end of the study. The main objective of this study was to find out the impact of LMX on IWB. Hence, this was study is descriptive. The population of the study consists of 130 executive software engineers working in selected three (03) IT-BPM organizations and the sample size was 98. Simple random sampling technique was selected as the sampling technique. A structured questionnaire consists of two sections was used to gather data. The first section is to gather demographic variables as age, gender, and marital status, education, and working hours per week while the second section was designed to measure the study variables IWB and LMX. The questionnaire was distributed

among the sample of 98 executive software engineers however 78 questionnaires were received completely fully completed and 08 were not received by the researcher while 12 were not fully responded. The response rate was 79%. IWB was measured through a five-point Likert scale, which was originally developed by De Jong and Den Hartog in 2010, which has 10 questions. IWB was assessed through four dimensions as idea exploration (Items 1 and 2), idea generation (Items 3, 4 and 5), idea championing (Items 6 and 7) and idea implementation (Items 8, 9 and 10). LMX was measured using a five-point Likert scale which has 12 questions, developed by Joseph, Newman, and Sin in 2011. A pilot study was conducted by taking 12 respondents from the selected sample including 6 females and 6 males to ensure the reliability of the questionnaire. For this study, Cronbach's Alpha value was stated as 0.821 for LMX and 0.851 for IWB which meant the questionnaire was reliable.

4. Results and discussion

Collected data is analysed with the use of the SPSS Data Analysis Package (version 22.0). In order to give a glimpse about the sample profile of respondents, it was analysed demographic data as shown in table 1. A majority of respondents of the sample were in between "40-49 years" age category while the minority included software engineers who were 50 years old and above. As per the statistics on gender, it was reported that a majority of the sample were males (66%) while female participation was 34% which was the half of male composition. 58% of the sample was married and 42% was single as of 15.05.2021. In terms of education of the respondents, 8% have passed advanced level qualification, 14% possessed a diploma, 19% possessed a higher national diploma, 46%, which represents the majority held a degree and only 13% had an MBA. Working hours per week was 40 hours of 15% of the sample which is the minority. 49% of the sample were working in between 40 and 50 hours while 36% of the sample was working more than 50 hours per week.

Table 1: Respondent Analysis

Demographic variable		Responses	Response rate (%)
Age	18-29 Years	26	27%
	30-39 Years	24	24%
	40-49 Years	32	43%
	≥50 Years	16	16%
Gender	Male	65	66%
	Female	33	34%
Marital Status	Married	57	58%
	Single	41	42%
Education	Advanced Level	8	8%
	Diploma	14	14%
	Higher National Diploma	18	19%
	Degree	45	46%
	MBA	13	13%
Working Hours Per Week	40 Hours	15	15%
	50 Hours	48	49%
	>50 Hours	35	36%

Source: Survey data

Descriptive statistics are referred to measure central tendency, dispersion, and normality (Table 2). The mean value of LMX is slightly greater than 3 (M=3.2), which can be

statically proved the central tendency of the data while the standard deviation of LMX is close to zero (SD=0.722), which denotes the dispersion of the data. It depicts that all responses given to LMX are approximately equal to the mean value with no significant spread. The mean value of IWB is slightly greater than 3 (*M*=3.4), which statically shows the central tendency of the data. The standard deviation of IWB (SD=0.532), which is close to zero, depicts that all responses given to IWB are equal to each other with no considerable spread of data from the mean. To test the normality, skewness and kurtosis values are taken. Skewness and kurtosis values of LMX and IWB are 0.978, 0.078, and 1.602, 0.502 respectively.

Table 2: Descriptive Statistics

		LMX	IWB
N	Valid	78	78
Mean		3.2	3.4
Std. Deviation		0.722	0.532
Skewness		0.978	0.078
Kurtosis		1.602	0.502

Source: Survey data

To test the hypothesis, simple regression analysis was done along with the correlation analysis. As per Table 3: Pearson Correlation between LMX and IWB It can be stated that the Pearson correlation value between LMX and IWB is 0.698 which was significant at 5% (sig value = 0.047) thereby a positive association exists between LMX and IWB. Simple regression analysis was made to measure the impact of the independent variable on the dependent variable.

The *R* square value is 0.514 which depicts 51% of IWB is explained by LMX. In contrast, 49% IWB is not explained by LMX in this model (Table 4).

Table 5 shows the overall model fit of the study concerning *F* value which was 36.214, significant at 1% confidence level (sig value = 0.000). The regression equation (Equation 01) for the conceptualized research model of this study can be derived as follows by concerning the unstandardized constant value and coefficient value (Table 6)

Innovative Work Behavior (IWB) = 3.214 + 3.924 Leader-Member Exchange (LMX)

Equation 1: Regression Equation

According to the developed regression equation above, it can be explained how IWB is changed due to the changes of LMX When LMX is increased by 01 unit at a certain time, IWB is increased by 3.924 at the same time.

Table 3: Pearson Correlation between LMX and IWB

Independent Variable	IWB (Dependent Variable)	Sig. value	*N*
LMX	0.698	0.047	78

**. Correlation is significant at the 0.05 level (2-tailed)

Source: Survey data

Table 4: Model Summary

Model		*R* Square	Adjusted R Square	Std. Error of the Estimate
1	.821[a]	.514	.520	1.274

Predictors: (Constant), LMX
Source: Survey data

Table 5: ANOVA[b]

	Model	Sum of Squares	Df	Mean Square	*F*	Sig
1	Regression	3.628	3	1.209	36.214	0.000[b]
	Residual	66.391	78	.851		
	Total	65.214	78			

Predictors: (Constant), LMX
Dependent Variable: IWB
Source: Survey data

Table 6: Coefficients

	Unstandardized Coefficients		Standardized Coefficients		
Model	*B*	Std. Error	Beta	*T*	Sig.
1 (Constant)	3.214	321		4.147	0.000
LMX	3.924	.211	.897	3.987	0.000

Dependent Variable: IWB
Source: Survey data

As the study findings, it was found that a positive relationship exists between LMX and IWB while IWB is positively affected by LMX. 51% of IWB, which is almost half of IWB is explained by LMX. Further, it was explored that IWB can be increased by 3.924 when LMX increases by one unit in a certain time. Before COVID-19, previous studies have found that LMX is an important antecedent that determines IWB (Agarwal et al., 2012; Alsughayir, 2017; Li et al., 2019; Ratnasari & Wulansari, 2019; Sanders et al., 2010). The study conducted by Oukes in 2010 has summarized the determinants of IWB with five categories including personal, job, team, relationship and organizational. Among these, LMX is one of the factors belongs to the "relationship" category while all other categories have leadership (indirectly) related factors (Oukes, 2010). With that fact, the findings of this study can be further strengthened as LMX makes a considerable effect on accelerating the IWB of employees. It can be discussed that the quality of LMX should be high to enhance the IWB of employees. Some Studies conducted during the COVID-19 pandemic have presented supported findings to this study (Fajar et al., 2020; Nazir et al., 2020;Tang et al., 2020). Since the impact done by the quality of LMX on IWB of employees in IT-BPM during the COVID-19 pandemic is significant, leaders: managers or supervisors should guide employees to innovate new ways of business operations to facilitate the psychological wellbeing of employees, digitalized work

arrangements including work from home. Further, the findings of the study conducted by Kularathne (2020) strengthens the findings of this study from the psychological perspective of being innovative. COVID-19 affects physiologically as well as psychologically. It has been found that employees experience ~~a~~ hybrid stress due to the Coronavirus situation thereby employees are not comfortable with being innovative (Kularatne, 2020). Leader has to maintain high-quality relationships with subordinates to support to have psychological resilience in order to be comfortable with the novel pandemic situation thereby they will show innovative work behavior within the organization The leader has to stimulate employees toward IWB when the employee is unable to boost IWB by himself (Fajar et al., 2020).

5. Conclusion

This study was conducted to examine the effect of LMX on the IWB of employees in the IT-BPM sector in Sri Lanka in the light of COVID-19. Study findings demonstrated a positive and significant effect of LMX on IWB. This study combined LMX and IWB in the IT-BPM sector in Sri Lanka, which was not previously investigated by scholars. It signifies the novelty of this study. As study implications, software companies in Sri Lanka can address this matter with the support of the Sri Lankan government. The Sri Lankan government needs to invest more on IT-BPM industry to boost innovative behaviors of software engineers. Since the IT-BPM sector in Sri Lanka has been named as a beacon of resilience against COVID-19, it is vital to address the innovative work behavior of employees in the IT-BPM sector. Resilience must walk through a series of innovations. As the study limitations, it can be stated that the application of findings outside of the research context is impossible since this study was conducted in the IT-BPM sector. Further, the accuracy of data gathered through the online survey is hard to be assured since software engineers might not take enough time to read and answer the questions during their busy work schedules. The discussion of these limitations ideally leads to some suggestions for further research. Future researchers are encouraged adopt qualitative approach in data gathering to assure the accuracy of study findings. Besides, future research work should be aimed at investigating the IWB of employees in the light of COVID-19 from different perspectives in different sectors in Sri Lanka since the scholarly work in this regard is lack.

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