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EMPLOYING THE DIMENSIONS OF VALUE-BASED LEADERSHIP IN ACTIVATING ORGANISATIONAL SEMIOTICS: A PROPOSED MANAGEMENT MODEL

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ABSTRACT

The study aims to know the effect of value-based leadership on organisational semiotics at Al-Mustaqbal University College, Iraq. A sample of 115 respondents, selected from the rank of the university lecturers and professors, were administered a self-report questionnaire. The data was analysed using both descriptive and inferential statistical tools available in SPSS. The results showed a significant positive correlation between value-based leadership and organisational semiotics. Similarly, the results confirmed the existence of a positive impact of value-based leadership and organisational semiotics. The study concludes that administrative leaders in private colleges exhibit value-based leadership characteristics, anticipate the future and work hard and persistently to realise it, and also possess sound entrepreneurial dispositions. However, the study also discovered that more motivating and inspiring are needed in order to able them to be more creative and innovative. Thus, there is a need for Al-Mustaqbal University College to pay more attention to these psychological needs between the employees. Additionally, attention should be invested in developing university leaders' competences at risk-taking, proactiveness, and creativity.

Keywords: value-based leadership, organisational semiotics, management model

INTRODUCTION

Values are described as a shorthand way of expressing what is essential to us, personally or collectively, as a company, community, or country (Turkkahraman, 2014). It is called shorthand because the notions they reflect can frequently be expressed in a single word or a short phrase. Honesty, transparency, compassion, long-term vision, and human rights are only a few examples that are known as values. The outward manifestation of our values and behaviours is situation-dependent (Cubukcu, 2014). Values could be positive and empowering or negative and limiting. Friendship, trust, and creativity are excellent traits that help us connect with people and contribute positively to society (James, 2014). Blame, bureaucracy, and the desire for prestige are potentially limiting values. They may satisfy our immediate needs, but they are unhelpful, frequently divisive, and typically result in a loss of connection, damaging our relationships and undermining our abilities at long-term constructive contributions (Barrett, 2013). Since the goal of leadership is to add value to others, and the degree of influence is the accurate measure of leadership, a great leader must be able to influence the attitudes and actions of others (Reese, 2017).

Leaders have the power to create a more favourable work environment. Thanks to its semiotic cues, the corona pandemic has strengthened resilience and the capacity to successfully manage these fast-paced, unpredictable, conflicting, and complicated settings (Horth, 2019). Leaders who respond with greater control, on the other hand, may exacerbate anxiety or competitiveness over limited resources, leading to bullying and incivility. Thus, teachers at Al-Mustaqbal University College take their position as leadership instructors seriously, knowing that leadership is more vital than ever in these extraordinary times. Values are crucial in this situation, which needs to use technology to communicate with others instead of meeting face to face with them to avoid mixing with them due to the Corona pandemic.

However, Information Technology (IT) workers are rarely educated to deal with social, ethical, or normative concerns, and the dominant methodologies, techniques, and gadgets are not conducive to these considerations (Baranauskas, 2009). A significant number of works and efforts either acknowledge the necessity for a sociotechnical approach to ICT design or advocate the focus and attention on non-technical concerns,

particularly in the field of Human-Computer Interaction (HCI). Therefore, the current research aims to know the extent in which Al-Mustaqbal University College adopt the dimensions of value-based leadership, which qualifies it to build an organisational semiotic to keep pace with changes and adapt to them to achieve its goals.

LITERATURE REVIEW

Value-Based Leadership

The concept of value-based leadership consists of two parts; leadership and value. Armstrong and Taylor (2014) consider leadership as inspiring people to do their best to develop and motivate people and secure their participation to achieve the desired result. Next, Lichtenstein (2012) considered value as the invisible force that leads to visible results, such as people's behaviour and their organisational performance. Thus, value-based leadership can be seen as the process of using the determining force of values to motivate and inspire people to achieve organisational ends.

Daft (2008) defined value-based leadership as a relationship between the leader and the followers based on the strong common internal ideological values that the leaders adopt in challenging the strong followers of those values. Clarke (2011) on his part, indicated that it is a philosophy that facilitates the work of leaders to continue their work in helping organisations achieve practical and personal achievements for survival and development for a long time. Furthermore, Taylor (2011) defined value-based leadership as an approach that achieves value for the organisation, customers, suppliers and shareholders without focusing on personal gains. Both Peregrym and Wolf (2013) agree with the views of others on the concept of value-based leadership as a type of leadership based on principles and ethical qualities such as integrity, empowerment, and social responsibility.

Bishop *et al.* (2019) acknowledged the term value-based leadership goes beyond the stage of defining values and putting them on the wall to implement them. Copeland (2014) indicated that the behavioural dimensions of value-based leadership are an extension of leadership styles concerned

with leadership's ethical and behavioural aspects, such as transformational, servant, authentic, and spiritual. Page *et al.* (2021) averred that a value-based leader might change his plans, strategies, and work style but never alter their principles, values, and ethics under any circumstance. The foundation of values-based leadership is the perception that individual and company values are linked. The company's mission, approach, perception, performance evaluation, motivation programmes, work style and value ethics depict the leader's values (Bano *et al*., 2020). Furthermore, Vilma (2018) affirmed that values characterise leadership by the following four principles:

1. The process of self-reflection: The leader must recognise and reflect on what they stand for, what their values are, and what is most important to them. To be a value-based leader, one must be willing to look within oneself and strive for better self-awareness via regular self-reflection.
2. The equilibrium: It refers to the capacity to perceive circumstances from a variety of views and viewpoints in order to acquire a more complete understanding. The term balance refers to a leader who considers all views and viewpoints with an open mind.
3. Self-assurance in its purest form: It signifies the leader accepts themselves exactly as they are. Leaders are aware of their strengths and limitations and constantly work for improvement. True leadership confidence occurs when the leader recognises that other individuals may be more brilliant, accomplished, and successful than the leaders. Thus, confident leaders accept themselves as they are.
4. Genuine humbleness: The leader must remember who they are and where they came from. Genuine humility aids a leader's ability to keep things in perspective, particularly as their career grows (Alsaiari *et al.*, 2022). It also aids the leader in valuing each person he or she encounters and treating everyone with respect.

Organisational Semiotics

Organisational semiotics studies the mind as a cognitive system that interacts with the environment dynamically using signals, texts, or documents that focus on cognitive structures, behaviour and various performance tasks. Organisational semiotics is divided into six areas, as shown in Figure 1. The earliest conception of the concept consisted of the first three areas collectively called Human Information Functions (Stamper, 1973). Later, Filipe and Liu (2000) added the second set of three areas

(which is known as the IT Platform) as a response to the influence of ICT in organisations.

	SOCIAL WORLD Commitments, Contracts, Law, Culture
Human Information Function	**PRAGMATICS** Intentions, Communication, Conversations, Negotiations
	SEMANTICS Meanings, Validity, Truth, Signification
The IT Platform	**SYNTACTICS** Formal Structure, Language, Logic, Data, Records, Deduction, Software
	EMPIRICS Pattern, Variety, Noise, Entropy, Channel Capacity, Redundancy, Efficiency, Codes
	PHYSICAL WORLD Signals, Traces, Physical Distinctions, Hardware, Component Density, Speed, Economics

Figure 1: Evolution of the Concept of Semiotics
Source: Filipe and Liu (2000, p. 2)

Based on the preceding discourse, semiotics can be seen as the science of signs (or the study of codes and systems), enabling workers to understand events' meanings (Liu *et al*., 2006). For organisations such as information and communication systems that are very complex and non-specific and need analysis through the use of concepts of semiotic signs, then the organisational process involves the creation, exchange and use of signs (da Silva *et al.*, 2016). Organisational semiotics directs workers' behaviour socially through knowledge sharing in organisations, in which may help in spreading positive social behaviour in a socially common and relatively continuous unit through the use of knowledge, whose existence is reinforced by daily use in organisations (Pietarinen, 2010).

Thus, organisational semiotics can be considered as the natural science that studies information systems resulting from human behaviour patterns in the organisation with a focus on information as a social tool to employ technologies of all kinds (Brooks, 2011). Stamper (2013) agreed with the researchers who consider organisational semiotics as a social concept, noting that it is one of the sociotechnical methods which studies information within the organisation through the formation or establishment of a set of standards. Hence, organisational semiotics is an extension of semiotics and studies explicitly the use of signs in organisational contexts (Walton *et al*., 2014).

METHODOLOGY

Al-Mustaqbal University College, Iraq was established in 2010 according to the Iraqi Council of Ministers Resolution 427 of 2009, which stipulates the approval of granting the founding license to the University in sited in the Babil Governorate after fulfilling the basic requirements stipulated in the Law of Private Colleges and Universities in Iraq. The University's curriculum leads it to be a pioneer in teaching and learning locally and nationally in the medical, engineering, legal and administrative disciplines. It excels in providing academic programmes following international standards of quality, openness to society, advancing scientific research, and adopting innovative ideas that contribute to developing infrastructure and improving functional and academic performance.

A sample of 115 university lecturers and professors was selected from the Departments of Humanities (law, business administration, and accounting) and Educational and Literary Departments (archaeology, media, English language, and physical education). The data was collected from the respondents used in the study to analyse the value-based leadership–organisational semiotics relationships in an Iraqi private higher educational institution.

Measures

Value-Based Leadership: This was treated as a multidimensional construct having five dimensions (i.e., integrity, sense of mercy and gratitude, humility, self-discipline, and moral courage). The construct was assessed using Bulti's (2016) 23-item scale.

Organisational Semiotics: The construct was measured using Filipe and Liu's (2000) 16-item scale. The scale has four dimensions, namely: behavioural norms, cognitive norms, conceptual norms, and evaluative norms.

The Likert pentagonal scale (i.e., Strongly agree = 5, Agree = 4, Neutral = 3, Disagree = 2, Strongly disagree = 1) was used as a rating scale in assessing the study variables. Also, five categories of arithmetic means corresponding to the five rating scales were used in interpreting the results

(Dewberry, 2004), as shown in Table 1.

Table 1: Rating Scale's Mean Scores and Interpretations

Rating Anchors	Mean Scores	Interpretations
Strongly Disagree	0.00 – 1.80	Very Low
Disagree	1.81 – 2.60	Low
Neutral	2.61 – 3.40	Moderate
Agree	3.41 – 4.20	High
Strongly Agree	4.21 – 5.00	Very High

Study Hypotheses and Theoretical Model

In this study, the sociotechnical theory provides the underpinning grid for explaining the interplay between technical artefacts in workplaces including elements of organisational semiotics and how these artefacts and symbols are influenced by the organisation's social reality including the practice of value-based leadership to determine the success of the entire organisation. Bostrom and Heinen (1977) were of the view that 'the technical system is concerned with processes, tasks, and technology' (p. 17), while the social aspects of the idea include people's qualities (attitudes, abilities, values), relationships, reward systems, and authoritative structures (Bostrom & Heinen, 1977, p. 17). The convergence of these two streams of thought provide an appropriate framework that could explain the relationship that may subsist among the study variables. In other words, the human and technical sides of the workplace are distinct but linked, since one enables the other, particularly in relations to managing organisational technology. Accordingly, the researcher formulated and tested the following two hypotheses. The hypotheses formed the kernel of the study model depicted in Figure 2.

H_1: There is a correlation between the value-based leadership and organisational semiotics.

H_2: There is a significant relationship between the value-based leadership and organisational semiotics.
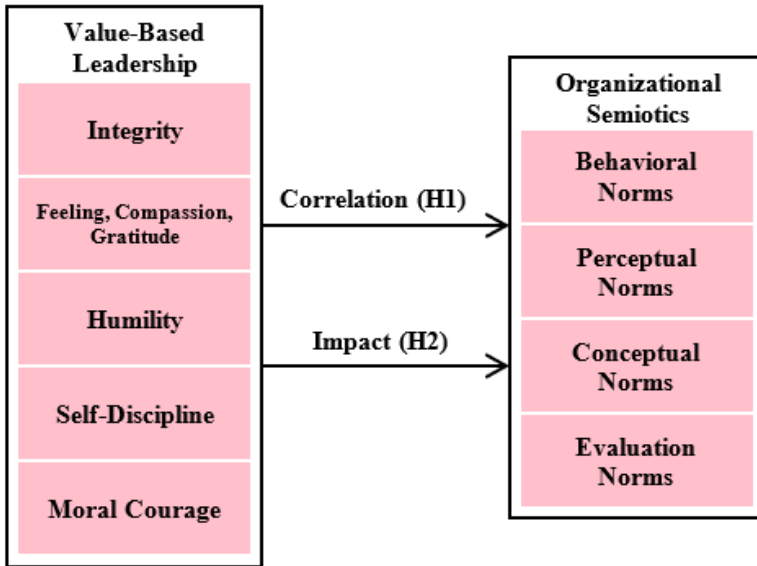
Figure 2: Model of the Study

RESULTS

Descriptives for the Value-Based Leadership Construct

Integrity:

The descriptive statistics show that Item 5 in Table 2 has the highest mean ($\bar{x}$ = 3.75, SD = 1.09), indicating that the sample respondents are consistent in their response to this questionnaire item. Item 4 has the lowest mean score ($\bar{x}$ = 2.90, SD = 1.19). The overall descriptive statistics for the integrity dimension ($\bar{X}$ = 3.07, SD = 1.12) indicate that lecturers and professors of Al-Mustaqbal University College possess a high level of integrity.

Table 2: Descriptives for the Integrity Dimension

SN	The college leaders are characterised by:	x̄	SD	PO
1.	Striving to develop the university's work.	3.28	1.27	2
2.	Applying the law to all college employees.	3.02	1.10	4
3.	Equitable distribution of tasks among employees.	3.19	1.18	3
4.	Testing employees based on their job reputation.	2.90	1.19	5
5.	Equality in dealing with employees.	3.75	1.09	1

Feeling, Compassion, and Gratitude:

The descriptive statistics show that Item 1 in Table 3 has the highest mean ($\bar{x}$ = 3.13, SD = 1.08), indicating that the sample respondents are consistent in their response to this questionnaire item. Item 2 has the lowest mean score ($\bar{x}$ = 3.02, SD = 1.12). The overall descriptive statistics for the feeling, compassion and gratitude dimension ($\bar{X}$ = 3.05, SD = 1.10) indicate that lecturers and professors of Al-Mustaqbal University College possess a high level of mercy.

Table 3: Descriptives for the Feeling, Compassion and Gratitude Dimension

SN	The college leaders are characterised by:	x̄	SD	PO
1.	Treat employees with kindness even when something goes wrong.	3.13	1.08	1
2.	They do not hesitate to back down from their decision if the workers persuade them.	3.02	1.12	4
3.	Use the employee reward system to ensure commitment to work.	3.11	1.17	2
4.	Provide support to employees.	3.06	1.21	3

Humility:

The descriptive statistics show that Item 1 in Table 4 has the highest mean ($\bar{x}$ = 3.22, SD = 1.35), indicating that the sample respondents are consistent in their response to this questionnaire item. Item 2 has the lowest mean score ($\bar{x}$ = 2.98, SD = 1.24). The overall descriptive statistics for the humility dimension ($\bar{X}$ = 3.01, SD = 1.36) indicate that lecturers and professors of Al-Mustaqbal University College possess a high level of humility.

Table 4: Descriptives for the Humility Dimension

SN	The college leaders are characterised by:	x̄	SD	PO
1.	Participation of employees in making important decisions.	3.22	1.35	1
2.	Personally supervising the training of employees.	2.98	1.24	5
3.	They prefer the interests of the college over their personal interests.	3.05	1.43	3
4.	They do not set boundaries between themselves and the workers.	3.07	1.44	2
5.	They listen carefully to employees when there is a problem at work.	3.01	1.47	4

Self-Discipline:

The descriptive statistics show that Item 3 in Table 5 has the highest mean ($\bar{x}$ = 4.88, SD = 0.43), indicating that the sample respondents are consistent in their response to this questionnaire item. Item 2 has the lowest mean score ($\bar{x}$ = 3.35, SD = 1.02). The overall descriptive statistics for the self-discipline dimension ($\bar{X}$ = 3.89, SD = 0.95) indicate that lecturers and professors of Al-Mustaqbal University College possess a high level of self-discipline.

Table 5: Descriptives for the Self-Discipline Dimension

SN	The college leaders are characterised by:	x̄	SD	PO
1.	Hold employees accountable for their mistakes.	4.13	0.66	2
2.	Maintain working hours.	3.35	1.02	4
3.	The responsibility that college leaders bear does not affect the efficiency of performing their other tasks.	4.88	0.43	1
4.	Accuracy in applying work rules and procedures.	3.65	1.22	3

Moral Courage:

Table 6 indicates that Item 3 on showing courage in the face of the most challenging conditions has the highest mean ($\bar{x}$ = 3.90, SD = 0.41), indicating that the sample respondents are consistent in their response to this questionnaire item. Item 1 on follow-up disposition of the respondents has the lowest mean score ($\bar{x}$ = 3.22, SD = 0.84). The overall descriptive

statistics for the moral courage dimension ($\bar{X}$ = 3.45, SD = 0.51) indicate that lecturers and professors of Al-Mustaqbal University College are highly morally courageous and are undaunted in the face of workplace challenges.

Table 6: Descriptives for the Moral Courage Dimension

SN	The college leaders are characterised by:	$\bar{x}$	SD	PO
1.	Continuously follow up on work conditions.	3.22	0.84	5
2.	Wide imagination.	3.77	0.52	2
3.	Having moral courage in the most difficult circumstances.	3.90	0.41	1
4.	Pay attention to the interests of others when making decisions.	3.50	0.66	4
5.	The ability to come up with creative ideas.	3.61	3.56	3

Descriptives for the Organisational Semiotics Construct

Behavioural Norms:

Table 7 shows that Item 1 has the highest mean ($\bar{x}$ = 3.80, SD = 0.34), indicating that the sample respondents are consistent in affirming their superior competence at articulating ways and strategies that could contribute to the development of the university. Surprisingly, however, Item 1 on the respondents' communicative competence has the lowest mean score ($\bar{x}$ = 2.93, SD = 1.31). The overall descriptive statistics for the behavioural norms dimension ($\bar{X}$ = 3.01, SD = 0.61) indicate that lecturers and professors of Al-Mustaqbal University College possess a high level of behavioural standards.

Table 7: Descriptives for the Behavioural Norms Dimension

SN	At the college where I work as the principal they have:	$\bar{x}$	SD	PO
1.	The ability to discuss how to develop the college.	3.80	0.34	1
2.	Desire to communicate with employees.	2.93	1.31	4
3.	Possesses appropriate negotiation skills with others.	3.66	3.45	2
4.	The ability to interact.	3.51	0.52	3

Perceptual Norms:

In Table 8, Item 2 in has the highest mean ($\bar{x}$ = 3.93, SD = 1.31), indicating that the sample respondents are consistent in affirming their

superior competence at articulating ways and strategies that could contribute to the development of the university. Item 1 on the respondents' analytical ability has the lowest mean score ($\bar{x}$ = 2.93, SD = 1.31). The overall descriptive statistics for the perceptual norms dimension ($\bar{X}$ = 3.11, SD = 0.34) indicate that lecturers and professors of Al-Mustaqbal University College possess a high level of perceptual standards.

Table 8: Descriptives for the Perceptual Norms Dimension

SN	At the college where I work as the principal they have:	$\bar{x}$	SD	PO
1.	He has the ability to analyse the factors affecting the university college.	3.11	0.34	2
2.	They can develop solutions to problems after analysing the factors surrounding the university college.	3.93	1.31	1
3.	They offer new ideas for college development.	2.66	3.45	3

Conceptual Norms:

In Table 9, Item 3 has the highest mean ($\bar{x}$ = 3.15, SD = 1.05), indicating that the sample respondents are consistent in using their local knowledge and familiarity to stay attuned to development in the higher education environment. Item 2 on the respondents' knowledgeableness has the lowest mean score ($\bar{x}$ = 2.91, SD = 1.35). The overall descriptive statistics for the conceptual dimension ($\bar{X}$ = 3.02, SD = 0.12) indicate that lecturers and professors of Al-Mustaqbal University College possess a high level of conceptual standards.

Table 9: Descriptive Statistics for the Conceptual Norms Dimension

SN	At the college where I work as the principal they have:	$\bar{x}$	SD	PO
1.	Able to integrate their beliefs into the organisational culture	3.12	1.05	2
2.	They can gain knowledge	2.91	1.35	3
3.	They can know what is happening in the university college based on the existing knowledge	3.15	1.03	1

Evaluation Norms:

Table 10 indicates that for Item 2, it has the highest mean ($\bar{x}$ = 3.98,

SD = 1.11), indicating that the sample respondents are consistent in staying through to their values in terms of actions and direction. Item 3 on the respondents' cognitive prowess in critical thinking has the lowest mean score ($\bar{x}$ = 2.87, SD = 1.44). The overall descriptive statistics for the conceptual dimension ($\bar{X}$ = 3.12, SD = 0.16) indicate that lecturers and professors of Al-Mustaqbal University College possess a high level of evaluative standards.

Table 10: Descriptives for the Evaluation Norms Dimension

SN	At the college where I work as the principal they have:	$\bar{x}$	SD	PO
1.	They can convince others about the beliefs they believe in.	3.11	1.04	3
2.	They can justify the values they believe in.	3.98	1.11	1
3.	They are able to provide reasons for their adoption of specific goals.	3.15	1.03	2
4.	They share a number of job evaluation criteria.	2.87	1.44	4

Correlation Analysis

The correlation matrix (Table 11) shows the test of the first main hypothesis of the research. It turns out that there are positive and significant correlations at between the value-based leadership and all dimensions of organisational semiotics (behavioural norms $r = 0.332$, conceptual norms $r = 0.552$, and evaluation norms $r = 0.400$), except for the dimension of perception. At a 0.05 level of alpha, the link between value-based leadership variable and values and the behavioural norms dimension of organisational semiotics was significant ($r = 0.249$). In general, there was a positive correlation between value-based leadership and the organisational semiotic ($r = 0.572$), which is a significant at 1% level of alpha. The results confirm hypothesis H₁, that there is a significant correlation between value-based leadership and organisational semiotics.

13

Dependent Variable

Table 11: Value-Based Leadership and Organisational Semiotics

Independent Variable		BN	PN	CN	EN	Organisational Semiotics
Integrity	Pearson *r*	.231*	.229*	.313**	.305**	.375**
	Sig.	.027	.030	.004	.005	0.000
Feeling, compassion, gratitude	Pearson *r*	.132	.283**	.471**	.342**	.351**
	Sig.	.237	.007	.000	.003	.000
Humility	Pearson *r*	.105	.313**	.460**	.432**	.481**
	Sig.	.343	.005	.000	.000	.000
Self-discipline	Pearson *r*	.103	.211	.350**	.434**	.400**
	Sig.	.309	.053	.001	.000	.000
Moral courage	Pearson *r*	.339	.219*	.316**	.541**	.345**
	Sig.	.002	.047	.004	.000	.002
Value-based leadership	Pearson *r*	.249*	.332**	.552**	.540**	.572**
	Sig.	.026	.001	.000	.000	.000

Key: BN = Behavioural norms; PN = Perceptual norms; CN = Conceptual norms; Evaluative norms

Regression Analysis

Table 12 shows the extent to which the dimensions of value-based leadership explained the variance on organisational semiotics based on the sampled data collected from 115 lecturers and professors of Al-Mustaqbal University College ($\beta = 0.196$, $t = 6.37$, $p < .000$). This means that whenever improvement is made to value-based leadership that enhances it by a unit, organisational semiotics of the university college will increase by 19.60%. The calculated *t*-value of the regression coefficient ($t = 6.36$) is significant at the $p = .000$. As for the calculated *F* value, which measures the significance of the regression model ($F = 29.62$), which is a significant value at $p = .000$. The explanatory power of the regression model means that value-based leadership explains 28% of the changes that occur in the organisational

semiotics of the university under study ($R2 = 0.28$), while the remaining percentage is due to other factors that are not included in the model.

Dependent Variable

Table 12: Test of Hypothesis

Independent Variable	Organisational Semiotics		*t*-value and Alpha Level		Calculated *F* Value		
	Score	β	*t*	*p*	*F*	*p*	R²
Value-Based Leadership	3.77	0.196	6.37	.000	29.62	.000	0.28

The results of the study support the hypothesis that value-based leadership significantly enhances organisational semiotics at Al-Mustaqbal University College. Therefore, the researcher to accepts H₂, that the variance in the dependent variable (organisational semiotics) is significantly explained by the four of five dimensions of value-based leadership.

DISCUSSION OF RESULTS

The researcher infers from the study's descriptive and inferential statistical results that leadership of Al-Mustaqbal University College's lecturers and professors rely on value-based leadership practices in using organisational semiotics to manage the processes of managing the university vision. This overall result is consistent with the recent theoretical postulations of Chang *et al.* (2021) on the emergence of value-based leadership among functional positions in organisations. Similarly, the results reflect the empirical report of Crossan *et al.* (2021) who qualitatively show that value-based leadership is an important antecedent of organisational outcomes including coaching. Among the important value-based practices that contribute to the emergence of organisational semiotics in the maintenance of equality of opportunities (not equality of outcome) among university personnel such that they could be motivated to attain both personal and organisational objectives. Other enabling practices include fair treatment of employees, involving employees in organisational decision-making exhibition of self-discipline by leaders in the course of performing their functions as well as showing moral courage in the face of organisational turbulence of environmental challenges.

The results further upheld organisational semiotics as an important outcome of value-based leadership. Theoretically, this result reflects the positions of Pérez (2017) and Stamper *et al.* (2000) who theorised that the interplay between social semiosis, semiotic expressions, and semiotic actors collectively concertise organisational reality in the minds of the relevant employees. Behavioural, perceptual, conceptual, and evaluative norms collectively constitute meaning-making mechanisms that allow to employees to interact meaningfully with one another and proffer creative ideas to solve any existing problem (Atkinson, 2017). As it became clear through the results of the correlation and regression analyses, there is not only a positive association between value-based leadership and organisational semiotics but also the former explains a significant variance in the latter.

RECOMMENDATIONS

Based on the findings of the study and the discussions on them, the following recommendations are given that could assist universities maximise the benefits accruing from the interplay between value-based leadership and organisational semiotics:

1. There is a necessity of emphasizing the continuity of giving confidence to the leaders of Al-Mustaqbal University College in their employees and working to lift the barriers between them by adopting their opinions and suggestions, making them participate in decision-making.
2. There is a need to prepare training and development programmes under the supervision of specialised administrative and technical staff to raise the capabilities and skills of individuals working in the college.
3. There is a need for the administration of Al-Mustaqbal University College to adopt an applied framework for organisational semiotics that combines the orientations of social and cultural systems and management information systems.
4. Emphasis on the leaders of Al-Mustaqbal University College to follow up on the progress of work in all units and departments periodically, and sometimes surprisingly, through regular inspection tours.
5. The necessity of the belief of the senior management in Al-Mustaqbal University College on the importance of organisational semiotics in assisting management and working individuals in overcoming

problems.

6. Adoption of the proposed hypothetical model of study by the administration of universities help them achieve practical and personal achievements for survival and development for a long time.

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TRAVEL EXPERIENCE ON SOCIAL MEDIA: THE IMPACT TOWARDS TOURIST DESTINATION CHOICE

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ABSTRACT

Social media has changed the way travellers see and experience their trip. It creates opportunities for travellers to search for useful travel information, choose destination and share their travel experiences. The aim of this study is to investigate the influence of positive and negative experiences shared on social media as well as subjective norms towards tourist's decision on destination choice by adapting the Theory of Planned Behaviour (TPB). Based on cross-sectional design, the self-administered questionnaires were distributed to local tourists around Klang Valley, Malaysia. A total of 340 respondents participated in thus study based on the convenience sampling technique. The Multiple Linear Regression technique analysis was employed to test the research hypotheses. The results revealed positive experience shared on social media and subjective norms perform as the important predictors to explain tourists' behavioural intention to visit a certain destination. In conclusion, this study provides valuable information on the destination management organisations in terms of social media management in the development of strategic plans to increase tourists' behavioural intention.

Keywords: Theory Planned Behaviour, social media, travel experience

INTRODUCTION

The emergence of Internet technology and various functions of mobile applications have dramatically enlarged the tourist's sharing attitude on social media (Javed, Tuˇcková, & Jibril, 2020). Social media is a kind of web-based platform, where people are allowed to engage with various activities by interacting with each other, creating content, sharing ideas, and exchanging information virtually and globally. It is worth noting that the integration ideology of Web 2.0 with the Internet tools and online platforms has allowed for the programmatic integration of application such as websites, mobile applications, and online systems with Web 2.0 applications. As such, an inclusive definition of social media encompasses ideological, technological, and functional components (Wolf, Sims & Yang, 2018). Additionally, most of previous literature have focused on the 'social' nature where social media has been emphasised as a medium for information exchange and interpersonal interaction (Javed *et al*., 2020; Cahyanto, Pennington-Gray, Mandala, Schroeder, & Kaplanidou, 2016; Munar & Jacobsen, 2014). This can be confirmed by the fact that social media has arisen in different forms, but the main aims remain as to encourage virtual interaction and exchange information among users. In the context of hospitality and tourism industry, most popular social sites among tourist are wikis (e.g., Wikitravel), microblogs (e.g., Twitter), blogs (e.g., Travelblog), social networking sites (e.g., Facebook, Instagram), media sharing sites (e.g., Flickr, YouTube), and review sites or community forum (e.g., TripAdvisor, Agoda).

Notably, each form of social media is different in levels of social interactive, communication structure, social cues, richness, hierarchy, and communication effectiveness (Mohamad, 2020; Munar & Jacobsen, 2014). Basically, social networking sites provide richer social cues than other types of platforms. In addition, the transformation of information communication technology (ICT) has provided opportunities for tourists to create and exchange content which also known as user generated content. It can be seen when social media allows tourist to tailor the communication reach where they can choose an appropriate social media channel based on type of content they want to share and making the content available either for all Internet users, friends, or any specific groups or individuals. Besides, tourists' activities on social media also supported by the various options

of interactive communication such as text, image, video sharing, like, comment, and live option. This unique interactive has made social media as magnificent tool for sharing travel experience mainly on Facebook, Instagram, Twitter and YouTube as well as online community forum such as Trip Advisor, Agoda, Booking.com and Trivago (Ly, Nuangjamnong, & Dowpiset, 2020).

Without any doubt, the growth of ICT through the emergence of social media has generated a great effect to the whole tourism industry. In present time, social media is actively being used to connect tourist with ideas and suggestions of people around the globe regarding tourism destination. In other words, sharing experience activities on social media by previous tourist indirectly helps potential tourists in managing their trips and make a decision on destination choice. Nonetheless, wide Internet access at most of the tourism destination has also encouraged the social media usage among tourists to share stories and travel experiences in real time. This scenario explained that behaviour of tourists has changed by the transformation of ICT, where tourists nowadays more rely on social media to learn and share experiences about a certain destination (Dedeoğlu, Taheri, Okumus, & Gannon, 2020). For that reason, tourism and hospitality organisations are encouraged to integrate social media with the presence business communication tool to encounter the changing needs and desires of tourists (Moro & Rita, 2018). Nowadays, most of organisations under tourism industry have utilised many interactive communication tools to take them as an advantage and opportunity of technology trend by expanding marketing activities on social media with the main purpose of reaching out many potential customers as possible (Bockermann, 2019).

However, it is meaningful to note that tourist's travel planning process and decision-making behaviour to destination choice are mostly influenced by trusted information posted on social media (Sultan, Sharmin, & Xue, 2019). Typically, information shared by consumers is considered more honest than information provided by services provider either it has been shared through traditional media or new media (Bockermann, 2019). It subliminally explains that an ideas, recommendation, or travel experience about a certain tourism destination shared by friends, family and colleagues are considered more reliable and trustworthy in motivating tourist behavioural intention. Before the rise of ICT, traditional Word-of-Mouth (WOM) is considered

as an effective tool in consumer's decision-making process. WOM can be defined as person-to-person communication with its main purposes are to share experiences and point of view between consumers concerning a particular product or service (Huete-Alcocer, 2017; Jalilvand & Samiei, 2012). However, the advancement of ICT has made social media by means of electronic word-of-mouth (e-WOM) able to improve individual's behaviour in sharing their positive or negative experience more effectively. Due to that, the sharing of positive and negative experience has been acknowledged as part of the significant factors toward tourist behaviour and decision on destination choice (Ofunre & Abiola-oke, 2018; Pourfakhimi, Duncan, & Coetzee, 2019; Rizky, Kusdi, & Yusri, 2017).

Basically, tourists' positive and negative emotions towards a tourism destination are associated with their psychological reactions to the destination, which can be influenced by factors such as service quality, personalisation, accessibility, comfortability, and much more. It is common for tourists to express their emotions in social media platforms and share their stories to their relatives and friends when they have pleasant or unpleasant experience about certain tourism services. On the same note, the attitude of sharing experience among tourists provides many opportunities to potential tourists to learn more about a certain tourism destination. Previous literatures have found that sharing experience plays an important role on tourists' destination choice where positive experience sharing will enhance tourist's intention, while negative experience sharing will reduce tourist's intention to do the visit (Filieri, Alguezaui, & McLeay, 2015; Primack *et al.*, 2019; Sultan *et al.*, 2019). Similarly, study by Sridhar and Srinivasan (2012) revealed that negative online hotel reviews significantly decreased the product rating, while the other study by Wakefield and Wakefield (2018) identified that the sharing of negative experience may disrupt individual's emotion to the point of leading to anxiety and anger, thus influencing them in decision making.

Recent studies have highlighted the relationship of social media and tourist's behaviour on destination choice. For instance, research by Chung, Han, and Joun (2015) has analysed the influence of augmented reality (AR) towards tourist intention to visit heritage site in South Korea by extending Technology Acceptance Model (TAM). Several studies have explored the impact of e-WOM on a tourism destination choice by applying Theory of

Planned Behaviour (TPB) and among the studies are about the impact of e-WOM on tourist intention to visit Isfahan (Jalilvand & Samiei, 2012), and to visit Batu City (Rizky *et al.*, 2017). Similarly, another study not just explore e-WOM as predictor toward tourist revisiting intention, but it has also been tested as moderator on the relationship between TPB's variables which are subjective norm, perceived behavioural control, attitude and tourist revisit intention to a religious and tourism destination (Ofunre & Abiola-oke, 2018; Wang *et al.*, 2022). Despite of that, study by Ly *et al.* (2020) has investigated the influence of characteristic of Facebook such as social capital, perceived trust, perceived enjoyment, and perceived usefulness on tourist travel decision making. On the same note, there is also a study that analysed about the role of social media which consist into social media tourism promotion, social media channels, and social media tourism information search on Millennials tourists' behaviour and the destination choice (Javed *et al.*, 2020). Other variables that have been investigated by previous studies associated to tourist's behaviour on destination choice are place identity, destination image, experience sharing, autobiographical memory, brand strategies, attributes of information, perceived credibility, and perceived trust (Filieri, Alguezaui, & McLeay, 2015; Filieri & Mcleay, 2013; Liu, Wu, & Li, 2018; Moro & Rita, 2018; Rizky *et al.*, 2017; Zhang, Chen, & Jin, 2021; Nazir *et al.,* 2021).

Based on the literature reviewed, there are limited studies that have examined the influence of tourists' sharing experience on tourist's behaviour to destination choice especially study about the positive and negative travel experiences sharing on social media (Sultan *et al.*, 2019). By the fact that hospitality and tourism services are intangible, it cannot be evaluated by tourist earlier than the consumption experience. Hence, the influence of tourist shared experience or e-WOM has become significant where tourists are more hooked on the interpersonal interaction (Jalilvand & Samiei, 2012; Nilashi *et al.*, 2022; Primack *et al.*, 2019). Therefore, to fill the gaps in the prior literature, this study has extended the concept of TPB by adding positive experience sharing, negative experience sharing, and subjective norm as external variables towards tourist destination choice. This study has extended the application of TPB as it has been extensively recognised as one of the most dominant tools to analyse consumer's behavioural intention (Ajzen, 1991, 2006). Besides, TPB has also been applied in many hospitality and tourism studies to understand tourist's behavioural intention

to visit or revisit a tourism destination (Javed *et al.*, 2020; Joo, Seok, & Nam, 2020; Matikiti-manyevere & Hattingh, 2020; Ofunre & Abiola-oke, 2018; Rizky *et al.*, 2017)

LITERATURE REVIEW

Theoretical Background: Theory of Planned Behaviour

Theory of Planned beTPB was developed by Ajzen (1991) with the aim of investigating human attitude and behaviour toward a certain phenomenon. Until today, TPB remains as one of the most important underpinning theories in predicting individual's behaviour (Sultan *et al.*, 2019). Based on TPB, there are three main components when it comes with individual's intention to perform a given behaviour (Ajzen, 1991). First, the attitude to engage in a behaviour, which is defined as 'the degree to which a person has a favourable or unfavourable evaluation or appraisal of the behaviour in question' (Ajzen 1991, p.188). This definition explains that the more individual's favourable attitude, the greater their intention to carry out the behaviour. Second is subjective norm which refers to 'the perceived social pressure to perform or not to perform the behaviour' by the individual (Ajzen 1991, p.188). In general, subjective norm is about individual's belief on others opinion about the individual's engagement of behaviour. Third is perceived behavioural control, which refers to 'the perceived ease or difficulty of performing the behaviour' (Ajzen, 1991). It explains the degree of control individual in performing a behaviour. In short, the general rule of TPB describes that, the greater the favourable attitude, subjective norm and perceived behavioural control, the greater the individual's intention to implement the behaviour in question (Ajzen, 2006).

As the TPB model was widely applied to understand human behaviour in many fields of study, it also widely adopted by researchers in tourism field particularly to study about tourists' destination choice. This is including the study about the impact of e-WOM on tourist intention to travel to Isfahan (Jalilvand & Samiei, 2012), tourist intention to revisit a religious destination (Ofunre & Abiola-oke, 2018), the relationship of sharing tourism experience on social media and destination choice (Sultan *et al*., 2019), the role of social

media in changing behaviour of millennial tourists (Javed *et al*., 2020), and factors that affect tourist behaviour to visit rural tourism destination (Joo *et al*., 2020). Based on the literature reviewed, this study suggests that the TPB is a tremendous tool for exploring tourist's behaviour on destination choice. Hence, this study attempts to investigate tourist's destination choice by adding the variables of subjective norm, positive and negative travel experiences sharing on social media or e-WOM as the predictors towards tourist's decision on destination choice.

Social Media

Over the years, ICT significantly become the fastest-growing industry on a global scale. The establishment of the ICT also saw the emergence of the Web 2.0 technology in continuously changing the landscape of individual's and business's activities. The Web 2.0 is a new edition of the Internet that offers an opportunity for users to generate their own content and communicate with other users (Kaplan & Haenlein, 2010). Social media is one of the initial platforms generated by Web 2.0 technology, which was formulated to limit the control of content by one party, as the key features of Web 2.0 include the generation of feedback and information exchange, and focused on individual and personal social activities in facilitating content creation, sharing of content and social networking (Xiang & Gretzel, 2010; Dedeoğlu *et al.*, 2020). It creates a new Internet generation consisting of users from Instagram, Facebook, Twitter, YouTube, blogs, Flickr, and others.

Social media can be defined as 'a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of user-generated content' (Kaplan & Haenlein, 2010, p. 161). As social media continues to evolve, its definition and function also change and expand over time. Hence, there is no standard worldwide definition on social media provided by the previous scholars. Cohen (2019) had summarised the definitions of social media based on its nature and characteristics. This includes: 1) social media incorporating a plenty of formats such as image, video, text, audio and pdf; 2) social media allows cross interactions between one or more platforms through activities such as messaging, social sharing, feeds and email; 3) social media provides different level of communication such as one-to-one, one-to many and many-to-many; and 4) social media extends user meeting by creating real-

time online events, expanding online interactions to offline interactions, and supplementing live events online. In this study, social media refers as a group of Internet-based applications that are developed based on the ideology and technology that allow users to interact, communicate, share ideas, content, experiences, perspectives and information with other Internet users (Kaplan & Haenlein, 2010; Xiang & Gretzel, 2010).

In present time, most business organisations around the world are very likely to rely on social media and utilise all its functions for promotional and marketing activities in expanding their businesses (Javed *et al.*, 2020). On the same note, social media has also persistently influenced tourists' behaviour and decision making, specifically on travel planning, tourism product consumption, and destination choice (Buhalis & Law 2008; Filieri *et al.*, 2015; Liu *et al.*, 2018). There are numerous social media channels that has been recognised as the most influence tool toward tourist's behaviour and decision making. The social networking sites such as Facebook, Instagram, Twitter, YouTube and LinkedIn, the content uploaded, on the other hand have become the main media channel for creating and spreading propaganda which are useful for gaining tourists' attention, tourism marketing campaigns and receiving feedback from tourists. On the other hand, online community forum like TripAdvisor, Agoda, Booking.com, Wikitravel, and Trivago have always become main references for many tourists to manage trips and make an evidence-based decision due to comments, reviews and experiences shared by previous tourists regarding tourism product, services and destinations. This style of reaching out for information has recognised the online community forum as authentic and credible tools to provide dependable information and trusted tourism services (Hua, Ramayah, Ping, & Jacky, 2017). Furthermore, most of tourists perceived that information shared by consumers are more reliable and trustworthy than information shared by the business marketers or service provider (Sultan *et al.*, 2019). This can be confirmed when e-WOM has long been recognised as an important marketing tool for most business marketers and main source of information for tourists in their purchase decision making (Ofunre & Abiola-oke, 2018; Pourfakhimi *et al.*, 2019; Rizky *et al.*, 2017).

Tourist Behavioural Intention

Based on TPB, behavioural intention has been explained as individual's intention to perform or not perform a specific behaviour (Ajzen, 1991). Behavioural intention has been accepted widely as a significant mediator in the connection between actual behaviour and other external factors such as subjective norm, attitude, and perceived behavioural control (Ajzen, 1991). Additionally, previous literature stated that individual's behavioural intention, which include purchase intention, and revisit intention has always been influenced by information shared by others either through face-to-face communication or online channel (Jalilvand & Samiei, 2012; Ofunre & Abiola-oke, 2018; Sultan *et al.*, 2019). It is worth noting that antecedents such as WOM, e-WOM and experience shared by previous tourists play an important roles in determining tourist's behavioural intention to visit a tourism destination (Gumpo, Chuchu, Maziriri, & Madinga, 2020; Liu *et al.*, 2018). Nevertheless, there is argument that tourism destination choice is a complex decision. By the fact that it is intangible, tourists are required to carry out an extensive informational search to reduce their perceived risk and uncertainty (Gretzel & Yoo, 2008). Due to that, individual's information adoption can be obtained significantly through the influence of timelines, relevancy, accuracy, value-added and quantity provided by the channel (Filieri *et al.*, 2015; Filieri & Mcleay, 2013). On the same note, tourist behavioural intention has also been found as significantly influenced by the characteristics and types of social media channels (Hua *et al.*, 2017; Javed *et al.*, 2020; Ly *et al*., 2020; Matikiti-manyevere & Hattingh, 2020; Nazir *et al.*, 2021), perceived value (Lin & Kuo, 2016), subjective norm (Ofunre & Abiola-oke, 2018; Sultan *et al.*, 2019), attitude (Wang *et al*., 2022), e-WOM (Filieri & Mcleay, 2013; Gretzel & Yoo, 2008; Ofunre & Abiola-oke, 2018; Pourfakhimi *et al*., 2019; Rizky *et al*., 2017), tourists' travel experiences (Primack *et al.*, 2019; Sultan *et al*., 2019), and nostalgia (Zhang *et al.,* 2021).

Positive and Negative Experience Sharing

Undeniably, social media plays an important role in determining tourists' perceptions, attitude, and behaviour toward tourism products and destination as it provides an interactive communication tool of e-WOM (Liu *et al*., 2018; Lee *et al*., 2021; Nazir *et al*., 2021). e-WOM can be defined

as 'any positive or negative statement made by potential, actual, or former customers about a product or company which is made available to multitude of the people and institutes via the Internet' (Hennig-Thurau *et al.*, 2004, p. 38). On the same note, e-WOM also widely refers as non-commercial and interpersonal communication on online channels among consumers pertaining to their personal experiences with a product, service, brand, firm or destination (Pourfakhimi *et al*., 2019). As tourism services is intangible and difficult to describe, e-WOM plays an important role to reduce tourists' hesitation and develop confidence through others recommendations (Gretzel & Yoo, 2008). e-WOM on the other hand has always been accepted as a convenient and efficient tool for obtaining and sharing experience among tourists due to its wide accessibility, rapid dissemination, boundless scope of reach, up to date, represent tourists' real experiences, and pleasant characteristics (Pourfakhimi *et al*., 2019). Despite of great attributes of e-WOM, sharing experience on social media has also been influenced by the multiple cues of social media where tourists can freely share their experience by posting photograph, video, and perform live option or real-time sharing (Munar & Jacobsen, 2014). Moreover, it also been influenced by tourist's perception on social media presence such as perceived enjoyment, perceived trust, perceived ease of use, perceived usefulness and perceived risk (Hua *et al.*, 2017; Ly *et al.*, 2020; Matikiti-manyevere & Hattingh, 2020; Nazir *et al*., 2021).

Generally, tourism experience is defined as 'an individual's subjective evaluation and undergoing (i.e., affective, cognitive, and behavioural) of events related to his/her tourist activities that begins before (i.e., planning and preparation), during (i.e., at the destination), and after the trip (i.e., recollection)' (Tung & Ritchie, 2011, p. 1369). Experiences are noted as something personal which created based on individual's perception and reaction toward a specific tourism products and places such as accommodation, attractions and destinations (Munar & Jacobsen, 2014). Truly, the sharing experiences in social media by tourist is not limited to their knowledge about the destination's attributes such as attractions, weather conditions, prices, and accessibility, but it may include their experiences and reactions toward the services received, communication, and expectation on the tourism product or destination. In line with the above reasoning, it is worthwhile noting that tourist's experiences and reactions towards tourism destination can be both positive and negative, and therefore it will

affect the type of sharing experience on social media either positively or negatively by posting emoticons, photographs, video and other cues on social media (Munar & Jacobsen, 2014). Previous literature stated that positive travel experiences shared on social media usually signifies the symbol of individual's personal life such as professionalism, wealth and social status, personality traits, and happiness which may influence tourist's travel desire toward a destination (Lin & Kuo, 2016). Thus, it is strongly suggested to study in depth about the implications of e-WOM on tourists' behaviour (Filieri & Mcleay, 2013).

Evidently, the shared experiences on social media capable in influencing tourists' behaviour and destination choice either positively or negatively. Study by Sultan *et al.* (2019) indicated that positive shared travel experience on social media has positive correlation on tourists' destination choice. Similarly, positive experience sharing on SNSs found has significant effect on Millennial consumers' destination visit intention (Lin & Kuo, 2016). Kim and Fesenmaier (2015) have confirmed that travellers who share positive experiences on social media has increased their positive affect than negative affect, thus leads to the overall positive evaluations than travellers who do not share their experiences. On the other hand, Zhou, Zhan, and Zhou (2019) have studied about the effect of negative experience sharing toward online brand community. The results showed that negative brand experience sharing strongly associated with rejection. On the same note, tourists' experience has also found the insignificant effect intention to revisit a tourism destination (Lin & Kuo, 2016). Similarly, Sultan *et al.* (2019) found that travel experience that been shared on social media negatively has negatively associated with tourists' attitude on destination choice. Hence, it is worth to understand about the important of experience sharing on social media and why tourists search for opinion from virtual platforms in their decision making. Therefore, the following hypotheses was formulated:

H_1: Positive experience sharing on social media has significant influence on tourists' behavioural intention to visit tourism destination

H_2: Negative experience sharing on social media has no significant influence on tourists' behavioural intention to visit tourism destination

Subjective Norm

Subjective norm is one of the factors in TPB that influences individual's behavioural intention. Subjective norm can be defined as 'the perceived social pressure to perform or not to perform the behaviour' by the individual (Ajzen 1991, p.188). An element of subjective norm is normative belief, which refers to individual's belief on referent other's opinion such as peers, friends, family, media and colleagues related to the individual's performance of the behaviour. The idea is considered as social pressure, which become important if the motivation to conform with that pressure is higher. Previous literature has noted that subjective norm is one of the significant predictors in examining people's intention including in the tourism and marketing literature. In tourism context, prior literature stated that tourists' decision on destination choice are persuaded by tourists' views about whether their closed one such as friends, family and colleagues will approve their decision to visit a specific destination (Abbasi, Kumaravelu, Goh, & Singh, 2019).

Evidently, subjective norm is found as significant affecting tourist's intention to choose Isfahan as tourism destination (Jalilvand & Samiei, 2012). Further, subjective norm empirically proves as to have the significant influence on consumers' online shopping behaviour (Bhatti & Akram, 2020). On the other hand, study by Sultan *et al.* (2019) indicated that subjective norm has negative correlations on tourists' destination choice attitude. On the same note, subjective norm also found has no relationship with tourist's revisit intention to Penang Hill (Abbasi *et al.*, 2019). Thus, this study hypothesised that:

H_3: Subjective norm has significant influence on tourists' behavioural intention to visit tourism destination

Conceptual Framework

Figure 1 below demonstrates the conceptual framework which illustrates the relationship between positive experience, negative experience, and subjective norm underpinning tourists' behavioural intention to travel to a tourism destination.
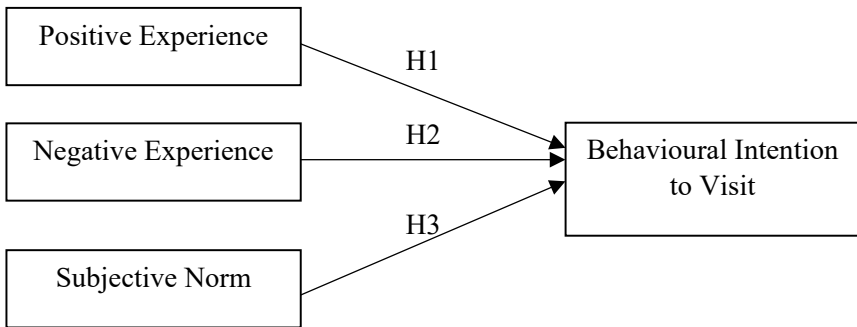
Figure 1: Conceptual Framework

METHODOLOGY

To investigate the predictors of tourist's behavioural intention to visit a tourism destination, a quantitative study was performed by employing the cross-sectional design in which research data are collected at a single point in time from multiple respondents (Sekaran, 2003). Based on the convenience sampling technique, self-administered questionnaires were distributed to the target sample, which are local tourists who stayed in Klang Valley and have experience referring to information shared on social media by previous tourists in their decision making to visit a certain destination. The sample size was determined based on two recommendations by previous scholars. First, Stevens (1996) stated that study which used Multiple Linear Regression technique are suggested to follow the rule of thumb 15:1, where 15 refers to total respondents and 1 refers to total continuous items. Based on this procedure, 15 samples should be multiplied by the total number of continuous items for the variables in the conceptual framework. Since this study has 16 continuous items, the minimum target sample is finalised at 240 (15 samples x 16 items). Second, Tabachnick and Fidell (2007) suggested that a sample size of 200 to 500 respondents is appropriate for most of management research. Based on these recommendations, a total 340 respondents were considered acceptable and valid for further analysis. Thus, a total 340 respondents were finalised as the selected sample size for this study.

Research Instrument-Questionnaire

The research questionnaire consists of two sections; Section A encompasses the profile demographic of respondents alongside questions that required to analyse the frequency, percentage, mean and standard deviation. On the other hand, Section B covers questions on the continuous variables which are positive experience, negative experience, subjective norm and behavioural intention. Variable positive experience was measured using four items adapted from Filieri and Mcleay (2013), while four items from Zhou *et al.* (2019) were employed to measure the variable of negative experience. Variable subjective norm was measured using four items applied from study by Jalilvand and Samiei (2012). Lastly, variable behavioural intention was measured using four items from Chung *et al.* (2015) and Liu, Li, and Kim (2015). All items in Section B were measured using a five-point Likert scale (1=strongly disagree to 5=strongly agree).

Reliability Test

A reliability test was conducted on 30 local tourists in Klang Valley to identify the reliability and validity of the questionnaires. The data collected for reliability test are excluded from actual data. Table 1 demonstrates the Cronbach alpha coefficient value (α) for the research variables. The results show that all items for each variable are reliable since the Cronbach alpha coefficient value is more than 0.7 (Nunnally, 1978).

Table 1: Reliability Test Result

No	Variables	Total Items	($\alpha > 0.7$)
1.	Behavioural intention	4	0.824
2.	Positive experience	4	0.844
3.	Negative experience	4	0.873
4.	Subjective norm	4	0.903

Data Analysis

The data gathered from the respondents were coded in the IBM Statistical Package for Social Science (SPSS) version 22.0 for inclusive analysis. The descriptive analysis was conducted to generate findings in the form of frequency, percentage, means and standard deviation. The

inferential analysis through the Multiple Linear Regression technique was operated to investigate the cause-and-effect relationship between variables.

FINDINGS

Demographic of the Respondents

The analysis toward 340 respondents found that 52.4% of them are male and 47.6% are female, where a majority of the respondents fell under group of age 26 to 35 years old (40.9%). Most of the respondents have bachelors' degree (49.4%) and employed under private sector (41.8%). The analysis revealed that 83.5% of the respondents had referred to social media in planning their trip. In terms of social media usage, the result indicated that 83.5% of the respondents prefer to utilise social media channels to obtain information about a specific destination. The analysis also showed that majority of the respondent more prefer to obtain the information needed through Instagram (74.1%), followed by community forum such as TripAdvisor, Trivago and Agoda (73.2%), and Facebook (54.4%). This result explained that social media can be trusted information sources for tourists in their decision on destination choice. An analysis on tourist's behaviour indicated that most of tourists tend to post and share their activities on social media along their vacation (73.2%). In terms of experience sharing on social media, most of the respondents very likely to show their feeling by uploading photos and videos (84.4%), reviewing about the destination and services provided (71.8%), and also updating their current status (54.7%).

Descriptive Analysis

Positive Experience

Positive experience shared on social media scored an average mean of 17.74, with the highest mean of 4.50 reflected in the item 'tourists' positive experience made it easier for me in making decision to visit a destination,' while the lowest mean (4.41) is shown in the item 'tourists' positive experience contributed to my knowledge about a destination.' These results explain that tourist's decision on destination choice is easily made when previous tourists shared their experience positively on social media. Besides, the positive experience also perceived as a useful information for tourists and thus enhances their knowledge about the destination.

Negative Experience

In terms of negative experience shared on social media, it recorded an average mean 16.47. The item 'tourists' negative view will influence my perception towards a destination' scored the highest mean (4.15) for negative experience variable. This result indicated that negative experience shared by previous tourists will affect current tourist's perception that the destination has provided insufficient service and facilities or any other risk factors that may lead to public dissatisfaction. On the other hand, the lowest mean score (4.08) for negative experience variable has shown by item 'tourists' negative reviews make me difficult to choose a holiday destination.' This result explains that even though tourists has targeted a specific destination for their holiday, their decision can be disrupted by negative experience shared by previous tourists on social media. Thus, it can be concluded that negative experience will affect individual emotions and decision on destination choice.

Subjective Norm

The influence of subjective norm on destination choice scores an average mean 15.67 with the highest mean score (4.01) represented by the item 'many people like me should use social media when planning and organising a trip.' This finding clarifies that tourists have a positive perception toward social media as a significant platform to provide a useful information to help them in planning and organising a holiday trip to a specific destination. The lowest mean score (3.79) for subjective norm variable is scored by the item 'most people who are important to me think that I should refer social media when planning and organising a trip', 'signifying the mutual agreement of tourists and their closed one such as family, friends, peers, and colleague that social media acceptance in trip planning and destination choice is essential'.

Behavioural Intention to Visit

As for tourist behavioural intention to visit a destination, the average mean score is 17.34 indicating that the intention of visit a specific destination is important among tourists. The highest mean (4.43) score is shown by item 'viewing tourist's post in social media makes me have the desire to visit the destination in the near future' while the lowest mean score (4.24) is reflected by item 'I would recommend the destinations shared by tourist to my family and friends.' These outcomes can be concluded that previous tourist's posting in social media such as photo, video or through the other

posting option provided by social media channels indirectly will influence current tourist's intention to visit to the same destination in the future, and thus will encourage their behaviour to recommend the destination to their closed one such as family, friends, and colleague. Table 2 summarises the results for descriptive analysis of the research variables.

Table 2: Descriptive Results

Variables	Items	Means	SD	Factor Mean	Factor SD
Positive Experience	PE_1 Tourists' positive experience made it easier for me in making decision to visit a destination.	4.50	.649	17.74	2.38
	PE_2 Tourists' positive experience enhanced my effectiveness in making decision to visit a destination.	4.42	.731		
	PE_3 Tourists' positive experience contributed to my knowledge about a destination.	4.41	.749		
	PE_4 Tourists' positive experience makes me excited to visit a destination.	4.42	.758		
Negative Experience	NE_1 Tourists' negative reviews make me difficult to choose a holiday destination.	4.08	.975	16.47	3.16
	NE_2 Tourists' bad experience make me have negative feeling about a destination.	4.12	.917		
	NE_3 Tourists' negative view will influence my perception towards a destination.	4.15	.906		
	NE_4 Tourists' negative view affect my interest to visit a destination.	4.12	.917		

Subjective Norm	SN_1	Most people who are important to me think that I should refer social media when planning and organising a trip.	3.79	1.061	15.67	3.60
	SN_2	People whose opinions I value would prefer me to use social media when searching information for destinations.	3.97	1.021		
	SN_3	Many people like me should use social media when planning and organising a trip.	4.01	.953		
	SN_4	People whom I trust recommend me to use social media when searching for destinations.	3.91	1.056		
Behavioural Intention to Visit	BI_1	Viewing tourist's post in social media makes me intend to visit the destination in the near future.	4.39	.747	17.34	2.57
	BI_2	Viewing tourist's post in social media makes me have the desire to visit the destination in the near future.	4.43	.751		
	BI_3	I would take the destination shared by tourist into consideration when planning for my future holidays.	4.28	.777		
	BI_4	I would recommend the destinations shared by tourist to my family and friends.	4.24	.896		

Inferential Analysis

The Multiple Regression technique analysis was employed to investigate the cause-and-effect between predictors of positive experience

shared on social media, negative experience, and subjective norm toward tourist behavioural intention to visit a tourism destination as this technique has always been used to explore the interrelatedness among variables and empowering the prediction of an explicit outcome. To confirm that research's data are disordered, a preliminary analysis for the assumption of normality, outliers, and multicollinearity was performed (Pallant, 2011; Tabachnick & Fidell, 2007). The preliminary analysis indicates multicollinearity issue based on few indicators, namely (1) the tolerance value is more than 0.1, (2) the variance inflation factors (VIF) value is less than 10, (3) the correlation between the predictors and dependent variable is more than 0.3, and (4) the correlation among the predictors is less than 0.8 (Pallant, 2011; Tabachnick & Fidell, 2007). Table 3 illustrates the value of tolerance, VIF, and the correlation between variables for the present study.

Table 3: The Value of Tolerance, VIF and Correlation

Variables	Tolerance	VIF	Behavioural Intention	Positive Experience	Negative Experience	Subjective Norm
Behavioural Intention	-	-	1			
Positive Experience	0.651	1.536	0.738	1		
Negative Experience	0.666	1.502	0.456	0.525	1	
Subjective Norm	0.704	1.421	0.579	0.484	0.466	1

The normal *p*-plot for regression residual and the scatterplot indicates that the data are distributed normally. The assumption on outliers showed that all cases have standardised residual values of between 3.3 and -3.3. This is means that there are no outliers' issue in the research data (Pallant, 2011). Moreover, the values of Mahalanobis distance were also supported where no cases were appeared standardised residuals greater than the suggested cut-off value. Table 4 shows the model summary for this study. The results reveal that the predictors of positive experience, negative experience and subjective norm explain 60.8% ($R^2=0.608$) of the tourist behavioural intention to visit a tourism destination. Table 5 shows that the independent variables make a significant prediction of the dependent variable, $F(3, 336) = 174.065$, $p = .000$.

The *F*-test statistics has revealed a linear relationship between the independent and dependent variables in the research model, where the regression is seen as a good fit for the data. Table 6 illustrates both the unstandardised and standardised coefficients for each predictor in conjunction with the t statistic and the corresponding *p*-values. The report shows that positive experience sharing on social media has a significant influence on tourist behavioural intention to visit a tourism destination (β = 0.593, *t* = 14.021, *p* < .05). The analysis also shows similar result for subjective norm (β = 0.286, *t* = 7.039, *p* < .05). Nevertheless, negative experience sharing on social media was found to have no significant influence on tourist behavioural intention to visit a tourism destination (β = 0. 011, *t* = 0.266, *p* > .05).

Table 4: Model Summary

Model	*R*	*R* Square	Adjusted R Square	Std Error of the Estimate
1	.780	.608	.605	1.61730

Table 5: ANOVA Test Result

Model	Sum of Squares	df	Mean Square	F	Sig
Regression	1365.880	3	455.293	174.065	.000*
Residual	878.858	336	2.616		
Total	2244.738	339			

*Significant at *p*<.05

Table 6: Unstandardised and Standardised Coefficient Results

Variables	Unstandardised Coefficients		Standardised Beta	*t*	Sig
	B	Std Error			
Positive Experience	.642	.046	.593	14.021	.000*
Negative Experience	.009	.034	.011	.266	790
Subjective Norm	.204	.029	.286	7.039	.000*

*Significant at *p*<.05

Hypotheses Testing

Firstly, the research findings revealed that positive experience shared on social media has significant influence on tourists' behavioural intention

to visit a tourism destination ($\beta = 0.593$, $t = 14.021$, $p < .05$). This finding is consistent with study by Liu, Li, and Kim (2015), which found that travel experience plays an important role towards the development of destination image, satisfaction and behavioural intention among the first time and repeaters tourists. Similarly, positive experience shared on social media found has significant impact on tourists' intention to travel to Batu City, Indonesia (Rizky *et al.*, 2017). A study by Sultan *et al.* (2019) also found that positively shared travel experience through social media has positive connection towards tourists' attitude on destination choice. In addition, latest study has also proven that positive travel experience shared on social media in the form of photograph will enhance potential tourist's positive emotion on the destination, and thus enhances their intention to visit (Zhang *et al.*, 2021). Therefore, Hypothesis 1 is accepted.

Next, negative experience shared on social media was found to have no significant influence on tourists' tourists' behavioural intention to visit a tourism destination ($\beta = 0.011$, $t = 0.266$, $p > .05$). Previous studies have confirmed that negatively shared travel experience on social media has negative correlations on tourists' attitude on destination choice (Lin & Kuo, 2016; Sultan *et al.*, 2019). Result by previous studies also indicated that negative information disseminate on Internet will influence tourists' intention to travel negatively. For instance, study by Jalilvand and Samiei (2012) found that tourists have no intention to travel to Iran due to negative information spread on Internet and virtual communities forum. Additionally, negative experience also related to the negative relationship with tourists' destination choice (Sultan *et al.*, 2019). Hence, Hypothesis 2 is accepted.

Finally, the research finding noted that subjective norm has significant influence on tourists' tourists' behavioural intention to visit a tourism destination ($\beta = 0.286$, $t = 7.039$, $p < .05$). This is similar to the findings of Jalilvand and Samiei (2012), who also found that subjective norm is an important factor in determining tourist intention to visit to a certain destination. Additionally, research findings by Bhatti and Akram (2020) indicated that subjective norm is the important determinant for consumer's online shopping behaviour particularly when it comes to privacy risk where consumer perceives that the retailer will use and share their personal information without permission. Therefore, Hypothesis 3 is accepted. Table 7 illustrates the summary of hypothesis testing.

Table 7: Summary of Hypotheses Testing

Hypotheses	Relationship of Variables	β	t	Sig	Result
H$_1$	Positive experience -> Behavioural intention to visit	.593	14.021	.000*	Accepted
H$_2$	Negative experience -> Behavioural intention to visit	.011	.266	.989	Accepted
H$_3$	Subjective Norm -> Behavioural intention to visit	.286	7.039	.000*	Accepted

*Significant at $p<.05$

DISCUSSION

The emerging of Internet has significantly empowered tourists' capability to gather and disseminate tourist destination-related information. As tourists have easy access to tourism-related information around the globe, they can also influence other tourists' perception easily by sharing their own experiences through numerous online platforms particularly in social media. Commonly, social media usage among tourist can be seen through two main phases, namely before trip and after trip. Before the trip, people search for travel information and recommendations mainly to get ideas and looking for useful information in planning and organising their trip. After the trip, travellers tend to tell the world about what they felt by sharing their experiences through social media (Oliveira, Araujo, & Tam, 2020). This phenomenon has encouraged this study to develop new knowledge about tourists' perception and behaviour in social media. This knowledge will be contributing not only to the literature development, but tourism business organisations to understand about the determination factors on tourists' destination choice. This study attempts to illuminate e-WOM effect on the process of a tourism destination choice. By applying the TPB, this study has developed a conceptual framework to investigate the influence of positive and negative travel experience sharing on social media as well as subjective norm towards tourists' destination choice.

The research findings indicated that positive sharing experience on social media has a significant impact on tourist's tourists' behavioural intention to visit a tourism destination. Nevertheless, negative sharing experience on social media has found no significant impact on tourist's

tourists' behavioural intention to visit a tourism destination. Previous studies agreed that online reviews have always been perceived as credible sources of information among tourists than others (Gretzel & Yoo, 2008; Akehurst, 2009; Fotis *et al.*, 2012). It is worth noting the complex tourist's decision on destination choice which required an extensive related information, as tourism destination is intangible and perceived to have high level of risk. Due to that, tourists tend to search useful information particularly reviews and experience sharing through online channel to support their decision. This can be confirmed by the fact that positive experience sharing and positive reviews revealed in social media able to enhance tourists' confidence and reduce their risk perception towards a certain tourism services or destination (Filieri *et al*., 2015; Sultan *et al*., 2019). On the same note, negative reviews and information available on online channel has a negative impact on tourists' perception and attitude negatively, and thus affect their traveling decision or destination choice (Jalilvand & Samiei, 2012; Lin & Kuo, 2016; Sultan *et al.*, 2019; Zhou *et al.*, 2019). On the other hand, Kim and Chen (2018) also mentioned that negative experience shared in social media greatly impacting the potential tourists' behavioural intention and destination image than the positive impact shared in social media. In line with the reasoning, negatively shared travel experience would enhance tourist's perception that the destination has unsatisfactory service quality, and insufficient facilities which will enhance their perceived risk and decrease behavioural intention to visit.

Supporting the previous result by Jalilvand and Samiei (2012), this study also confirms that subjective norm is a significant determinant of tourist's intention to travel to tourism destination. This finding explains that important people around tourist such as family, peers and friends play an important role in influencing tourist's attitude to gather information on social media during decision making process on destination choice. Without any single double, these groups of people play a significant role in individual's decision making. Evidently, subjective norm able to influence people's decision directly or indirectly (Bhatti & Akram, 2020). Thus, it is common for individual to change their decision when people around them think in contrary or suggest for alternatives. In sum, it is worthwhile in noting that positive sharing experiences on social media and subjective norm play the important role in accelerating tourists' travel intentions as they are able to create positive image of the destination and reduce marketing expenditures.

As the uniqueness of virtual worlds provide big opportunity for tourism organisations to boost up their business through tourists' online activities, it is important for the tourism managers to familiarise themselves with this current phenomenon of virtual worlds.

IMPLICATIONS, LIMITATIONS AND FUTURE RESEARCH

As tourism-related product is classified as intangible, it is difficult for tourists to assess them before their consumption. Hence, in the digital era, social media become the significant sources of information for most of tourists around the world to obtain any relatable information of tourism destination and evaluate them before their decision on destination choice. Based on the research findings, this study proposes the following practical implications that might be useful to the managers of tourism destinations. To begin, tourism managers might take an initiative to develop online tourism community as tourists nowadays more rely on it for exchanging information and speak about their travel experiences. Besides, tourists' trustworthiness on e-WOM information is evidently high compared to information provided by service providers (Gretzel & Yoo, 2008; Pourfakhimi *et al.*, 2019). Therefore, it is important for tourism managers to establish business's web site as the main channel for tourists to exchange information, share opinion and experiences, as well as promote business's activities conveniently.

Next, tourism managers can encourage tourists to actively participate in discussing any related issues on online tourism communities. By doing this, information about a certain destination will be disseminated among potential tourists in online channel easily. It is worth to say that high volume of tourists' reviews about a destination will increase the probability of the destination becoming a tourist choice. In addition, research findings indicate that positive experience sharing on social media provides significant impact on potential tourists' intention to visit a tourism destination. Thus, it is important for the tourism managers to provide tourists with unforgettable experience such as by providing tourist with personalisation services or award suitable gift for their loyalty as useful strategy to create positive image of the destination in tourist's mind. This is important because happy and satisfied tourists will disseminate positive e-WOM about the destination to

other tourists in online communities. On the same note, tourism managers also have to know how to respond to any negative reviews and manage disappointed tourists because it will affect current tourist's intention to revisit the destination and also potential tourists' perception and intention to visit.

Despite the important implications, this study faced several limitations. Since this study was conducted during COVID-19 pandemic, research sample covers only local tourist in Klang Valley, Malaysia. Thus, future studies are suggested to generalise the research findings to different group of samples or via cross-cultural studies. Next, data gathered were analysed by using Multiple Linear Regression technique. To extend the conceptual framework, future research is encouraged to employ advance multivariate technique analysis Structural Equation Modelling (SEM) through software such as SmartPLS, AMOS or MPlus. By using these kinds of techniques, the contribution and impact of each predictor can be discussed thoroughly. Finally, the predictors of tourists' destination choice explored in this study is limited to positive and negative experience shared on social media, as well as subjective norms. There are still many predictors which may affect tourists when choosing a destination such as e-WOM, perceived risk of social media, perceived ease of use, perceived usefulness, online reviews, perceived value, perceived enjoyment, and perceived trust.

CONCLUSION

In conclusion, the research findings have encouraged the industry player to become more aware towards the power of social media including user-generated content and its implications to the business's growth. By understanding the impact of tourists' experiences sharing on social media, it would help the business's management team in developing marketing strategies particularly in terms of the utilisation of social media advantages and how to overwhelm the potential of disadvantages.

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THE IMPACT OF TRADE BARRIER, MARKET DEMAND, AND CONSUMER BEHAVIOUR ON BUSINESS PERFORMANCE OF SMALL AND MEDIUM ENTERPRISE (SME'S) DURING THE COVID-19 PANDEMIC

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ABSTRACT

The purpose of this study is to investigate the impact of government trade barriers, consumer behaviours, and market demand on the business performance of small and medium-sized enterprises in Malaysia during the COVID-19 pandemic. The pandemic outbreak and subsequent lockdowns took a heavy toll on SME's, affecting the economy, society, health, and the life cycle. SMEs have faced problems such as a labour shortage, a drop in demand, a shortage of raw materials, changes in consumer behaviour, and trade barriers imposed by governments through the movement control order (MCO). The data is gathered through the distribution of questionnaires, and the sample size is 107 respondents in the most affected states by the COVID19 pandemic. This study employs a quantitative approach, and it is analysed using regression. According to the findings of this study, changes in market demand have had a significant impact on the business performance of SMEs. It demonstrates that a drop in customer demand has resulted in a decrease in profit. The implications of this research are to encourage business actors to shift their market focus to satisfy demand and requirement changes, as well as to urge more severe measures to improve the performance of SME's.

Keywords: COVID-19; small and medium enterprise; performance

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INTRODUCTION

COVID-19 has affected the sustainability and the performance of SMEs in an unprecedented way. As the virus has spread more quickly around the world and people need to adhere to certain hygiene rules to reduce the COVID-19 virus (Atalan, 2020) have put tension among SMEs in various industries. The COVID-19 pandemic has had a significant economic impact on the country (Fernandes, 2020) all over the world and even cause famous brands' industries to go bankrupt when the movement control orders (MCOs) have begun in most of the country (Donthu & Gustafsson, 2020). The global data of COVID-19 cases in March 2022, shows that there have been 440,807,756 confirmed cases of COVID-19, including 5,978,096 deaths, reported to WHO and spread across nations (World Health Organisation, 2022). The increasing number of cases forces certain countries to announce the MCO and shut down the economies with the consumers who have been forced to stay at home. Many companies have had to close because of the COVID-19 pandemic, an unprecedented trade disorder in most industries (Donthu & Gustafsson, 2020).

The outbreak has been challenging across industries and sectors, affecting many and even giving economic hardship to small and medium enterprises. Even though SMEs are not particularly a backbone of the Malaysian economy, however, the total number of SMEs in Malaysia was 1,151,339 or 97.2% of total business establishments and the contribution of SMEs' GDP eased to 38.2 percent in 2020 (Department of Statistics Malaysia, 2020). A key sector that contributed to the country's economic growth is small and medium-sized enterprises (SMEs) (Yunoh & Ali, 2015) and this signifies that SMEs assist the country's economy to grow. As a result of the small economy of scale, SMEs are mostly dependent on product sales and will suffer huge losses, if the country's economy closes (Fitriasari, 2020) and find it difficult to run their business since suppliers did not fulfill their stocks (Ren *et al*., 2020).

As the pandemic is so intense recently, most countries imposed a lockdown and Movement Control Order (MCO), to prevent the virus from fast spreading. Thus, SMEs of all types has experienced immediate effects of the lockdowns on their upstream and downstream activities. However, while reduced volume consumption represents one key challenge, demand-

side effects pose a more severe risk. Indeed, most consumer-focused, stand-alone SMEs operate in industries characterised by elastic demand. With consumers facing employment uncertainties and financial constraints, many of these SMEs have experienced a sudden decline in demand resulting from long unoperated business (Juergensen, Guimón & Narula, 2020). This is proven by the report issued by the Organization for Economic Cooperation and Development (OECD) in 2020, showing that lack of demand, a limited number of suppliers, and an inability to pay their employees arise during the MCO. In fact, Malaysia's small and medium enterprise (SME's) GDP has fallen tremendously due to the pandemic COVID-19, SMEs may be unable to achieve the GDP due to the country's weak economic condition Malaysian Reserve, 2020).

SMEs are more likely to face extreme resource constraints than larger companies, making it more difficult for them to survive when the COVID-19 crisis hits. During or after a crisis event, SME typically suffers from financial losses, decreased sales volume, inability to meet contract terms, cash flow issues, a reduction in the number of employees, and even the organisation's closure (Shafi *et al*., 2020). According to this statement, this will be one of the factors influencing sales toward SMEs because they want to cut costs while also making a sale. SMEs' business routines are heavily reliant on sales, and they typically have a small number of customers (Williams & Schaefer, 2013). If they do not have sales, it will be difficult for SMEs to continue operations, and they will run out of stock (Abanis *et al*., 2013).

Most SMEs have progressively shifted their business practices from behavioural consumers to online purchases (Omar *et al*., 2020), to sustain their business in years to come. The SMEs, on the other hand, improve the quality of their products and services while planning business strategies and promoting their products or services through digital marketing (Winarsih *et al.*, 2020). Due to the SMEs' business is based on the sale of goods, this sector will be the most vulnerable to the economic crisis caused by COVID-19 (Fitriasari, 2020).

Many markets have vanished, particularly in the tourism and hospitality industries. All organisational roles are designed to prioritise and maximise expenditure while postponing activities that do not add value to the current environment. As a result, they may have to spend or use their

own money to cover the losses caused by the pandemic, and their sale may not meet the target. Indeed, SMEs are facing difficult problems due to a lack of funds and liquidity, staff, consumers, and technology, as well as a limited capacity to counteract the risks involved and afford costs incurred because of the market downturn. SMEs will not have cash inflow for three months during this pandemic and they also still need to continue paying the employees with a full salary, rental, and some material payments. Loss of the demand from the customers for small and medium enterprises affects their business (Organisation for Economic Co-operation and Development (OECD), 2020).

Due to the drop in revenue and the need to cover operating costs, the business will have a financial obligation to creditors and customers, and because SMEs rely on bank financing, if they are unable to raise other sources of funds on short notice, a liquidity shortage can turn into a solvency problem (Gourinchas *et al*., 2020). The production capacity was slow due to a lack of demand; lack of demand was a top supply-side challenge when compared to other supply-side challenges (Dai *et al*., 2020). As stated above, without a demand from the customer, SMEs will struggle to make sales because their sales are dependent on what the customer requires. Thus, the purpose of this study is to investigate the impact of trade barriers through MCO by the government, the changes in consumer behaviour impact and the changes in market demand on business performance among SMEs during pandemic COVID-19.

LITERATURE REVIEW

SME's contributes significantly to Malaysia's economy (Zalina *et al.*, 2016). SME's record 907,065 SME's establishments (SME's Corporation, 2019). Small and medium enterprises (SMEs) are defined as firms with a sales turnover of less than RM50 million or employment in the manufacturing sector with fewer than 200 employees (Omar *et al.*, 2020). Small and medium enterprises (SMEs) are companies with a revenue turnover of less than RM 20 million or a workforce of fewer than 75 employees in services and other industries (SME's Corporation, 2019). It would eventually influence diverse industries and national economic advancement in the case of an economic crisis and a business catastrophe (Omar *et al*., 2020).

According to the Department of Statistics Malaysia (DOSM, 2020), 67.8 percent of a total of 4,094 Malaysian businesses stated that there was no sale or turnover during the MCO period as of 1 May 2020. SMEs have seen an excessively large decline in revenue, with over 75 percent of small and medium-sized enterprises reporting a decrease in sales by 2020. In this article, SMEs also said that more than half of their incomes have been lost and that the survey was unlikely to alleviate the situation. The outbreak impacted the sales of small and medium-sized businesses, as they were unable to cover their operating expenses during the pandemic (Warsame, 2020). According to the researcher, the income of SMEs has decreased by 89 percent. As a result, if the income of SMEs has decreased, they will be unable to cover their operating expenses due to a decrease in cash.

When neighbouring Singapore announced the first imported COVID-19 case from Wuhan, China on January 23, 2020, which was also the republic's first positive case, the threat of COVID-19 became more visible in Malaysia (Shah *et al.*, 2020). According to Elengoe (2020), the first case of pandemic COVID-19 was detected in Malaysia on January 25th, 2020, with three Chinese nationals who previously had close contact and had traveled to Singapore first before coming to Malaysia. Furthermore, this study stated that Selangor had the highest number of cases of pandemic COVID-19. The cases in Malaysia change from time to time.

The frontline must work harder to ensure that all the patients with COVID-19 continue to receive their medicines, particularly during the application of the Movement Control Order (MCO) during the COVID-19 pandemic (Ministry of Health Malaysia, 2020). Moreover, COVID-19 has changed people's daily lives greatly with the new standards. The economic breakdown of COVID-19 may have caused harm to SMEs but could have prepared the road for digital transformation as companies migrate the business to address office shutdowns, limited movement, and interruptions in supply.

The Factor Affecting COVID-19 on the Business Performance of SME's

Trade barriers by the government

Movement control, lockdown, quarantine, and social distancing are

examples of government efforts to protect unprecedented public health and economic responses (Craven *et al.*, 2020). As a result, in accordance with the Prevention and Control of Infectious Diseases Act 1988 and the Police Act 1967, Malaysia implemented the MCO on March 31, 2020, which was later extended to April 14, 2020, to control the virus chain (Omar *et al.*, 2020). Due to the MCO, governments have erected trade barriers for SMEs. The order calls for the closure of all government, private, and commercial buildings except those that provide essential services (water, electricity, energy, telecommunications, postal, transportation, irrigation, oil, gas, fuel, lubricants, broadcasting, finance, banking, health, pharmacy, fire, prison, port, airport, safety, defense, cleaning, retail, and food supply (New Straits Times, 2020).

The world of globalisation is one of the ways to boost SME growth and competitiveness in today's globalising globe. Although unlike large firms, small and medium enterprises can adapt to changing market conditions more quickly, they confront distinct internationalisation obstacles that prevent or ban them from partaking in this process (Toulova, 2015). This illustrates that if COVID-19 is recorded, small and medium-sized enterprises (SME's), which are not able to export their goods to other countries, are confronted with trade restrictions. Baldwin and Freeman (2020) theorised in the early epidemic of COVID-19 that COVID-19 would also result in a decline in trade. At the beginning of the COVID-19 pandemic, Baldwin and Freeman (2020) hypothesised that the decline in COVID-19 commerce would also exceed the decline following the 2008 financial crisis since both the spread of the virus and generally recognised countermeasures put a tremendous stress on supply and requirements.

Cross-border commerce in products and services is a vital source of economic growth and of relevance to small open economies (Büchel *et al*., 2020). The researcher also predicts that, in the first two quarters of 2020, export losses due to a substantial decrease in consumer trust and exports are strongly related to COVID-19 trade partner-specific infection rates, but almost the rigorous nature of containment actions in the country. In fact, some governments have specifically prohibited and used the export of these products by other countries, including export permit legislation, to endanger a licensed local producer of such products, if they continue to export and require a governmental agency to purchase all local production (Evenett, 2020). In the article stated by Hopewell and Tafel (2020) several countries

resorted to shortages by establishing export restrictions to enhance their own domestic supply, while governments can do their utmost to protect their residents, export limitations impair global health systems and eventually undermines attempts to combat the corona virus.

Thus, people need to adopt new conventions to lock themselves at home and maintain a social distance and it modifies the behaviour of citizens automatically. People are beginning to be nested, cultivate new talents, and better care where they live, such as how to bake, try to fit, make a puzzle, or read more (Donthu & Gustafsson, 2020). Due to the change in customer behaviour, the sales of SMEs have decreased because they have brought the products, they strive to manufacture themselves. Changes in consumer behaviour impacted not only food stores, convenience stores, cafeterias, and restaurants, but also their suppliers (Laato *et.al*, 2020). Most notably, outbreaks have had an impact on two types of human activity: consumer behaviour (Miri *et.al.*, 2020) and behaviour that mitigates the condition of health risk (Miri *et al*., 2020; La Torre *et.al*., 2009).

The report emphasized how current global preparedness gaps would amplify the effects of a potential pandemic, which would destabilise national security and have a negative impact on the global economy and trade due to changing consumption behaviour (Mehta *et al.*, 2020). According to the findings of this study, consumers' spending habits have shifted, altering the consumer shopping experience. The search for, purchase of, use of, evaluation of, and disposal of goods and services is a significant and ongoing decision-making mechanism for consumer behaviour (Valaskova *et al*., 2015).

The change in consumer behaviour

According to a study by Arora *et al.* (2020), the pandemic COVID-19 has influenced consumer behaviour in the shift to value and essentials, with consumers expecting to shift their spending primarily to essential items, such as food and household goods, and reduced discretionary categories. Furthermore, this study found that consumers continue to focus their spending on necessities, even though some categories in Asia are shifting in a positive direction. Small and medium-sized enterprises (SMEs) would suffer if consumers were unable to afford or purchase services and products, and vice versa (Tanveer *et al*., 2020). In addition, a consumer does not have enough money to spend due to being jobless, and contracts are suspended (Tanveer *et.al*, 2020).

As customers take preventive measures against the virus, their health, financial issues, and behavioural changes will continue to have a significant social and economic impact. This is due to drastic changes in consumer behaviour; nine out of ten customers have switched from traditional habits to online purchases, and nearly six out of ten customers are concerned about going to the store because they are afraid of becoming infected (Chauhan & Shah, 2020). Overall, 56 percent of customers tend to spend less and given the current environment, only buy what they need (Tam, 2020). It demonstrates that consumers must reduce their spending to survive the COVID-19 pandemic, which will have a significant impact on small and medium-sized businesses (SMEs). Aside from the fundamental need for SMEs to migrate to online platforms due to changed customer behaviour, they should have a plan to create new or modify existing products to open new markets, or at the very least to cater to current demand (New Straits Times, 2020).

The COVID-19 pandemic, as well as mandates for lockdown and social distancing, have disrupted customer purchasing and shopping patterns, and consumers have learned new habits that, rather than being brought, they can instantly do with themselves (Sheth, 2020). During times of crisis and uncertainty, the general tendency is to postpone the purchase and use of disposable goods or services, according to the researcher. Because of the pandemic COVID-19, consumer behaviour, the essence of commerce, industry, and even the way of life has changed (Bhatti *et al.*, 2020). According to Botti and McGill (2011), 'the customer is subjected to systemic stress in this sense of economic, social, and political uncertainty, which is perceived loss of control over his/her environment.' The stress defines him/her to either save money to acquire resources that will provide him/her with comfort or engage in impulsive behaviour by purchasing goods that he/she deems necessary (Durante & Laran, 2016).

The Change in Market Demand

During the COVID-19 pandemic, consumers are advised to stay at home, which will result in the bankruptcy of many branded stores across many industries, as well as the closure of economies (Tucker, 2020). Even though some businesses fail, others thrive. When analysing economies, it is commonly assumed that they are static, which is a logical inference given that they appear to shift slowly (Donthu & Gustafsson, 2020). The researcher

also mentioned that the COVID-19 outbreak provides a rare opportunity to research how markets are created and how they vanish in a very short period. It will also be important to investigate whether one solution for a market business can be replaced by another if it disappears.

According to Costa Dias *et al.* (2020), in the immediate political response to the pandemic, all sectors of the economy, including non-essential retail, hospitality, and leisure industries, were forced to close, even though air travel was effectively halted due to travel restrictions. As a result, there has been a sharp drop in market demand in many sectors of the economy, as well as an initial acute shortage of market in others. When the COVID-19 pandemic struck the world at the beginning of 2020, the price also fell, and most countries in the world shut down most of their economic activity (Gerlagh *et al*., 2020). As a result, large price fluctuations caused by current demand shocks should be avoided.

According to Ernst and Young (2020), nearly half of large and small, and medium-sized enterprises (SMEs) cited a decline in demand as their main challenge. Lesser-developed countries' stock market returns are correlated with fewer return decreases for every increase in the number of COVID-19 cases per million (Erdem, 2020). In other words, the corona virus's negative effects on market stock are lower in freer countries. Due to the limitations imposed by the distribution context, demand began to fall because of coronavirus infection, and business activities slowed (Razumovskaia e*t al*., 2020). This study also mentioned that the SME market activity index dropped to its lowest value in April 2020.

The economic impact of the COVID-19 pandemic would be reduced demand and supply shortages, harming developing countries that rely heavily on commodities (Pazarbasioglu, 2020). Sharp drops in demand, excess capacity, and increased price sensitivity are convergent in many industries, from air travel to durable goods, to drive down prices and destroy quality (Abdelnour, Babbitz & Moss, 2020). Furthermore, many consumers seek contract discounts and renegotiations, while some competitors use aggressive pricing. National lockdowns, when combined with behavioural changes caused by pandemic fear, not only caused production delays but also contributed to the greatest fall in demand for company performance since the Great Depression (Gourinchas *et al.*, 2020). As a result, even if

sales are declining, businesses must still meet their financial obligations to creditors and suppliers, as well as cover their operating costs.

METHOD

Malaysia first announced the MCO on 18 March 2020 until 3 May 2020 and as the cases became serious the government announced a lockdown from 1 June 2021 until 28 June 2021. The series of MCO and lockdowns have happened across Malaysia since then. Recently, the Malaysian government announced the National Recovery Plan (NRP) on 15 June 2021 - 31 December 2021. From the first MCO to total lockdown until the NRP planned have affected the SMEs in the various industry in Malaysia. Thus, many studies have considered certain inclusion and exclusion criteria in their research fields.

Thus, in this study, the questionnaire is collected in June 2021 whereby the first total lock is announced by the government i.e., after June 2021. The data is collected using an online questionnaire. The questionnaire link will be sent to respondents online in two ways, first through text messages such as WhatsApp, and secondly, posted on social media such as Facebook and Twitter. More often, most quantitative surveys are made up of checklists and rating scale types of questions, as it helps to simplify and quantify respondents' attitudes or behaviour. To achieve the objective of measuring the effect of COVID-19 on the business performance of small and medium enterprises (SMEs).

The target respondent for this study will be the owner or manager of the company in Selangor. The surveys involving small business owners as the unit of analysis are the most used in conducting this research (Punch, 2003). This is because the owner or manager is the one who manages the operation, and management financials of the company. Hence, the owner or manager has the capability to answer the questionnaire based on their knowledge and experience when they manage the business. SMEs in Selangor will be the population for this research. According to SME Annual Report 2016/2017, there are 179,271 SMEs in Selangor which is the biggest number in Malaysia as they consist of 19.8% of SMEs in Malaysia.

In this study, the researchers selected only 100 SMEs as sample surveys under random sampling and used non-probability sampling which is judgemental sampling to collect the data. A desirable method of sampling is judgemental sampling. Judgemental sampling is a non-probability sampling methodology in which the researcher chooses sample units based on their knowledge and professional judgement. Using the Raosoft database i.e., sample size calculator for a survey, the number of samples is selected based on 150,000 population, 5% confidence level, and 10% margin of error the number of samples is estimated to be 96. The sample size of 107 is considered the appropriate number of samples.

To generate a high-quality questionnaire that is understandable and capable of optimising answer rates, the 5 Likert scale questionnaire has been developed by the researcher by referencing previous research. Before the questionnaire is distributed, it is screened through a pilot test conducted by sending the questionnaire to five friends to assess flexibility, grammatical errors, and appropriateness. Afterward, the questionnaire is reviewed and arranged to avoid misunderstanding of the questions. All the questions used are closed-ended, as the closed-ended questions are easiest to code and analyse the data.

Regression Model

The dependent variable is a categorical variable ordered from 1 to 5, the probit model which is widely used in previous literature (Midingoyi *et al.*, 2019), to estimate factors affecting business performance during the COVID-19 pandemic. This model is designed to handle the condition that the explained variable consists of sorting data (Hassen, 2018). While Alexopoulos (2010) suggests that multiple regression analysis is a statistical method for investigating the linear relationship between an independent variable and dependent variables by estimating coefficients for the equation and a straight line. In this study, multiple regressions will be used to analyse the three independent variables that the effect COVID-19 on the business performance of small and medium enterprises. Thus, the setting of the research model formed for this study is:

$$BP = \beta_0 + \beta_1\ TR + \beta_2\ CB + \beta_3\ MD$$

Whereby,
BP = Effect COVID-19 on the business performance (dependent variable)

TR = Trade barriers by the government
CB = Change in consumer behaviour
MD = Change in market demand

The interview questionnaire is designed based on the dependent variable which is business performance during COVID-19. The measurement of business performance is either an increase or decrease in sales and profit. For the independent variable, three factors are tested which are i) trade barriers by the government; ii) change in consumer behaviour; and iii) change in market demand is the independent variable tested in this study. The independent variables of trade barriers are measured by the effect of government announcements over the MCO that affect the raw material shortages, supply chain disruptions, and logistics disruptions. The business also considers facing greater contract breach risk, very expensive material, and extra cost of delay. The shortages of stock or inventory to the clients or customers and the dropped of sales if the government tightens MCO.

The change in consumer behaviour is measured by consumers' spending, shopping/buying or home baking and cooking and changes in consumer shopping behaviour. Change in market demand is measured by the number of demands either remaining the same or increasing, the price is high compared to before pandemic COVID-19, and no problem in selling or providing the products and services to the customers during the pandemic.

RESULTS AND FINDINGS

Descriptive analysis is used to present the basic demographic characteristics of respondents using frequency and percentage. The questionnaire was distributed to the small and medium enterprises online. A total of 107 useable questionnaires were collected. The descriptive analysis in SPSS software was used to generate all the figures shown. The main objective of descriptive analysis is to comprehend the respondent's business profile.

Table 1: Business Industry

	Frequency	Percentage %
Food and beverage	71	66%
Textile, leather, and apparel	17	16%
Others	19	18%
Total	107	100%

In this research, 107 questionnaires were distributed to the small and medium industries to see their business performance during pandemic COVID-19. Based on Table 1 is shown the business industry that is affected by COVID-19. Among 107 respondents the business are food and beverage and 17 are from textile, leather, and apparel while the rest 19 respondents are others. Other business industry is cosmetics, photography, and telecommunication.

Table 2: Number of Workers

	Frequency	Percentage %
1-10	87	81.3
11-20	12	11.2
21-30	4	3.7
31 and more	4	3.7
Total	107	100

Based on Table 2 above, the number of workers 1-10 before COVID-19 consists of 81.3% which is the higher percentage among other groups. The 11-20 workers had 11.2%. The number of workers 21-30 and 32 and more had the same percentage which only 3.7% for both and the lowest percentage among all group workers. That means, most SMEs will not take workers of more than ten to run their business.

Table 3: Business Operation

	Frequency	Percentage %
Fully on side	60	56.1
Fully but remotely (teleworking)	13	12.1
Partially	32	29.9
Not operating	2	1.9
Total	107	100

From Table 3, the business operation that is fully on the side is the higher percentage compared to others which are 56.1%. That means during the pandemic COVID-19 also the business of SMEs is still fully operations. The second higher of business operation is partially that had 29.9%. The business operation that fully but remotely (teleporting) had 1.9% and for businesses that not operating during pandemic COVID-19 is 1.6%.

Table 4: Change Business Operation

	Frequency	Percentage %
Yes	73	68.2
No	34	31.8
Total	107	100

Table 4 shows that most business has changed their operation and 68.2% of respondents answered, yes to protecting their business against pandemic COVID-19 while the rest is not changing their business operation 31.8%.

Table 5: Level of Financial Impact

	Frequency	Percentage %
High	34	31.8
Medium	55	51.4
Low	13	12.1
Not applicable	5	4.7
Total	107	100

According to Table 5, the medium level of financial impact had a higher percentage compared to another level which is 51.4%. The high level of financial impact had 31.8% which is the second higher. The low level of financial impact had 12.1% while the rest is not applicable for the financial impact which is 4.7%.

Table 6: Own Funding

	Frequency	Percentage %
Yes	73	68.2
No	34	31.8
Total	107	100

Table 6 show that most of the respondents had their own funding which 68.2% of respondents said yes, while 31.8% of respondents do not have their own funding for their business.

Table 7: Time for Business to Fully Operation

	Frequency	Percentage %
Less than 7 days	24	22.4
Between 8 to 30 days	34	31.8
Between 31 to 90 days	32	29.9
Over 91 days	17	12.9
Total	107	100

Based on Table 7, the higher percentage for a time of business to fully operate is between eight to 30 days which had 31.8%. A time that less than seven days for a business to fully operate had 22.4% which is the second higher. The time between 31 to 90 days had 29.9%, the second-lowest percentage among the time group. The lowest percentage for the time of business to full operation is over 91 days which had 12.9%.

Table 8: Online Business

	Frequency	Percentage %
Yes	77	72
No	30	28
Total	107	100

From Table 8, 107 questionnaires were distributed in the small and medium industries to see their business marketing strategy; it shows that 72% of respondents have an online business, while 28% of respondents do not have an online business.

Using factor analysis, the output results were obtained from the validity test. Factor analysis is used to reduce or summarise data using a smaller set of components rather than testing hypotheses (Yong & Pearce, 2013). As a result, factor analysis can reduce many related variables to a manageable number before using these variables/items to analyse correlation or multiple regressions. The validity of the collected data explains how well it covers the actual area of investigation (Ghauri & Gronhaug, 2005).

Table 9: KMO and Bartlett's Test

Kaiser-Meyer-Olkin measure of sampling adequacy		.673
Bartlett's test of sphericity	Approx. chi square	85.121
	df	3
	Sig.	.000

According to Table 9 above, it was found the result Kaiser-Meyer-Olkin (KMO) is greater than 0.6 which is 0.673, which indicated that the sample size was enough to assess the factor structure. Furthermore, the significant value for Bartlett's Test of Sphericity is .000, which is less than 0.5. Tabachnick and Fidell (2007) suggested that the factorability of the correlation matrix is assumed if the Kaiser-Meyer-Olkin (KMO) is greater than 0.6 and Bartlett's Test of Sphericity (BTS) is significant at 0.05.

Table 10: Rotated Component Matrix

	Trade Barriers by Government	Change in Consumer Behaviour	Change in Market Demand	Business Performance
Your business has faced the problem of raw material shortages, supply chain disruptions, and logistics disruptions.	.744			
Your business has faced a greater contract breach risk.	.721			
Raw materials of your business are not in supply or have become very expensive disrupting operations.	.778			
Your business will have faced the estimated cost of delay or losses if business remains the same (current conditions) for the next 14 days.	.819			
Your business will be not enough to supply the current stock of finished goods or inventory to the clients or customers if no more production were possible and Malaysia tightens Movement Control Order (MCO) or lockdown.	.823			
Your business sales have dropped due to unable to export the product.	.621			
Consumers are expecting to spend less on shopping and eating out and more on savings.		.586		
COVID-19 has impacted consumer shopping/buying behaviour regarding the product or service.		.556		
During COVID-19 consumers like to be baking and cooking at home.		.695		

Consumers becoming more mindful of where they spend their money.	.670		
More than half percentage of global consumers have changed their shopping behaviour.	.664		
Consumers change their behaviour due to financial problem.	.601		
Consumer focus purchases more on essential products.	.605		
The number of demands remains the same during the pandemic COVID-19.		.733	
The number of demands is increasing during the pandemic COVID-19.		.778	
Major clients do not mind if the price is high compared to before pandemic COVID-19.		.724	
There has no problem in selling or providing the products and services to the customers.		.713	
Your business sales remain the same during the pandemic COVID-19.			.918
Your business sales have increased during the pandemic COVID-19.			.877
Your business profit has increased during the pandemic COVID-19.			.886

Based on the Table 10 rotated component matrix above, after the result was carried out, the result found that only a few questions have valid to the variable. Furthermore, these variables all relate to the respondent receiving clear information about this study which effect COVID-19 on business performance in small and medium enterprises (SMEs). Therefore, it is interpreted that Component 1 is 'trade barriers by the government'. This is the underlying trait measured by the business will be not enough to supply the current stock of finished goods or inventory to the clients or customers if no more production were possible and Malaysia tightens Movement Control Order (MCO) or lockdown which is highly correlated, and the first six rows refer to trade barriers by the government. Next, for Component 2 we interpret it as a 'change of consumer behaviour'. This is the underlying trait measured by during COVID-19 consumer like to be baking and cooking at home. Then, for Component 3 researcher interpret it as a 'change in market demand'. This is the underlying trait measured by the number of demands is an increase during pandemic COVID-19.

For Component 4 researcher interpret it as 'business performance'. This is the underlying trait measured by the business sales have increased during pandemic COVID-19. The degree to which a simple structure is achieved is determined by the rotated component matrix.

Reliability Test

The reliability test is a method for determining the internal consistency of a scale. Cronbach's alpha was used as an indicator to determine the degree of consistency. Cronbach's alpha must be greater than 0.6 for all constructs/variables. Ideally, Cronbach's alpha should be above 0.7 (Pallant, 2001). Testing for reliability is important because it refers to the consistency of a measuring instrument's parts (Huck, 2007). The Cronbach's alpha tests the consistency of respondents' answers to all the items in a questionnaire (Kothari, 2004). It measures the degree to which question items are an independent measure of the same concept. Summary of the result as illustrated in Table 11 below.

Table 11: Reliability Test

	Variables	Cronbach's Alpha
IV	Trade barriers by the government	.779
IV	Change in consumer behaviour	.746
IV	Change in market demand	.739
DV	Business performance	.754

According to the table above, all the variables have a Cronbach's alpha coefficient above 0.7 which the variables have met the reliability. The higher the Alpha is, the more reliable the test is. The most reliable variable is trade barriers by the government which had a higher Cronbach alpha of 0.779 compared to other variables. The Cronbach's alpha for change of consumer behaviour had 0.746 while for change in market demand had 0.739. Moreover, fa or dependent variable business performance Cronbach's alpha coefficient is 0.754. It can conclude that all the variable items in this study are reliable and consistent.

Normality Test

The sample size distribution is determined by the normality test. This is necessary to determine whether the sample collected falls within

an appropriate range and the skewness of the sample. If the samples are normally distributed, the parametric technique will be used and if the samples are not normally distributed, the non-parametric technique will be used for subsequent tests. According to Hair *et al.* (2010) and Byrne (2010), data is considered normal if the skewness is between -2 and +2 and the kurtosis is between -7 and +7. A summary of the normality results is shown in the table below.

Table 12: Normality Test

Variables	Mean	Standard deviation	Skewness	Kurtosis
Trade barriers by the government	2.7913	0.51094	-0.661	0.963
Change in consumer behaviour	3.0050	0.41215	0.286	0.363
Change in market demand	2.8528	0.38777	0.737	0.655

As stated in Table 12, all the variables above which is trade barriers by government, change in consumer behaviour, and change in market demand had a skewness value between -2 and +2, which indicated these variables are normal. The kurtosis value is also between -7 and +7, which assumes this variable is in the normal distribution. The skewness and kurtosis value for trade barriers by government is (Skewness = -0.661, M = 2.79, SD = 0.511). Other than that, the skewness and kurtosis value for change of consumer behaviour is (Skewness = 0.286, M = 3.01, SD = 0.412) and for change in market demand skewness and kurtosis value is (Skewness = 0.737, M = 2.85, SD = 0.388). The highest skewness value is the change in market demand, which has a value of 0.737, followed by, a change of consumer behaviour which has a value of 0.286 and the lowest value of skewness value is trade barriers by government, which has a value -0.661. The skewness for change in market demand and change in consumer behaviour is a positive value. However, the skewness of trade barriers by the government is negative value it is validated. This is because -0.661 is still in -2 to +2. According to the kurtosis data, most of the items fall within the normal distribution range; thus, the parametric method will be used for the following analysis.

Multiple Linear Regression Analysis

Multiple regressions are a method for investigating the more

sophisticated and complex relationship between one dependent variable and several independent variables (Almalki *et al.*, 2022) More specifically, regression analysis enables us to understand how the typical value of the dependent variable changes when any one of the independent variables is changed while the other independent variables remain constant.

Table 13: Multiple Regressions Linear Analysis

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.708a	0.501	0.496	0.3646

a. Predictors: (Constant), MEAN_MD, MEAN_TB, MEAN_CB

Table 13 provides the R and R2 values. R is a measure of the correlation between the observed value and the predicted value of the criterion variable. Dhakal (2018) highlighted that R can be regarded as one measure of the accuracy of the dependent variable's prediction. In this study, the dependent variable is business performance. The result shows that the value of R is 0.708, which means 70.8% of relationships exist between multiple independent variables and dependent variables. The results also reveal that the independent variable shows that R2 is 0.501 (50.1%) of the variance in determining the effect of COVID-19 on the business performance of the small and medium enterprises (SME's) was explained. The other 0.3646 (36.5%) were unexplained and this percentage is explained by other variables which are not mentioned in the research. That means there were other potential constructs that would affect business performance during COVID-19 on small and medium enterprises (SME's). The adjusted 2 indicates how well the data points fit a regression line, indicating the percentage of variation explained solely by the independent variables that affect the dependent variable. The result of the adjusted R square for this study is 0.496 (49.6%) as stated in the table above.

Table 14: ANOVA of Multiple Regressions Linear Analysis

Model	F	Sig.
Regression	105.285	.000b
Residual		

a. Dependent Variable: MEAN_BP
b. Predictors: (Constant), MEAN_MD, MEAN_TB, MEAN_CB

If 'Sig' is greater than 0.05, we conclude that our model could not fit

the data. In this case, the value is .000 which is less than 0.05, so the model is significant at 5% and F-ratio is significant at 27.96. Based on ANOVA table above, shows that the regression model is fit for the data.

Table 15: Coefficient of Multiple Regressions Linear Analysis

Factor	Unstandardised Coefficient Beta	Standardised Coefficient Beta	T Value	P Value Sig
(Constant)	0.088		0.299	0.766
Trade barriers by the government	-0.043	-0.043	-0.518	0.605
Change in consumer behaviour	-0.111	-0.089	-1.009	0.315
Change in market demand	1.039	0.784	8.376	0.000*

Significant at *1%

According to Table 15, given that, the t-value and corresponding p-value are in the 't' and 'Sig.' columns respectively, in this result, the tests tell us that change in market demand is significant to the business performance during COVID-19 to small and medium enterprise (SMEs) because the p-value is .000 < 0.05 and the t-value also shows a greater value which had 8.376 for change in market demand. However, trade barriers by government and changes in consumer behaviour are not significant with the p-value of 0.605 > 0.05 and 0.315 > 0.05, respectively. That means trade barriers by government and changes in consumer behaviour is not significant in the model while the change in market demands significantly affects the small and medium enterprise business performance.

Change in market demand had the highest standardised coefficient beta value of 0.784. This indicated that trade barriers by the government contributed higher significance towards determining business performance than other variables such as a change in market demand and change in consumer behaviour. Whereas for the unstandardised coefficient beta, trade barriers by the government (β=1.039) also played the main role in the variation of the determinant of business performance to small and medium enterprises (SME's). The higher the beta value the more important the variable.

Overall, the regression coefficients reflected an equation that determines the relationship between independent variables (for trade barriers by government, change of consumer behaviour, and change in market demand) and dependent variable (determinant on business performance) will be formed as Determinant of Business Performance = -0.043 (trade barriers by the government; - 0.111 change of consumer behaviour; + 1.039 (change in market demand).

DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

This study distributed a questionnaire to SMEs in Selangor to determine the factor affecting business performance during the COVID-19 pandemic. There are three factors that had been tested in this study as this is the government announcement that affects the SME's the most. The model was applied to evaluate the result. This model is predicting that the trade barriers by government, changes in consumer behaviour, and changes in market demand affect business performance among SME's. However, the result shows that change in market demand significantly affected the business performance as compared to the factor of trade barriers by government and changes in consumer behaviour. However, the result of the study is not consistent with the study done in Indonesia indicates that the decline in the income of SME's is mostly caused by a drastic decrease in the number of sales of products and services because consumers, especially millennial consumers, experience changes in behaviour during the pandemic (Bintang Andhyka *et al*, 2022) which is explained as changes in consumer behaviour. While in the study done by Omar *et al.* (2020) showed that the impacts of MCO on SMEs are classified into operational problems and financial problems.

The result shows that in the active markets in urban and suburban areas such as Selangor the factor of change in market demand significantly affected the firm performance of SMEs, due to the supply chain in the small areas depending on market demand heavily to remain in the business. Since the prior literature has not tested the small area such as Selangor, this study provides evidence that the suburban and the urban area such as Malaysia the drastic changes in the market demand is affected firm performance as compared to trade barriers by government, changes in consumer behaviour that give impact bit later than the changes in market demand by the consumer.

Limitations of the Study

Due to time constraints, only 107 respondents participated in this study. More respondents could be obtained if the time allotted was extended. As a result, this research will be improved if there is enough time to collect and analyse more data. Furthermore, the study's limitation is that the samples were only collected in the Selangor area. The concentration of sample collection in Selangor may not be adequate in generating an exhaustive picture that reflects the whole business performance of SMEs during the pandemic COVID-19 population in Malaysia. The information obtained from respondents may then be inaccurate due to respondents' emotional status and willingness to contribute time to answer those questions, which may influence them to provide answers in a certain pattern. Furthermore, lack of prior research studies on the topic since pandemic COVID-19 is a current issue, there has limited sources.

Recommendations of Study

There are several aspects that can be improved to make future research on this topic more accurate and more meaningful to represent the whole population, the present study was conducted in Selangor and the respondents were focused on the SMEs located in this area. Different responses may be received if the questions are posed to SMEs located outside Selangor. The availability of export assistance programmed, as well as the complexity of the application process, may differ in the suburbs and rural areas versus the central area. As a result, such a study could yield a different result.

Furthermore, the emphasis on SMEs in Selangor may not represent the entire population. Previous research on this topic has also chosen respondents from other parts of the country to obtain a better overall score that is representative of the entire country. Due to time and resource constraints, this study was only conducted in Selangor. Respondents from other areas, such as Kuching, Penang, Malacca, Ipoh, Johor Bharu, Negeri Sembilan, Kelantan, and Kuala Terengganu, should be included in future research to represent the entire nation. Perhaps including respondents from other areas would produce more meaningful results. Furthermore, the number of respondents is an important factor to consider. In this study, only 62 valid questionnaires were used and analysed. More respondents should be included in future studies.

This research only involved three independent variables (trade barriers by the government, change in consumer behaviour, and change in market demand) and a single dependent variable (business performance). In future research, more variables can be added. These additional variables will improve the model's variance and identify which variables have a significant effect on performance and which do not. Furthermore, improvements in performance measurement are required in the future to improve the research results. As a result, it will improve the research findings and, indirectly, the study's implications for the parties involved.

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SMRJ

THE RELATIONSHIP BETWEEN DISTRIBUTED LEADERSHIP AND ORGANISATIONAL CITIZENSHIP BEHAVIOUR AMONG TVET PRACTITIONER IN MALAYSIA

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ABSTRACT

Since the Organ's initial introduction in 1983, research on the Organisational Citizenship Behaviour (OCB) has grown rapidly. Despite its effectiveness in school performance, the OCB is not given much weight in the school administration. 420 educators from 71 Technical and Vocational Education and Training (TVET) institutions in Peninsular Malaysia, including vocational colleges and technical schools, were included in the study's sample. The Ministry of Education directed the researcher to conduct thesurvey using an online form due to state of COVID-19. A two-step hierarchical regression was used to evaluate the study's initial hypothesis. Leadership practise and school culture were significantly related to the prediction of responder altruism among the three principal's Distributed Leadership (DL). Only school culture had an impact on teacher's courtesy among the three principals'DL. Based on the findings, DL predicts teacher's OCB in a positive and substantial way.

Keywords: *distributed leadership, organisational citizenship behaviour, teacher, vocational*

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INTRODUCTION

Academicians have proved over the last two decades that teachers' desire to invest in Organisational Citizenship Behaviour (OCB) has become the key to school success (Cheng, 2015; Somech & Ohayon, 2019). Despite its importance in school performance, the OCB according to Shrestha (2019) is not given much significance in school management practices, including Technical and Vocational Education and Training (TVET). One of the key OCB variables in schools, according to Oplatka (2006), is leadership conduct. Distributed Leadership (DL) provides school leaders with new insights on how to engage multiple sources of interest, talents, and leadership participation (Muijs & Harris, 2003). Organisational operations and decision-making are becoming more complex as organisations struggle to keep up with the rapid changes of a knowledge-based society. Previously, widely accepted leadership approaches based on rivalry and hierarchy are now seen as insufficient to address the challenges of a rapidly changing, increasingly complicated, and globalising world. Educational institutions are in a similar situation. In many countries, there is a growing trend toward school-based management, which has increased the school principals' workload and made it difficult for them to fulfil their responsibilities (Bush, 2012). In these circumstances, schools must involve their staff and stakeholders in decision-making processes to a greater extent than in the past in order to improve and achieve outstanding results (Leithwood *et al.*, 2008).

Since Organ's initial introduction in 1983, research into the topic of OCB has progressed at a rapid pace. The majority of early investigations concentrated on the cause of OCB. The study then expanded dynamically to include diverse issues such as repercussions, scale dimensions, and scale measurement (Organ, 1988; Williams & Anderson, 1991; Podsakoff *et al.*, 2000; Lee *et al.*, 2013; Yu *et al.*, 2021). It is critical for academics to investigate what aspects may improve OCB so that employees' performance could be improved and the organisation's success could be increased (Organ, 2018). Commonly studied antecedents of OCB are job satisfaction (Organ & Ryan, 1995; Purwanto *et al.*, 2021), perceptions of organisational justice (Alizadeh *et al.*, 2012; Ulfa & Siwi, 2021), organisational commitment, personality characteristics (Podsakoff *et al*., 2000; Djaelani *et al*., 2020; Vossen & Hofmans, 2021), task characteristics (Todd & Kent, 2006), and leadership behaviour (Podsakoff *et al*., 1990; Anser *et al*., 2021).

Previous studies have investigated various leadership styles as antecedents to OCB such as transformational (Lian & Tui, 2012; López-Domínguez *et al.*, 2013; Podsakoff *et al.*, 1990; Song *et al.*, 2012), transactional (Lian & Tui, 2012; Nguni *et al.*, 2006), servant (Bobbio *et al.*, 2012; Sober & Wilson, 2000), and charismatic (Cavazotte *et al.*, 2014). However, there are few studies that look at distributed leadership (DL) as a precursor to OCB. DL is one of the most recent emerging leadership styles in organisational practice, emphasizing leadership as an organisational process (Maxwell *et al.*, 2009), with each member of the organisation having the right and obligation to participate skillfully in leadership practices (Harris, 2013).

Furthermore, DL is important for organisational constructions because it has the ability to improve employee OCB (Samancioglu *et al.*, 2019) by allowing employees to make decisions with more autonomy, such as flexible rest time. Although there are many studies on the relationship between transformational, transactional, and servant leadership and OCB, there are only few studies on the relationship between DL and OCB. According to a study of related literature, there are just three studies that look at the association between DL and OCB which are by Jofreh *et al.* (2012); Kılınç (2014); Samancioglu *et al.* (2019). Jofreh *et al.* (2012) study found a positive relationship between DL and OCB. This is also supported by Kılınç (2014) and Samancioglu *et al.* (2019). However, Jofreh *et al.* (2012) discovered that not all dimensions of DL had a significant impact on OCB. The dimension of school culture toward DL, for example, has no significant link with civic virtue and teacher civility. Meanwhile, teachers' courtesy and sportsmanship had no significant link with the dimension of DL practice. Future researchers should revisit the analysis in different types of educational institutions to increase the accuracy of these associations, according to Samancioglu *et al.* (2019).

Previous research (Jofreh *et al.*, 2012; Kılınç, 2014; Samancioglu *et al.*, 2019) only included primary school teachers in their respondent sample. As a result, the researcher's data collection sample will be shifted to secondary Technical Schools and Vocational College teachers. This is owing to the fact that there have been few previous studies that have looked into the relationship between TVET schools and employment. It is also to check whether there are any variations in the relationship between different types of schools by comparing the results of prior and current studies.

The majority of OCB research focuses on individuals who work in industrial settings (Khalid & Ali, 2005; Karatepe & Uludag, 2008; Chiang & Hsieh, 2012; Ulfa & Siwi, 2021). However, research on non-profit organisations such as schools is relatively sparse (Dipaola & Tschannen-Moran, 2001). Nowadays, the government continues to pay close attention to technical and vocational schools through the 11th Malaysian Plan (RMK-11), in which will assist Malaysia in becoming a high-income country as a result of the changes brought about by IR 4.0. Furthermore, the Malaysian Education Blueprint (2015-2025), which emphasizes on the importance of TVET in achieving long-term industrial-based job possibilities and boosting the economy, supports this aim (Yaakob *et al.*, 2020). As a result, additional actions must be implemented to reinforce and improve TVET service. This includes improving the quality of TVET programmes and the performance of teachers (Wan Rashid *et al*., 2020).

The performance of the teacher is extremely essential in terms of improving student ability (Aaronson *et al.*, 2007). However, the Malaysian TVET education system is not immune to the problem of teacher incompetence (Saipudin & Suhairom, 2021). As a result, this study attempts to promote OCB as a potential element that could improve the performance of Malaysian TVET teachers. This is because OCB has been shown to be a component that can help teachers perform better (Dipaola & Tschannen-Moran, 2001). Furthermore, despite the fact that it is a critical aspect alongside technical and teaching methods, current research on Malaysian TVET to improve teacher's attitude, behaviour, and morality for the improvement of teacher's performance is exceedingly concerning (Saipudin & Suhairom, 2021). Despite the fact that three research have been completed to study the link between these two variables, there are still a limited number of studies in this field referring to the dimension between DL and OCB. To close the empirical/contextual gap in this field, a critical investigation of the impact of dimensional relationships between principals DL and instructors OCB in Malaysian technical schools and vocational colleges is required.

OBJECTIVES

There are five objectives for this study which are:
1. To examine the relationship between dimensions of DL and teacher's altruism.

2. To examine the relationship between dimensions of DL and teacher's sportsmanship.
3. To examine the relationship between dimensions of DL and teacher's consciousness.
4. To examine the relationship between dimensions of DL and teacher's courtesy.
5. To examine the relationship between dimensions of DL and teacher's civic virtue.

RESEARCH QUESTIONS

There are five research questions for this study which are:
1. Do the dimensions of principal's DL influence teacher's altruism?
2. Do the dimensions of DL influence teacher's sportsmanship?
3. Do the dimensions of DL influence teacher's consciousness?
4. Do the dimensions of DL influence teacher's courtesy?
5. Do the dimensions of DL influence teacher's civic virtue?

LITERATURE REVIEW

Organisation Citizenship Behaviours

OCB is defined as a person's arbitrary behaviour that is not recognised by the formal reward system but contributes to the organisation's overall performance and function (Organ, 1988). OCB, according to another definition, is the extent to which a person exceeds the minimum level of performance expected of him (Dipaola & Tschannen-Moran, 2001). Employees with a high level of OCB are willing to help a colleague who is absent from work, are willing to do things that are important to the organisation without being asked, contribute to the socialisation of newcomers to the organisation, assist other employees in solving problems, suggest new and creative ideas that will benefit the organisation, and are more engaged in the work than they are expected to be. OCB is generally categorised into five groups which are:

Table 1: OCB's Dimensions

Dimensions	Description
Conscientiousness	Involves discretionary behaviours that aim at preventing work related problems, for example-providing advance notice to colleagues when something is changed by you which may affect them.
Altruism	Refers to voluntarily helping others with a specific work related task, such as assisting a co-worker with heavy work load.
Civic virtue	Refers to employee's deep concerns and active attention in the existence of the organisation such as giving one's own suggestions for development in a meeting.
Sportsmanship	Willingness of employees to tolerate less-than–ideal organisational situations without complaining and sacrificing one's own personal interest.
Courtesy	Involves discretionary behaviours that aim at preventing work related problems, for example-providing advance notice to colleagues when something is changed by you which may affect them.

Overall, OCB improves administrative efficiency, contributes positively to organisational performance indicators, and improves students' academic achievement, according to studies in the literature (DiPaola & Hoy, 2005; Organ, 1988; Podsakoff *et al.*, 2000).

Distributed Leadership

The limitations of 'One Man' or 'Hero'-centered leadership models are becoming increasingly apparent, and they are being replaced by participatory, collaborative, and distributed leadership models (Bush, 2012; Crawford, 2012). The DL approach has recently gained traction as a viable alternative to traditional leadership theories. DL is a term used to describe a leadership style that changes the way schools are organised and extends leadership beyond a single person (Bush, 2018). Supovitz *et al.* (2019) defines DL as a mechanism for facilitating active participation in the leadership process by all members of the organisation. DL is defined by Gronn (2000) as the expansion of leadership roles outside of formal management positions and administrative authorities.

Despite the fact that DL is a fluid concept, there are some key elements that set it apart from other leadership models (Harris & DeFlaminis, 2016). For starters, rather than a role or responsibility, leadership is viewed as a practice. For practice, the interactions between the three components of DL (leaders, followers, and situation) are critical. The second distinction is the leadership's goals. Individuals are empowered and given autonomy in DL, which distributes tasks and influences among them. The third distinction is a focus on the interaction between individual and group interactions. Individual leadership is equally important to DL, and it coexists with other types of leadership. In DL, both individual and collective agency of multiple actors play a significant role. The fourth distinction is on the structure. DL deviates significantly from the bureaucratic model by emphasizing an interdependent effort across multiple levels of organisational hierarchy, bringing together people with diverse backgrounds (Gronn, 2000; Harris & DeFlaminis, 2016; Spillane & Anderson, 2019; Tam, 2018).

DL, in addition to delegation of authority, is an approach in which decision-making responsibility is shared among leadership teams and it is made easier for staff to lead organisational activities by delegating some of the school principals' responsibilities to other staff and thus reducing their workload (Hartley, 2010). According to Spillane (2005), in DL, leadership is distributed among some people, and tasks are carried out through the interaction of leaders. In recent years, there has been a lot of talk on DL in the management literature. The amount of evidence has a positive impact on the educational outcomes is growing (Bush & Glover, 2012; Leithwood *et al*., 2008). DL not only boosts teachers' self-efficacy and has a positive impact on them, but it also contributes significantly to school improvement and effectiveness (Macbeath, 2005; Supovitz *et al*., 2019).

The researchers introduced several dimensions to better understand this leadership style and identify its characteristics. Within the framework of four dimensions, Spillane (2005) has compiled the most comprehensive pattern for DL (Table 2).

Table 2: DL's Dimensions

Dimensions	Description
School Culture	School culture includes values, norms, and beliefs that support the distribution of leadership at school and create an environment in which teachers are encouraged to collaborate with one another and participate in school and professional improvement decisions, as well as their own leadership training. In such a setting, the principal serves as an appropriate symbol for the teachers in accordance with the leadership distribution by utilising collective functions, behaviours, and responsibilities. Furthermore, it indicates the level of parental involvement and accountability for their children's educational progress as well as the manner in which school tasks are completed.
Shared responsibility	It is the extent to which decision-making has shifted from a hierarchical to a bilateral and distributed pattern, as well as the extent to which teachers have participated in the decision-making process. The 'backroom decision making' is reduced in the distributed leadership pattern. The principal provides the required resources and facilities to the teachers in order to satisfy them and encourage them to participate in the systematic distribution of leadership and data collection, so that final decisions can be planned with their cooperation, resulting in an increase in their accountability to the students' educational progress.
Leadership practice	The level of involvement of teachers and other staff members in the distribution of leadership is referred to as leadership experiences, and it focuses on the principal's support (providing resources and facilities, attracting members' participation, empowering them, providing data, and so on) for school improvement planning, improving collective decision-making, and accountability in schools and among students and parents. In general, this index includes the daily activities of the schools in relation to the distribution and development of leadership, the individuals who are responsible for carrying out these activities, the tools required for optimal leadership performance, and the planned measures or objectives in relation to the distribution of leadership.
Mission, vision and goals	It indicates the extent to which teachers and school staff are involved in defining the school's mission, perspective, and objectives, as well as the extent to which this has been done systematically and based on the teachers' records and experiences. Furthermore, this index refers to the schools' protective environment for newcomer teachers, as well as encouraging them to accept leadership responsibilities, which leads to the development of mutual trust and expectations among the principal, teachers, and other school members.

The Relationship between DL and OCB

In the past, only three studies have looked at the relationship between DL and OCB: Jofreh *et al.* (2012), Kılınç (2014), and Samancioglu *et al.* (2019). 360 teachers and 52 headmasters at elementary schools in Karaj, Iran were the subjects of a dimensional relationship study between DL and OCB conducted by Jofreh *et al.* in 2012. The data indicate that not all DL dimensions significantly associate with OCB dimensions. For instance, none of the DL dimensions significantly affect courtesy. Additionally, there is only a positive correlation between altruism and conscientiousness and the traits of advancement and professional acclaim. Following that, only sportsmanship has a positive correlation with school culture, mission, vision, and goal. And finally, having leadership experience only promotes civic virtue. While Samancioglu *et al.* (2019) and Kılınç (2014) investigated the relationship between a composite DL and OCB score. In a study of 258 teachers in 14 schools in Turkey's Kastamonu district, Kılınç (2014) found that teachers OCB more frequently in schools where DL is prevalent. Samancioglu *et al.* (2019) found that DL had a significant impact on teachers' OCB in a study of administrators at 15 randomly chosen primary schools in Gaziantep, Turkey. These results suggest that one of the main incentives for instructors to take part in OCB is DL.

After the implementation of DL, the teachers' perspectives will change. DL allows people from a variety of backgrounds to participate in, contribute to, and contribute to leadership practices. Teachers will be given official and unofficial leadership positions like department head, mentor, or guide (Muijs & Harris, 2003). As a result, teachers' extracurricular behaviour will improve. According to DiPaola and Hoy (2005), OCB will motivate educators to devote more time and energy to promoting educational advancement and a positive learning environment. This demonstrates that determining OCB in schools involves shared autonomy as a key component (Oplatka 2006). As a result, the current study suggests that OCB and DL have a positive relationship, meaning that teachers tend to exhibit more OCBs when there is a higher concentration of DL in the school environment.

METHODOLOGY

The research method uses quantitative approach, namely research using

positivism philosophy with the type of causality as it aims to determine the effect of independent variables consisting of DL and to the dependent variable (OCB). This quantitative analysis is similar to the one conducted by Khalid and Ali (2005); Nizan and Khalid (2016); Bantha and Sahni (2021).

The proportional random sampling was based on systematic and stratified method while the sample size determination was based on Krejcie and Morgan's (1970) table, which provided the provision to achieve at the required sample size. In West Malaysia, there are 7796 teachers working in 81 technical schools and vocational colleges (MOE, 2020). The sample size required for this study is 375 teachers. In previous studies involving the collection of data from teachers in the education sector, response rates ranged from 70% to 80%. (Jofreh *et al*., 2012; Kılınç, 2014; Samancioglu *et al*., 2019). From these studies, a response rate of 75% is expected. A total of 500 questionnaires were distributed in order to get at least 375 responses. The sample size is appropriate according to Roscoe (1975) who established the rule of thumb as the following:

For most studies, samples of greater than 30 but less than 500 are appropriate.
1. To break down sub-samples, a sample size of at least 30 per category is required.
2. In multivariate research, the sample size should be several times larger than the number of variables in the study.

In order to overcome a non-response problem, a larger sample size is necessary. Thus 500 questionnaires had been issued to overcome possible non-response problems. Data and information were gathered by questionnaires of OCB (30 items), DL (24 items), job satisfaction (six items) and organisational commitment (six items). Job satisfaction and organisational commitment are the control variables for this study. The questionnaires validity was tested by Pearson Product moment and the reliability was tested by Cronbach's alpha to be 87.2%, 95%, 81% and 90% respectively.

Table 3: Cronbach Alpha for Variable's Scale

Variables	No. of Items	Sources of Questionnaire	Scale	Response format	Alpha
Teacher's OCB	30	Podsakoff *et al.* (1990)	Interval	5-Point Likert Scale	0.872
Principal's DL	24	Gordon (2005)	Interval	5-Point Likert Scale	0.950
Job Satisfaction	6	Andrews and Withey (1976)	Interval	5-Point Likert Scale	0.810
Organisational Commitment	6	Mowday, Steers and Porter (1979)	Interval	5-Point Likert Scale	0.900

The teachers will be assessed using questions on their OCB, job satisfaction, organisational commitment, principal's DL, and demographic factors. Each school must evaluate five to six teachers on average. All of the variables' questionnaires will be closed-ended questions. Due to the fact that the respondents must evaluate many dimensions of variables, the use of closed-ended questions will aid them in making faster decisions. Teachers will be given the Malay and English versions of the questionnaires, with instructions to complete them in one language only. The questionnaires will have to be returned later, and the data will be analysed by the researcher. SPSS will be used to analyse the data collected from survey questionnaires (version 20.0). Statistical tests such as correlation and regression will be used to obtain the study's results.

STUDY FINDINGS

Response Rate

The study's sample included 420 educators from 71 TVET institutions in Peninsular Malaysia, including vocational colleges and technical schools. Due to COVID-19, the Ministry of Education instructed the researcher to conduct the survey using an online form. As a result, the researcher had to follow the instructions and conduct the survey using Google Forms. A total of 430 cases were collected, but 10 were eliminated due to multiple missing data points per case.

Restatement of the Study Hypothesis

Due to some variations in the principal's DL dimensions as derived from the factor analysis, the hypothesis that concerned the principal's DL dimensions were restated. The dimension of civic virtue for OCB and shared responsibility for DL were eliminated from the study. A summary of the revised hypotheses is given in Table 4.

Table 4: Summary of Restated Hypotheses

H_1	Dimension of principal's DL have significant relationship with the dimension of teacher's altruism.

	H1a	Principal's leadership practice has significant relationship with the teacher's altruism.
	H1b	Principal's mission, vision and goal has significant relationship with the teacher's altruism.
	H1c	Principal's school culture has significant relationship with the teacher's altruism

H_2	Dimension of principal's DL have significant relationship with the dimension of teacher's courtesy.

	H2a	Principal's leadership practice has significant relationship with the teacher's courtesy.
	H2b	Principal's mission, vision and goal has significant relationship with the teacher's courtesy.
	H2c	Principal's school culture has significant relationship with the teacher's courtesy.

H_3	Dimension of principal's DL have significant relationship with the dimension of teacher's sportsmanship.

	H3a	Principal's leadership practice has significant relationship with the teacher's sportsmanship.
	H3b	Principal's mission, vision and goal has significant relationship with the teacher's sportsmanship.
	H3c	Principal's school culture has significant relationship with the teacher's sportsmanship.

H_4	Dimension of principal's DL have significant relationship with the dimension of teacher's sportsmanship.

	H4a	Principal's leadership practice has significant relationship with the teacher's conscientiousness.
	H4b	Principal's mission, vision and goal has significant relationship with the teacher's conscientiousness.
	H4c	Principal's school culture has significant relationship with the teacher's conscientiousness.

Hypothesis Testing

A two-step hierarchical regression was conducted to test the first hypothesis of the study. Specifically, the researcher hopes to evaluate how well the respondent's participations of principal's DL predict level of teacher's altruism. The predictors comprised of the three principal's DL (leadership practice, mission, vision and goal and school culture). The criterion variable relates to teacher's altruism. In this study, job satisfaction and organisation commitment were statistically controlled. Hence, these variable were entered into the regression equation in the first step. In the second step, all three variables representing the dimensions of principal's DL were entered.

Table 5: Results of Hierarchical Regression of Principal's DL and Teacher's Altruism

Variables	Model 1 Std. β	Model 2 Std. β
Step 1: Control variables		
Job satisfaction	.17**	.15**
Organisational commitment	.55**	.53**
Step 2: Principal's DL		
Leadership practice		.17**
Mission, vision and goal		.08
School culture		.16**
R^2	.48	.49
Adj. R^2	.47	.49
R^2 Change	.48	.01
F-Change	191.79**	3.58**

*Note: *p < .05, **p < .01*

In Table 5, the control variable showed significant contribution toward the variance in teacher's altruism. In this study, control variable (job satisfaction and organisational commitment) were significantly and positively related to teacher's altruism ($\beta = .17$, $p < .01$ and $\beta = .55$, $p < .01$ respectively). In Model 2, the three principal's DL were able to explain

49.0% ($R^2 = .49$, *F*-change $= 3.58$, $p < .01$) of the observed variations on teacher's altruism after controlling for the effect of job satisfaction and organisational commitment. Of the three principal's DL, leadership practice and school culture significantly contributed to the prediction of respondent's altruism while leadership practice ($\beta = .17$, $p < .01$) had the most impact on teacher's altruism. On the other hand, school culture ($\beta = .16$, $p < .01$) had positive impact on teacher's altruism. The other principal's DL which was mission, vision and goal was not significant in predicting respondent's altruism. Thus, hypothesis H1a and H1c were supported.

Secondly, the researcher examined the impact of the respondent's participations of principal's DL on teacher's courtesy. The predictors comprised of the three principal's DL (leadership practice, mission, vision and goal and school culture). The criterion variable is the teacher's courtesy. Similarly, job satisfaction and organisation commitment were also statistically controlled. Hence, these variable were entered into the regression equation in the first step. In the second step, all three variables representing the dimensions of principal's DL were entered.

Table 6: Results of Hierarchical Regression of Principal's DL and Teacher's Courtesy

Variables	Model 1 Std. β	Model 2 Std. β
Step 1: Control variables		
Job satisfaction	.24**	.16**
Organisational commitment	.45**	.39**
Step 2: Principal's DL		
Leadership practice		-.13
Mission, vision and goal		.10
School culture		.15**
R²	.42	.45
Adj. R²	.42	.44
R² Change	.42	.03
F-Change	152.06**	6.66**

*Note: *p < .05, **p < .01*

From Table 6, it can be seen that the control variable accounted for 42.0% (R^2 = .42, F-change = 152.06, $p < .01$) of the variance in teacher's courtesy. In this study, control variable (job satisfaction and organisational commitment) were significantly and positively related to teacher's courtesy (β = .24, $p < .01$ and β = .45, $p < .01$ respectively). On adding the three model variables relating to principal's DL, the R^2 increase to .45. This indicates that principal's DL were able to explain an additional of 3% (R^2 change = .03, F-change = 6.66, $p < .01$) of the observed variations on teacher's courtesy. Of the three principal's DL, only school culture (β = .15, $p < .01$) had an impact on teacher's courtesy. The other principal's DL (leadership practice and mission, vision and goal) were not significant in predicting respondent's courtesy. Hence, hypothesis H2c was accepted.

Next, the researcher evaluates how well the respondent's participations of principal's DL predict level of teacher's conscientiousness. The predictors comprised of the three principal's DL (leadership practice, mission, vision and goal and school culture). The criterion variable relates to teacher's conscientiousness. In this study, job satisfaction and organisation commitment were statistically controlled. Hence, these variable were entered into the regression equation in the first step. In the second step, all three variables representing the dimensions of principal's DL were entered. Table 7 summarises the results of the analyses.

Table 7: Results of Hierarchical Regression of Principal's DL and Teacher's Conscientiousness

Variables	Model 1 Std. β	Model 2 Std. β
Step 1: Control variables		
Job satisfaction	.32**	.24**
Organisational commitment	.36**	.29**
Step 2: Principal's DL		
Leadership practice		-.04
Mission, vision and goal		.19**
School culture		.08.15**
R²	.40	.43
Adj. R²	.40	.43

R² Change	.40	.03
F-Change	140.21**	7.26**

Note: *$p < .05$, **$p < .01$

    As can be seen from Table 7, the control variable showed significant contribution toward the variance in teacher's conscientiousness. In this study, control variable (job satisfaction and organisational commitment) were significantly and positively related to teacher's conscientiousness ($\beta = .32$, $p < .01$ and $\beta = .36$, $p < .01$ respectively). In Model 2, the three principal's DL were able to explain 43.0% ($R^2 = .43$, *F*-change $= 7.26$, $p < .01$) of the observed variations on teacher's conscientiousness after controlling for the effect of job satisfaction and organisational commitment. Of the three principal's DL, only mission, vision and goal significantly contributed to the prediction of respondent's conscientiousness ($\beta = .19$, *p* $< .01$). The other principal's DL which were leadership practice and school culture were not significant in predicting respondent's conscientiousness. Thus, it can be said that hypothesis H3b was accepted.

    Lastly, the researcher examines the impact of the respondent's participations of principal's DL on teacher's sportsmanship. The predictors comprised of the three principal's DL (leadership practice, mission, vision and goal and school culture). The criterion variable is the teacher's sportsmanship. Similarly, job satisfaction and organisation commitment were also statistically controlled. Hence, these variable were entered into the regression equation in the first step. In the second step, all three variables representing the dimensions of principal's DL were entered. Table 8 summarises the results of the analyses.

Table 8: Results of Hierarchical Regression of Principal's DL and Teacher's Sportsmanship

Variables	Model 1 Std. β	Model 2 Std. β
Step 1: Control variables		
Job satisfaction	.32**	.30**
Organisational commitment	.44**	.41**
Step 2: Principal's DL		
Leadership practice		-.04
Mission, vision and goal		.19**
School culture		-.06
R²	.51	.53
Adj. R²	.51	.52
R² Change	.51	.02
F-Change	215.41**	4.87**

Note: *$p < .05$, **$p < .01$

From Table 8, it can be seen that the control variable accounted for 51.0% ($R^2 = .51$, *F*-change $= 215.41$, $p < .01$) of the variance in teacher's sportsmanship. In this study, control variable (job satisfaction and organisational commitment) were significantly and positively related to teacher's sportsmanship ($\beta = .32$, $p < .01$ and $\beta = .44$, $p < .01$ respectively). On adding the three model variables relating to principal's DL, the R^2 increase to .53. This indicate that principal's DL were able to explain an additional of 2% (R^2 change $= .02$, *F*-change $= 4.87$, $p < .01$) of the observed variations on teacher's sportsmanship. Of the three principal's DL, only mission, vision and goal ($\beta = .19$, $p < .01$) was significantly contributed to the prediction of respondent's sportsmanship. The other principal's DL which were leadership practice and school culture were not significant in predicting respondent's sportsmanship. Hence, it can be said that hypothesis H4b was supported.

Since not all principal's DL were found to be significantly and positively influence the dimensions of teacher's OCB, it can be said that hypothesis H1a, H1c, H2c, H3b, and H4b were supported. In summary, all hypotheses are partially supported.

101

The findings indicated a significant positive relationship between the dimensions of DL and the dimensions of teacher's OCB in response to the initial research question. Numerous studies have established a link between various leadership techniques and OCB. For instance, Bamble *et al.* (2011) found that the majority of leadership styles and OCB have a positive, significant relationship (such as transformational leadership, charismatic leadership, etc). This study's findings are consistent with those of Mascall *et al.* (2009), who also came to the conclusion that all aspects of DL have a favorable, significant relationship with OCB. Therefore, it can be said that the teacher's OCB is influenced by the leadership distribution in the schools.

CONCLUSION

The present study concluded that distributed leadership predicted teacher OCBs positively and significantly. Teachers in schools where leadership practices are distributed over multiple individuals are more likely to perform OCBs. It should bnoted that research on both distributed leadership and organisational citizenship is still evolving, which constituted a potential difficulty for the researcher to discuss the findings of the present study in relation to the related literature. For that reason alone, it should be suggested that more research evidence is required to better understand the constructs of distributed leadership and OCBs, their relationships, antecedents, and consequences for school settings. Future researchers should focus more on examining and determining the various leadership styles such as teacher leadership to see whether they promote or inhibit teacher OCBs. Furthermore, future studies should investigate the relationships between OCB and other such potential organisational variables as commitment, trust, socialisation, health, climate, and school academic optimism, and such personal qualities as psychological hardiness, coping with stress, and resistance to change. In future studies, schools' socioeconomic status should also be taken into consideration as an independent variable that may affect teachers' perceptions of OCBs.

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INFORMATION TECHNOLOGY (IT) IN AGRICULTURE SECTOR: ISSUES AND CHALLENGES

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ABSTRACT

Agriculture is the backbone of food production in every nation and the central element in economic development. Rapid changes in information technology (IT) have promised substantial potential benefits in return, especially for developing countries. The success of IT applications in agriculture is widely reported in numerous previous studies. Regardless of its success, the transformation has brought many issues and challenges for farming businesses. Thus, this article aimed to review the major issues and challenges of IT usage and how technology resources can address the needs of demand for food production. The findings reveal three main themes of issues and challenges, which are infrastructure, people, and organisation. Due to these issues, there is a greater need for changes in IT resources in agriculture to meet food demand for the rapid growth of the population by the year 2050. A systematic review using existing literature has been used in writing this article.

Keywords: *agriculture, human resources, information technology, infrastructure and organisation*

INTRODUCTION

Agriculture is the essential food production source and plays a strategic role in economic development with its own essential and crucial role, especially in most developing countries (Praburaj, 2018). The agriculture industry contributes strategically to increasing food availability and ensuring food security. There is uncertainty over global agriculture's ability to meet this need by increasing the food supply, despite the fact that there is a universal consensus that the demand for food will expand globally in the next decades (Pawlak & Kołodziejczak, 2020). In developing countries, farming businesses are involved with the food security issue, the health of people and food quality improvement (Milovanović, 2014). Implementation of innovative technology such as the Internet of Things (IoT) and big data for smart agriculture can increase the level of quality, quantity, cost-effectiveness and sustainability of production in the farming business (Roukh *et al.*, 2020). New capabilities created by smart farming and advanced technologies could optimise most agricultural processes and allow production processes to achieve higher productivity while using fewer natural resources (Zanella *et al*., 2020). This can be seen through developed and developing countries where developed countries mainly deal with their food waste in farming industry while developing countries are working hard to secure their supply chain of food production despite the world-wide COVID-19 crises (Ellison & Kalaitzandonakes, 2020).

Generally, Information Technology (IT) is defined as a tool such as computer software and hardware solutions that needed to support the management, operations and strategists to increase the productivity of an organisation (Thong & Yap, 1995). According to another scholar, IT can also be defined as the capabilities offered to an organisation by computers, software, applications and telecommunications to deliver data, information and knowledge to individuals and processes (Attaran, 2003). Technology is developed with objectives of solving industry problems and to fulfill the needs in market (Dardak & Adham, 2014). These days, organisations must adapt to the quick changes in the business environment and look for new ways to compete and set themselves apart from the competition (Victoria, 2020).Technology and innovation are closely related terms associated with science, technique or knowledge, which directed towards using knowledge and science to do something better. The development of new technology

can be simplified as a step-by-step process monitored by a management decision, and each process of developing new technology is referred to as stage-gate product innovation processes (Cooper, 2008).

In agriculture, IT represents modern agriculture where agriculture has been shaped into commercialised and marketed enterprise-type that seek for improvements in digital tools, data and believe to have much more central roles (Yue, 2009; Dutonde, 2018; Sharma & Mungarwal, 2019). IT in agriculture is defined as a tool for direct contribution to agricultural productivity and as an indirect tool for entitling farmers to take information and make quality decisions that would positively impact agriculture activities (Mitra, 2014). Modernised farming can be classified by the technological level and strong integration with domestic and international markets as well as solid policymakers oriented while traditional farming is characterised by limited access to the domestic markets and a shallow level of technology (Ismail *et al.*, 2009). The adoption of technology in agriculture has a huge potential to resolve some issues in agriculture such as limited use of land for agricultural activities, low productivity, disease and pest infestation and lack of labour (Dardak & Adham, 2014). Some types of IT that are being used in the agriculture sector include the IoT (Ayaz *et al.*, 2019), drones, soil moisture sensors plant and soil health (Duangsuwan & Maw, 2020), remote monitoring and security (Triantafyllou *et al.*, 2019).

Nowadays, agriculture is moving towards the Internet and technology. Everyone is considering using artificial intelligence (AI) and the Internet of Things (IoT) as they have significant advantages in the farming industry, especially since the agriculture revolution was sparked by smart farming practices (Ayaz *et al.*, 2019). Previous studies show that farmers involved in the agriculture sector faced several issues either in developed or developing countries due to their agro-ecosystem capabilities, governance and management system. Until 2017, more than 50% of the world's vegetated land for agriculture has been used, and there is a need to prevent using more land as land resources are limited and currently difficult for anyone to access (Ritchie, 2017). According to World Resources Institute, the total human population on this earth is expected to increase nearly to 10 billion people by 2050, thus lead to 56% more food to be produced in future to meet human needs (Ranganathan *et al.*, 2018). However, the effort to produce more foods to meet the population's demand has become crucial (Fróna *et*

al., 2019). It took so many decades for farmers to work hard and experience many changes from traditional to a digital world to supply food to fulfil the food demand. The challenges to produce more food production by 2050 can be overcome by taking some steps in pushing innovation technology adoption among farming business (Tompkins, 2020).

Therefore, the purpose of this SLR study was to inform the farmers about the major issues and challenges concerning usage of IT in agriculture sector. In turn, the insights obtained from this study could affect the farmer's knowledge and awareness regarding IT in the agriculture businesses. Specifically, the SLR performed could assist farmers to identify major challenges and issues regarding IT resources usage in agricultural business thus, could enhance farmer's skills and knowledge in managing IT resources for better productivity.

METHODOLOGY

A literature review is performed to examine the issues and challenges in the usage of IT in the agriculture sector. The purpose of the literature review is to demonstrating an author's knowledge about the specific field of study, including the theories, key variables, phenomena, methods, history and even the vocabulary of a study area (Randolph, 2009). Developing a literature review offers some benefit such as evaluating the strength of the scientific evidence, identifying gaps in the latest research, point out the need for future research, recognise central issues of the study area, generating a research question as well as developing a conceptual framework and also exploring research methods that have been used successfully (Russell, 2005). Similarly, a group of authors defined that literature review plays essential roles in writing to determine the research problem, look for new lines of inquiry, avoiding pointless approaches, gaining methodological understanding, identifying recommendations for further research and seeking support for grounded theory (Gall *et al.*, 1996). In this article, a literature review was conducted based on Cooper (1982) whereby the procedure for synthesising literature consists of (1) problem formulation, (2) data collection, (3) evaluate the appropriateness of data, (4) analyse and interpret the relevant data and (5) organise and present the results. In Table 1, a summary of each stage in literature reviews of Cooper's are listed to assist

the literature chores. In 1988, Cooper developed a taxonomy of literature reviews that could help in the assessment of the quality of reviews. The taxonomy can be classified into five characteristics: focus, goal, perspective, coverage, organisation. These characteristics would allow for broader and systematic literature works considered the crucial steps before planning for literature reviews (Cooper, 1988). Thus, the following parts elaborate on the implementation of Cooper's stages in conducting literature reviews of this paper.

Table 1: Literature Reviews Guidelines from 'Scientific Guidelines for Conducting Integrative Research Reviews' by Cooper (1982)

Literature Review Guidelines (Coopers, 1982)	
Stage 1	Problem Formulation: Development of conceptual and operational definitions of variables to be examined
Stage 2	Data Collection: Identify the target and accessible population, including determining the inclusion and exclusion criteria of articles
Stage 3	Data Evaluation: Extract and evaluate the information in articles that met the inclusion criteria
Stage 4	Data Analysis: Analysis and interpretation of selected articles
Stage 5	Public Presentation: Gathered and determine selected information to be presented

According to Coopers (1982), the problem formulation stage should include developing conceptual and operational definitions of variables to be examined. Primary researchers must define the conceptual and operational definition by examining how researchers would abstractly conceive the issues under the study area and how the researchers measure the concept (Russell, 2005). A study by Randolph (2009) identified the problem formulation stage as how the researchers decide what questions the literature review answer and determine the goal and focus of the review (Randolph, 2009). In this paper, the researchers outline the major issues and problems that need to be response as the research outcomes. This paper aimed to discuss issues and challenges of IT usage in agriculture businesses. A report published by Food and Agriculture Organization of the United Nations (FAO) back in 2017 highlighted trends and challenges of global agriculture. It was predicted by 2050 that there would be nearly 10 billion people on Earth, and currently, there is a significant shortfall between the amount of food produced today and the amount needed to feed the whole population in 2050 (FAO, 2017). In this report, FAO also show up several issues of

global agriculture that led to limited agricultural production, which are (1) increasing scarcity, (2) diminishing quality of land and water resources, (3) climate changes and (4) insufficient investment in sustainable agriculture that related to technologies innovation. This problem mainly affected developing countries as developed countries deal with their overproduction in farming crises while developing countries are working hard to secure their food production more than the growing population (Regmi & Weber, 2000). The adoption of technology in agriculture has a huge potential to resolve some issues in agriculture such as limited use of land for agricultural activities, low productivity, disease and pest infestation and lack of labour (Dardak, 2016). Thus, this paper critically analysed the issues and challenges that affected the usage of IT in agribusinesses.

The second stage is data collection that involved identifying the target and choosing the accessible population (Cooper, 1982). In this stage, the researchers determine the findings that previous concern research regarding the chosen topic and problem and the population of people that the researchers are targeting (Cooper, 1982; Russell, 2005). The example of the accessible population to obtain information included selected database, years of publication, subject headings and methodological aspects. An inclusion and exclusion criteria were being developed to create a valid set of considerable trial and reliability of the system (Randolph, 2009). In the present study, a few inclusion and exclusion criteria have been determined. Table 2 below shows the inclusion and exclusion criteria that have been selected for the literature review processes.

Table 2: Inclusion and Exclusion Criteria of Articles Selection for Data Collection

No.	Description	Inclusion Criteria	Exclusion Criteria
1.	Language	Articles published in English and Malay	Non-English or non-Malay papers published in other languages
2.	Participant's selected	The participants selected could be included as farmers, traders, large-scale commercial enterprise, government agencies, non-government agencies and any relevant participants that related to the topic of research	Participants that do not relate to the topic of research. Example: Oil and gas industry
3.	Methodological aspects	All methodological aspects are accepted (qualitative, quantitative and mixed mode)	Papers with the unknown and unclear method are excluded
4.	Electronic sources	An authorised database such as Emerald Insight, Science Direct, Research Gate, Wiley Online, Scopus, Web of Science, Google Scholar and others database that has been authorised by the academic institution Additionally, the researchers also searched websites of organisations that known to be related to agriculture such as the Food and Agriculture Organization of the United Nations (FAO).	Non-authorised and unknown resources of papers are excluded
5.	Major discipline (subject)	'Agriculture productivity' OR 'Information Technology' OR 'Human Resources' OR 'Infrastructure' OR 'Organisation'	Any paper that was not conducted related to the subject
6.	Years of publication	There is no range of years (any years of publication could be included and selected but priority on recent articles)	Any paper without years of publication and sources

7.	Keywords	Concern on the related topic especially to the terms of farmers or agriculture or agriculture productivity or information technology or infrastructure or human resources or organisation	Any paper with the absence of keywords needed in the body of their context
8.	Geography	Focus on article of developing countries that discuss on issues and challenges of IT in agriculture	Any paper that focus on issues and challenges of developed countries

Data evaluation is the third stage in literature processes that extract and evaluate the information of the articles that met the inclusion criteria. This stage extracts research outcomes data from each article and determines how to merge those outcomes (Randolph, 2009). During this phase, the researchers critically evaluate whether the data elements remain notable for the study (Russell, 2005). 14 journal articles are finalised to be selected and included for which followed to the criteria. The selected articles are presented later in the finding's section.

The fourth step involved data analyses and gave an interpretation of data collected. Cooper (1982) defines this phase as the separation of selected synthesised data into a clear statement about the research problem. In this article, all selected articles included in the study are categorised into three themes based on the issues highlighted. To identify different topics related to the issues and challenges of IT usage in agriculture, three themes were discovered along with data analysis processes: infrastructure, people, and organisation. These themes were summarised and presented with more details in the finding's section. These three themes are designated based on the reliable data in the selected articles that showed multiple repetitive highlighted data in common.

This last stage determined which information is more important and will be presented (Randolph, 2009). According to Cooper (1982), the importance of public presentation is due to the accumulation of knowledge with suggested format including introduction, methods, results and discussion sections (Cooper, 1982). Although the data collection method is considered systematic and organise, the researchers still cannot avoid research limitations that obstructed these five phases run smoothly. While

finishing this article, some limitations occurred during the stages of literature review, particularly in data collection and data evaluation stages. Firstly, the search keywords selected was too general and likely to be oversimplified for a systematic data collection. Secondly, a limited database was used in the data collection phase, which is only reliable to Emerald Insight, Science Direct, Research Gate, Wiley Online, and Google Scholar. This limitation also frequently resulted from the restriction accessed in some database where the researchers unable to access some articles that might benefit to the study. While working on data collection, the researchers found several articles that were convenient to the working but unfortunately being ignored due to unknown sources and unpublished paper as stated in the exclusion criteria. The last limitation is there might be over-reliance on specific sources and authors. The over-reliance on specific sources may lead to the repeated discussion within the writing of the article. Insufficient recent studies regarding the issues and problems might also cause repetitive discussion, especially in the findings matter.

FINDINGS AND DISCUSSION

Eligible papers were short-listed and full-text articles were accessed through the articles that fulfill the inclusion criteria. 14 articles were analysed and presented as the results of the problems formulated before which related to information technology and agriculture production. The selected articles resulted to three main issues and challenges in the usage of IT in terms of the agriculture sector as well as agribusiness. These three main themes of the issues and challenges were categorised as infrastructure, people and organisation. Figure 1 shows the illustration of three themes that have being analysed. The systematic review allowed the researchers to provide a basic understanding of the relationship between the problems developed in the study with the findings found as a response to the problems stated. The following paragraph discusses and elaborates the three themes identified from the review. The summary of the findings is presented in Table 3. The articles are categorised by the country of the study area and the findings found in common.
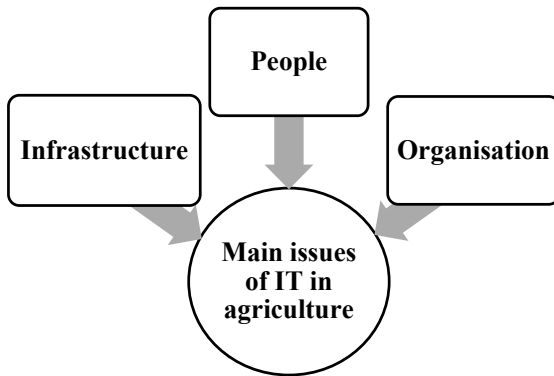
Figure 1: The Main Issues and Challenges Usage of IT in Agriculture

Infrastructure

Past literature published by Jochimsen (1966) defined infrastructure as a system that sum of material, institutional, personal facilities and data available to the economic agents to contribute to the inputs in the case of allocation of resource and resulted in the integration and maximum level of economic activities (Buhr, 2003). In other words, the infrastructure acted as a system of interaction in economic agents and ensuring a linkage within production and consumption phases (Baskakova & Malafeev, 2017). There are several categories of infrastructure such as institutional infrastructure, personal infrastructure and material infrastructure (Buhr, 2003). In term of agriculture, infrastructure is known to be an important key element for the success of agriculture development programmes (Eswaran *et al*., 1995). This statement also agreed by Patel (2010), that infrastructure leads to expansion of markets, economies of scale and also improvement in factor market operations. Infrastructure in agriculture as basic can be classified into three specifications which are capital intensive, capital extensive and institutional infrastructure (Wharton, 1967). Capital intensive infrastructure includes transportation, water for irrigation, electricity, telecommunication and information while capital extensive closely related to the extensive workers or agriculture researcher and lastly, institutional infrastructure consists of formal and informal institutions such as government stability and law and order (Wharton, 1967). Agriculture infrastructure can be categorised under broad-based categories such as (i) input based infrastructure (seed, fertiliser, pesticides, farm equipment and machinery);

(ii) resource-based infrastructure (water, irrigation, farm power or energy); (iii) physical infrastructure (road connectivity, transport, storage, processing, preservation, etc.; (iv) institutional infrastructure (agricultural research, extension and education technology, information and communication services, financial services and marketing, etc. (Patel, 2010). A discussion from a research paper by Munyanyi (2010), Gajigo and Lakuma (2011) has stated that infrastructure is the major aspect of agricultural productivity growth. The authors also listed three main agricultural infrastructures: road network irrigation technology and post-harvest storage technology. Along with it, a well-designed IT infrastructure in agriculture development will help to improve the availability and transparency of agriculture information and lower agricultural trade transaction cost (Bojnec & Ferto, 2011). For example, the development of physical infrastructures such as farm recording Application Software and Personal Digital Assistant (PDA) in Nigeria helps to keep data entry for field records and maintains the smoothness of operations (Igwe *et al.*, 2019). Unfortunately, many developing countries are struggling with access to IT infrastructure in their farming businesses. A case study in Zimbabwe shows that there is lack of capacity by the irrigation industry, equipment suppliers and contractors to provide services and a lack of post-harvest infrastructure in the rural areas and affect the long-term sustainable food production (Munyanyi, 2010). Similarly, a study by Żmija *et al*. (2020) found that in both European and African countries, nearly half of the respondents do not operate their production solely on their land and this statement has proved that farmers are struggling to access land, thus causing them to run their farm production on lease land (Żmija *et al*., 2020). These issues also occur in Iran and Guatemala where poor infrastructure and weak strategic coordination are unable to respond to farming issues such as lack of available land and low quality of land (Dale *et al*, 2020; Hamedanlou, 2009). Limited access to the Internet as well as telecommunication because of the lack of information technology infrastructure and development has led to data redundancy and duplication of work (Kale *et al*., 2015). Those studies have shown that awareness of current trend technology knowledge and willingness of farmers to adopt IT is crucial to achieving higher agriculture production through development of infrastructure. In conclusion, the researchers conclude that the major challenges of IT in this section are the lack of infrastructure development and insufficient access to IT infrastructures.

People

Human capabilities can be defined as human resource management that plays a crucial role in achieving organisational goals and converts the resources in an organisation into the ultimate output (Adeel *et al.*, 2017). According to Guest (1987), there are four key dimensions to human resource management: commitment, flexibility, quality, and integration as a contribution that could be expected from an employee to the organisation. Human resource development is considered as a force for optimising human growth, organisational effectiveness and national development through skill enhancement in the workforce (Rivera, 1995). A scholar has examined people as the factors that affecting the flexibility and adaptability that would lead to the success of an organisation (Khatri, 1999). FAO defined that human resources are one of the key success factors in agricultural development, particularly in production, processing and distributions of food crops and commodities (FAO, 1986). Rivera (1995) also agreed that new technologies and better on-farm adoption depend on the people factor in terms of agriculture. Wright *et al.* (2003) mentioned that growth comes from attracting, retaining, and developing the people within the industry, supporting research, education, and other service infrastructure. In this issue, IT is directly involved with the major participant of farming business, the farmer's society, as the main actors in the agriculture sector. A previous study by Awais and Khan (2014) shows that the negative perception of tribal farmers towards adopting IT in farming processes is a significant barrier to improving their agriculture productivity. This study proved that there is lacked young generations participation in farming processes and the low educational status of family member's that affected the development of IT in agriculture (Awais & Khan, 2014). This study has shown that awareness of current trend technology knowledge and willingness of farmers to adopt IT is crucial to achieving higher agriculture production. Lopez and Valdes (2000) argued that in the matter of knowledge, there is a small return on education investment and young generation tends to migrate to urban areas instead of inherited their family farming businesses (Lopez & Valdes, 2000). Thus, Mozumdar (2012) strongly stand with his opinion that education, training and extension services are necessary elements for developing and increasing the knowledge of farmers to help them adapt to new technologies properly and make sufficient use of limited resources to achieve increasing in agriculture productivity (Mozumdar, 2012). Similarly, a study in Malaysia

and Thailand also bring out that weak perception of technologies, low education of farmers and limited knowledge among people in business as the non-adoption factors and challenges in the usage of IT for agricultural business (Mat Lazim *et al*, 2020; Faysse *et al.*, 2022). Low skills, moderate interest in farming and knowledge of young farmers has resulted in a lack of technology development that caused a reduction in farmer's land ownership, land reform and land regeneration (Anandita & Patria, 2016). A case study in Guatemala and Thailand represented low rate interest in adult and failure to attract a new generation of farmers, hence led to labour constraints (Dale *et al.*, 2020; Faysse *et al.*, 2022). Past works of literature found key challenges in adopting IT to the agriculture industry were increased due to sophisticated software with advanced human capital requirements and the needs for ongoing end-user extension training to enhance farmers (Saidu *et al*., 2017). This theme generally emphasise the importance of training and knowledge among farmers to manage and utilise any kind of IT usage in agriculture procedures and determine the points as challenges that incurred for adoption and usage of IT in agriculture.

Organisation

An organisation is a formal structure of organised coordination involving two or more people to achieve goals by authority relationship and a division of labour (Gitman *et al*., 2018). Certain elements closely related to the organisation and works within this group which known as stakeholders. Stakeholders can be defined as an individual that has something to do with business, internal or external because of the impact and the potential to the organisation, such as employees, investor, supplier, government, society, creditors, and the customer of businesses (Benn *et al.*, 2016). A business must have a good quality of organisational values that integrated the personality of a company by reflected values of individuals, behavioural patterns, influencing relationship within the organisation and convince its customers, suppliers and other stakeholders (Gorenak & Kosir, 2017). In agribusiness, interrelated subsectors work together to provide goods and services to consumer worldwide, involving foods as an economic good with distinctive cultural, institutional, and political aspects to developed economic environment and business processes (Gunderson *et al.*, 2014). The study agreed that individuals such as genetics and seed stock firms, input suppliers, agricultural producers, merchandises or first

handlers, processors, retailers and consumers as major participants that contributed to this nature of businesses (Gunderson *et al*., 2014). In term of agriculture, organisation issues also might conclude agriculture policy and relationship with agriculture stakeholders. For example, in Kenya, an association of Kenya Agricultural Commodity Exchange developed Mobile Phone Short Messaging Service (SMS SOKONI) that allows all farmers to explore market information using a mobile phone. This proves that organisation relation with an external individual is dominant in developing IT of agriculture (Muriithi *et al.*, 2009). A study in Nigeria discovered that government programmes such as the Agricultural Development Programme and the Directorate of Food, Roads and Rural Infrastructures had proved a significant positive impact on reducing poverty, particularly in terms of agricultural productivity (Nwachukwu & Ezeh, 2007).

Additionally, government policy also determines the direction agricultural productivity as government policies and programmes were compiled to assist farmers in terms of input and output support as well as technical and financial support to ensure productive agriculture productivity to fulfill current and future demands (Lencucha *et al.*, 2020). Even though policies were designed to assist farmers and entities in the farming business, the policies also can be debated within the sectors with rising issues in terms of the sector's political importance (Barichello & Patunru, 2009). Zimbabwe is dealing with the struggle to access infrastructure financing, high cost of land and limited market access, together with a related study in Europe and African countries which having difficulties accessing subsidies, credit and finance as the farmer's lack of knowledge on how to draft and build business plans for financial section (Munyanyi, 2010). A case study in Iran expressed the weakness of their government policy when agriculture production operated at a low level as the available policies are weak, facing high risk in investment and having insufficient content for rural society (Hamedanlou 2009; Lashgarara *et al.*, 2011). Southeast Asia countries also affected to these issues. In Philippines, low agricultural productivity has become a bigger challenge in managing the demands of the country where some of the challenges that had to face by the Philippines are limited access to credit and agricultural insurance, minimal support for research and development and incomplete agriculture reform programme implementation (Brown *et al*, 2018). Low teaching capacities and inadequate resources and funds from government policies also dragged Malaysia into this issue (Mat Lazim *et*

al, 2020). This theme has shown the importance of relationship within the internal and external of an organisation to achieve business goal's and give significant benefits to other related parties in the field.

Table 3: Summary of Issues and Challenges of IT in Agriculture in Terms of Infrastructure, People and Organisation

Authors/ (Year)	Country	Infrastructures	People	Organisation
Katarzyna Zmija, Arlindo Fortes, and Moses Nganwani Tia (2020); Hannah Ritchie (2022)	Europe & Africa	Limited access to uncultivated land due to lack of appropriate infrastructure	Low rate of labour productivity	• Struggle to access subsidies, credit and finance • Struggle to access infrastructure financing
Virginia H. Dale, Keith L. Kline, Santiago Lopez-Ridaura, Sarah E. Eichler, Ivan Ortiz-Monasterio and Luis F. Ramirez (2020)	Guatemala	Lack of available land, low quality of land and poor connectivity infrastructure	Lack of interest in the adult family to farming business - labour constraints	Low access to financial products and credit
Hamedanlou (2009); Farhad Lashgarara, Roya Mohammadi and Maryam Omidi (2011)	Iran	Poor infrastructure and weak strategic coordination	Lacked in human resources capacity	Weak of available policies, lack of content in rural society and risk of investment
M. Faiz Syuaib (2016); Della Ayu Anandita and Kinanti Zukhrufijannah Patria (2016); Iqbal Rafani and Tahlim Sudaryanto (2021)	Indonesia	Rural infrastructure suffers a long-term decline in investment including roads, rail and sea transport, irrigation, and electricity provision	Low labour productivity in agriculture sector	Lacked skills and knowledge for the young generation

125

Nicolas Faysse, Kassirin Phiboonn and Man Purotaganon (2022)	Thailand	Farms generally small and less access to irrigation water	Failure to attract a new generation into farming and ageing farming population	Absence of medium training and education for farmers and scientists
Rabiah Mat Lazim, Nazmi Mat Nawi, Muhammad Hairie Masroon, Najidah Abdullah and Maryani Mohammad Iskandar (2020)	Malaysia	Insufficient necessary infrastructure to transforms to digital access	Weak perception of technologies, low education of farmers and limited knowledge	Low teaching capacities and inadequate resources and funds
Watson Munyanyi (2013)	Zimbabwe	Lack of capacity by the irrigation industry, equipment suppliers and contractors to provide services and lack of post-harvest infrastructure	Lack of young farmers participants	Struggle to access infrastructure financing
Ernesto O. Brown, Fezoil Luz C. Decena and Reynaldo V. Ebora (2018)	Philippine	Low farm mechanism, inadequate postharvest facilities and inadequate irrigation	Ageing farmers – lacked young participants	Limited access to credit and agricultural insurance, minimal support for research and development, weak extension service and incomplete agriculture reform program implementation
Awais and Khan (2014); Shreya Anand, Satya Prakash, A.K Singh and Sudhamini Yedida (2020)	India	The problem of irrigation, soil conservation, and soil testing services	Low level of education and lack of communication	Lacked government participant to advance agricultural sector and infrastructure

RESEARCH CONTRIBUTIONS

There are two expected contributions from this article that can be classified into theoretical and practical contributions. This article could contribute in term of theoretically to academic and government policy. The discussion would directly provide a depth scope of identifying issues and challenges of IT application in the agriculture sector. For a bigger impact, this article might also lead and guide government institutional or related organisation to discover the challenges of IT development in agriculture that occurs in the current state to reach the vision of preparing sufficient foods for upcoming demands in 2050 (FAO, 2017). These data could also be reviewed to develop a new theory or policy that would assist farmers in need. In terms of practical contributions, this article would supply inputs for educating farmers and other related parties in analysing issues and challenges of farming businesses regarding IT and acknowledging barriers that farmers should overcome. Furthermore, it also could help existing and potential small agriculture business to be more skilled in improving resources management and at the same time learn new knowledge and skills for better productivity thus directly contribute to the economic development of the nation's food production. Future research should focus on articles derived from mixed method study to understand how the method will be used within this scope of study and should be conducted by using different databases.

CONCLUSION

Despite the importance of farming businesses in a country, unfortunately, the agriculture sector has not been emphasised due to resource limitation and agriculture technology usage issues. This article has collectively outlined and pointed out the major issues and challenges of IT in the agriculture sector using three aspects: infrastructure, people, and organisation. The infrastructure section has shown that poor infrastructure in the farming area discourages implementing and applying IT into farming processes. The issue among people reviewed that farmer's perspective and understanding towards the needs of IT in agriculture business is crucial to develop any skills on IT to the farm. The organisation aspect evaluates some management issues such as financing within internal and external related parties as well as development of government policy. This article has contributed to the identification and

analysing of the barriers and limitation that should be overcome by farmer's society and any related parties in the agriculture sector.

In conclusion, to meet the needs of the future as the human population is overgrowing, all farming businesses must be able and willing to adapt to new changes using advanced technology as the main elements in their farming management. All issues in managing IT and IT-related resources in agriculture production can best be solved by adopting IT into the processes of food production, farm management and utilising the available human capabilities. Each leading key player should work together and play their roles to ensure the sustainability of food production in their nation.

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EXPLORING THE AGILE-ADAPTIVE BALANCED SCORECARD BENEFITS TOWARDS IMPROVING THE MANAGEMENT ACCOUNTING SYSTEM: A CASE STUDY OF IRAQI SMES

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ABSTRACT

Economic fluctuations have recently affected the nature of accounting systems in companies, especially small medium enterprise (SMEs). Therefore, this study proposes the Agile-Adaptive Balanced Scorecard (AABSC) as an integrated tool to support and improve the Management Accounting System (MAS) in Iraqi SMEs. The main objective of this study is to explore the role of the AABSC in improving the Management Accounting System (MAS) as a response to economic fluctuations. A qualitative semi-structured interview was carried out in one Iraqi SME, with four top managers from different departments. The interviews are conducted online in the Arabic (Iraqi accent) and then translated into English by a linguist expert. The data were analysed and structured using content analysis and Atlas.ti 9 software. Such qualitative analysis is divided into two main categories and four sub-levels. The objectives and advantages of using the AABSC to improve the MAS of Iraqi SMEs are also examined. The adoption of AABSC as part of MAS has assisted companies in strengthen the system. Enhanced competencies are required for staff to increase productivity and ability to improve their decision making, which directly contributes to improving the business environment by enhancing the relationship with customers and stakeholders.

Keywords: management accounting system (MAS), agile-adaptive balanced scorecard (AABSC), Atlas.ti 9 software, content analysis, small medium enterprise (SMEs)

INTRODUCTION

According to Almagtome *et al.* (2020), the management accounting systems (MAS) of companies in developing countries, especially Iraq, have suffered from a decline in performance, especially in achieving long-term business sustainability. Failure to absorb sudden and economic disruptions constitute a major cause in the failure of MAS implementation. In the last 15 years, previous researchers have relied on various modern tools for MAS, such as Activity-Based Costing (ABC), Total Quality Management (TQM), Strategic Cost Management, and Economic Value Added (EVA). However, these tools do not fully fulfil their purpose in achieving the required business performance. Accordingly, scholars have resorted to the use and implementation of the Balanced Scorecard (BSC). In Iraq, firms have adopted the BSC for achieving their goals and requirements and improving the decision making of management accounting system (Nather *et al.*, 2020). However, Hasrin (2020) discovered contradictory findings that traditional BSC is insufficient to achieve the goals of small and medium enterprises (SMEs), especially in volatile environmental and economic conditions. Traditional BSC dictates an organised strategy with long-term plans that are drawn up to manage these firms. Consequently, their use led to the failure of most of these firms, especially the Iraqi SMEs, due to the inability of administrative accounting systems by this traditional tool to provide accurate information to avoid economic problems. Consequently, their use leads to the failure of most of these firms, especially the Iraqi SMEs, due to the inability of administrative accounting systems by this traditional tool to provide accurate information to avoid economic problems (Al-Nasrawi & Thabit, 2020).

Therefore, this study adopts integrated tools of management accounting system, with an agile-adaptive model referred to as agile-adaptive balanced scorecard. Psarras *et al.* (2020) recently discovered agile-adaptive balanced scorecard, a dynamic, agile tool that can assist in developing short-term plans to resist economic volatility, which can cause failure in business continuity.

Gambelli *et al.* (2021) explored the adoption of agile-adaptive balanced scorecard as one of the modern tools, to improve the quality of management accounting system by providing managers with specific information about the external and internal environments, which enhance their decision making. Later, Mio *et al.* (2022) clarified management accounting system as an integration system once agile-adaptive balanced scorecard is adopted, to support the relationship between corporate social responsibility and performance. In addition, the implementation of agile-adaptive balanced scorecard with management accounting system can assist managers to anticipate crises and economic turmoil in the business environment (Tuan, 2020). Thus, firms can develop rapid strategies capable of addressing environmental and economic disturbances to remedy such risks (Zhai *et al.*, 2021). Furthermore, the adoption of the integrated tools such as agile-adaptive balanced scorecard instead of the implementation of the traditional BSC model can significantly contribute to supporting the roles of management accounting system by highlighting the knowledge of environmental efficiency to facilitate management decision making (Alobaidy, 2019). Hence, this study seeks to examine the ability of agile-adaptive balanced scorecard to improve the quality and efficiency of the management accounting system in Iraqi companies, especially small medium enterprise.

This paper is structured as follows. In the second section, management accounting system literature is reviewed, followed by a discussion on how to measure management accounting system effectiveness by adopting traditional tools compared with modern and integrated tools such as agile-adaptive balanced scorecard. Next, the adopted research method is described. Finally, the main findings of the research and conclusion are presented.

LITERATURE REVIEW

Management Accounting System

Pedroso and Gomes (2020) highlighted MAS as a collection of internal controls that help company management in their daily operations. MAS also plays an essential role in transforming the organisation's strategy into desired

behaviour and results (Chan, 2020). Furthermore, MAS is used by many business managers to improve and systematise the quality of information gains from internal and external business areas (Liem & Hien, 2020).

MAS can apply to all types of organisations following their activities in dealing with all situations (Ghasemi *et al.*, 2019). MAS helps the staff make decisions and control activities to attain a competitive advantage, leading SMEs to achievement their sustainable performance goals (Laguecir *et al*., 2020). In addition, MAS is an essential source of information that helps managers control their activities and reduce problems of environmental uncertainty to achieve their firms' objectives (Chidimma & Ebere, 2019). MAS provides services or products to meet client needs by enhancing their experiences of the services and products' features, uniqueness, functionality, and responsiveness (Duong *et al*., 2022).

MAS consists of four dimensions: scope, timeliness, integration, and aggregation (Braumann *et al.*, 2020). Scope is related to providing information that focuses on internal and external companies (Christina & Sopyansyah, 2020), and includes a wide range of data relating to the organisation that provides the financial and non-financial reports (Khaliq *et al.*, 2021). Timeliness reflects the executives' concern to obtain information frequently and without delay (Fuadah *et al*., 2020). Moreover, the timeline is a part of the planning and often includes additional advantages that help monitor business progress (Howard & Zhou, 2021). Integration is a piece of information that establishes the relation among preferences, actions, and results of stakeholders' different cost centres' internal and external business environments (Johnstone, 2020). Integration allows departments of any organisation to share information (Rana *et al*., 2019). Finally, aggregation denotes the way of obtaining the information that corresponds to different functional parts of the organisations over time (Laguecir *et al.*, 2020). Thus, the higher the level of aggregation of information, the less timing is required to evaluate the organisation business, thereby improving the efficiency of its management (Pedroso & Gomes, 2020).

In view of the above previous findings, the present study seeks the extent of the effect of MAS on firms and its effectiveness in measuring sustainable performance and has achieved its goal in companies in developed countries (Ghasemi *et al*., 2019). However, for companies in developing

countries, the use of MAS remains weak in enhancing performance, especially in SMEs, because of the sudden economic fluctuations (Abedian *et al*., 2021; Fitria, 2021). Thus, this study suggests using the AABSC as an integrated tool of MAS to improve firm performance. In addition, the next section describes the importance of this method and compares it with the traditional BSC.

Agile-Adaptive Balanced Scorecard (AABSC)

In recent years, the traditional BSC has suffered from a failure to cover matters related to severe economic fluctuations (Khiew *et al.*, 2020). According to Na *et al.* (2020) the traditional BSC is complex in use and requires long-term plans and strategies to control the performance measures of organisations. In addition, the use of the BSC imposes employee bonuses and raises in salaries (Benková *et al*., 2020). However, this policy is difficult to implement under severe economic disturbances, such as the rise in exchange rates of the local currency against the US dollar (Dudic *et al*., 2020). The traditional BSC is also considered unhelpful if the company declines in public financial stock (Tuan, 2020). Accordingly, literature suggests adopting the integrated tools of BSC, such as AABSC (Mio *et al*., 2022), which tends to allow short-term dynamic plans to cope with sudden economic disturbances and develop immediate solutions to avoid administrative risks (Camilleri, 2021).

AABSC offers high adaptability, comprehensiveness, and unbiased, methodical cause–effect relationship construction for organisations, especially SMEs (Abedian *et al.*, 2021). AABSC is a flexible tool that can be adjusted with the business environment and can be used as an effective tool for developing MAS in SMEs (Khiew *et al.*,2020). Oliveira *et al.* (2019) proved that the AABSC can embody bureaucratic concepts to provide accurate and relevant financial and non-financial measurements to facilitate decision making in enterprises. Therefore, the AABSC provides an excellent basis for the optimal and successful implementation of organisational strategy and creates a practical framework for individuals to find a new perspective for their activities, especially SMEs (Nazari-Shirkouhi *et al.*, 2020).

Wiraeus and Creelman (2019) confirmed that the AABSC has four perspectives: business value, customer, operational excellence, and future

orientation. Business value attempts to capture how current and future AABSC can bring about benefits for organisations, especially SMEs (Mio *et al.*, 2022). Therefore, business value—and especially its measures—are essential points in the context of the AABSC tool towards the sustainable performance of SMEs (Tuan, 2020; Oliveira *et al.*, 2021). Customer evaluates the sustainable performance of organisations from the points of view of its managers, leaders, and society at large (Dudic *et al.*, 2020). In addition, the customer perspective is customer-focused, which evaluates the degree of customer satisfaction in the external business environment (Nugroho & Pangeran, 2021). However, the customer perspective is usually neglected in target companies. The AABSC focuses only on the business value chains for organisations, indicating that all strategic goals have the same importance, which may not be accurate in real contexts (Abedian *et al.*, 2021).

According to Wiraeus and Creelman (2019), operational excellence is linked to improving organisational performance and efficiency in every dimension of sustainable performance (i.e., economic, environmental, and social). Operational excellence helps reveal hidden costs and allows firms to determine which products are increasing the capital, setting the stage for more remarkable profit growth, and achieving sustainable performance targets (Balafif & Haryanti, 2020). Finally, future orientation discusses the improvement of competitive advantage, the staff management's effectiveness, developing the organisation's architecture, and researching emerging techniques (Priatna, 2021). Future orientation is crucial for long-term success, helping to identify consumer needs in the future and the new products and services that can be used for expected needs (Oliveira *et al.,* 2019).

Overview of Iraqi SMEs

According to Malesios *et al.* (2018), SMEs continue to be one of the most reviewed subjects in literature, especially given their important influence on all types of economies. In playing an important role in job creation and significantly contributing to growth in both developed and developing economies, SMEs are recognised on a global scale as the driving force behind economic growth and fostering equitable development (Shrafat, 2018). As a result, creating vibrant SMEs is high on the list of priorities in almost every nation in the globe (Chatterjee & Kar, 2020).

Additionally, without integrated MAS, SMEs cannot expand to compete in international markets, acquire new technology, or form connections with larger businesses (Mohammed *et al.*, 2022). Therefore, by using AABSC as a brand-new, integrated instrument for MAS, this study aims to enhance the MAS in Iraqi SMEs.

Previous literature (Chong *et al*., 2019), particularly on SMEs in developed nations, shows that BSC has a significant impact on the efficacy of MAS in businesses. However, even though the subject has been extensively explored, the focus on SMEs in developing nations, particularly in Iraq, has been virtually absent (Chege *et al*., 2020; Kareem *et al.*, 2019).

The main value of this study is exploring the reliability and validity of implementation of AABSC to improve the MAS of Iraqi SMEs, which is important in their growth. For instance, data from the Central Organization for Statistics (COS) reveals that SMEs, which account for 99% of all companies in Iraq, comprise the majority of the country's private sector. However, despite their importance, SMEs face the risk of failure; historical data shows that three out of five fails within the first few months (Nather *et al*., 2020). This finding determines the contribution of this study by exploring the reliability and validity of implementation of AABSC in improving the MASs of Iraqi SMEs to avoid early failure due to ongoing environmental and economic disruptions.

METHODS

In this case study, integrated AABSC tool was implemented for the first time to improve the effectiveness of MAS in Iraqi companies, especially SMEs.

Design and Participants

This empirical study used a qualitative approach to discover the effect of AABSC on the MAS of Iraqi companies, especially SMEs. Approval was obtained to carry out this study in one of the Iraqi SMEs in services and construction. The case company was given a specific code, NNCO, to maintain the confidentiality of its information. NNCO was classified as a sub-contractor company that provides services to oil companies in southern Iraq and was selected by the current study because it is one of the types

of Iraqi SMEs that suffers from the lack of effectiveness and performance of its MAS due to the deterioration of the internal and external business environment in the country (Nather *et al.*, 2020). Thus, this case company was highlighted to measure the impact of the implementation of AABSC on the effectiveness of MAS in SMEs.

This qualitative research was carried out with a content analysis based on the results of Atlas.ti 9 software. The study population comprised senior managers from the case company, due to their knowledge of MAS and its mechanisms, in addition to their experience in internal and external business environments. Table 1 shows the inclusion criteria, such as at least five years of experience in their current position to participate in the study. The participants of this study were selected using the purposeful sampling method based on the years of their work experience and the length of tenure in the top management of the case company.

Data Collection

Data were collected through four semi-structured in-depth online interviews during the last quarter of 2021. Please see Table 1.

Table 1: Characteristics of Participants

No.	Participants	Gender	Position	Education	Age	Years of Experience
1	P1	M	General Manager	Degree	45	18
2	P2	M	Manager & Supply Chain Coordinator	Master's degree	31	10
3	P3	M	Administrator	Degree	28	7
4	P4	M	International Relations Manager	Degree	35	10

The selected senior managers were contacted during their off times. After explaining the study objectives and acquiring verbal consent from the case company, the researcher identified a convenient time to interview the participants, who were given alphanumeric codes to protect their privacy, namely, P1 to P4. The in-depth interviews were carried out in the last quarter

of 2021 within 32 days, with an average of 48 minutes. According to the gathered data, the sample processing continued until the data saturation was achieved such that no new codes emerged from the participants' experiences. The interviews were carried out in a friendly manner, without restrictions or conditions. The researcher took notes and analysed the participants' personalities during the interview, not writing down any answers, which were transcribed verbatim based on the audio recording after the interviews. All the interviews were recorded on an iPhone device. By using probing key interview questions, the researcher guided the interviews and compared them with the objectives of the study and the previous literature to ensure that such goals are achieved.

Data Analysis

After being transcribed verbatim, the data were analysed immediately, and academic translation was carried out using Atlas.ti 9 software and content analysis (Kemigisha *et al*., 2019; Briones-Vozmediano *et al*., 2022). The next step was the coding process, which was conducted after a focused and repeated reading of the extracted texts, in addition to listening to the recordings to analyse the participants' behaviour. After extracting the initial symbols, these were combined to form main categories and sub-levels. The outcomes were validated in terms of interpretation, design, and data collection. The collected data were relevant to both study objectives and literature review. Finally, the hidden concepts of this data were explored.

FINDINGS

This study adopted a single case company, which is one of the most important SMEs in Iraq according to the COS classification, which enjoys the integrity and stability of its business in the local markets. NNCO practiced its business after the year 2004 in the field of oil services but developed after 2010 and reached its highest peak in 2017. Its business declined slightly after 2018 due to the deterioration of the economic environment in Iraq and the world due to the decline in oil selling prices, as well as the outbreak of the Coronavirus disease 2019 (COVID-19) pandemic. Four experts from the case company participated in this study. All of them are males, with an average age of 35 years, as shown in Table 1. A total of 183 codes is

extracted, classified into main categories and sub-levels, which are explained in the following sections.

MAS Concept of Case Company

The case company recognised MAS in 2010, after relying on such system to create financial and annual reports, in addition to preparing the budget for future planning and anticipating administrative risks (Almagtome *et al.*, 2020). Thus, based on the main interview questions, the concept of MAS in the case company was identified as follows.

According to P1, MAS within the case company helps to define, measure, analyse, interpret, and communicate financial information to managers to pursue the organisational goals and facilitate the decision making by senior management. P2 stated that the MAS within the case company helps the senior management in planning or budgeting and analysing income reports, to provide business-related information, which also helps them to determine the total cost of producing goods or services, where costs are divided into the variable, fixed, direct, or indirect costs.

P3 and P4 added that the MAS works to provide performance reports to the various departments, compare actual with planned performance, identify discrepancies between them, analyse and identify the causes of such discrepancies and the staff responsible for them, and communicate the findings to the administrative levels so they can work on resolving them and aid in decision making. Moreover, the current findings explain the main roles of the MAS within the case company and its ability to change, the evolution of the nature of administrative decisions, and the nature of their needed information. Thus, MAS supports managers in making decisions.

Important of MAS within the Case Company

In general, MAS works to help the organisation by providing the necessary information to assist the senior managers to process the day-to-day operations and establish plans for good decision making. According to Mio *et al.* (2022), the MAS in Iraqi SMEs suffers from a weakness in providing accurate information due to the adverse economic environment in the country (Gamage *et al*., 2020). Thus, the interviews identified four basic elements regarding the importance of MAS in Iraqi companies, which are

preparing financial reports, planning, and controlling, determining budget needs, and calculating costs.

Table 2: Frequency of MAS Importance within the Case Company

MAS importance within case company		
Group of codes (items)	Frequency	%
Preparing financial reports	21	30
Planning and controlling	21	30
Determining budget needs	17	24
Calculating costs	11	16
	70	100

Table 2 shows the four basic elements of MAS within the case company, one of which is preparing financial reports. A financial report is a powerful tool that can reveal the company's strengths and weaknesses to clients (P1). P3 added that the financial reports are a more attractive communication tool with investors and financiers, aligned with previous findings (Barbose & Satchwell, 2020). P2 and P4 stated that the financial reports are also essential in the projections of future profitability, industry position and growth, similar to previous suggestions (Khaliq *et al*., 2021).

Planning and controlling. All participants agreed that planning and controlling is one of the best services of the MAS of their company. Planning and controlling are related to each other, as the former defines the goals of the organisation, and the latter ensures their achievement. Planning decides the process of control, which then provides a sound basis for the planning for any MAS (Córdova-Aguirre & Ramón-Jerónimo, 2021).

Determining budget needs. Three of the four participants described the process of determining budget needs and how the MAS of their firm helps them prepare the budget for long-term requirements. Participants also discussed the importance of the MAS in budgeting and considered it a tool for tracking when and how an organisation earns or spends its funds.

Finally, calculating costs. P1, P3, and P4 explained the importance of their firm's MAS in this process, stating that the MAS can help them with how and when the company calculates costs to prepare a good plan

to help their firm in the future. P3 said that the MAS aims to record the total production costs by evaluating the variable costs of each production step in addition to fixed costs, and thereby make business and management decisions pertaining to the organisation's business (Efendi & Kusuma, 2021). Hence, the results agree with the literature on the high importance of the MAS in firms.

Role of MAS within the Case Company

This section discusses the important basic roles of the MAS in the case company, representing the process of control and evaluating performance, in addition to the planning and the optimal selection of alternatives to facilitate decision making (Psarras *et al*.,2020). The three main roles of this MAS are strengthening strategic goals, addressing shortcomings and weaknesses, and increasing system efficiency, which are identified according to the interviews with the case company experts who were selected as participants in this study. Table 3 shows the details.

Table 3: Frequency of MAS Roles within the Case Company

MAS importance within case company		
Group of codes (items)	**Frequency**	**%**
Strengthening strategic goals	16	42
Addressing shortcomings and weaknesses	13	34
Increasing system efficiency	9	24
	38	100

Strengthening strategic goals. The four participants explained the role of MAS in maintaining their strategic goals. P1 and P3 discussed the specific financial and non-financial goals and results that the current company's MAS aims to achieve within a specified period, usually within the next three to five years. The MAS of the case company works to develop a relatively stable plan for the long term, considering all internal and external variables. P2 clarified that the MAS of their firm contributes to the development of strategic performance measurement indicators to measure results and compare with previously set goals to measure the entity success in achieving its strategic objectives. In addition, P1 and P4 said that the MAS enhances their current strategic objectives to fortify the business organisation's general purposes, which is part of the business plan and is usually developed during strategy making or planning.

Addressing shortcomings and weaknesses. Three out of four participants mention the role and contribution of MAS to their organisation in resolving the flaws and weaknesses in the system of the company by designing appropriate programmes to obtain and employ different resources to achieve these goals. P3 and P4 stated that the MAS can gather information to support management planning activities by tabulating and analysing the general expenses to agree on the required solutions to resolve various administrative difficulties. P1 added that the MAS can offer reliable information that aids the senior managers in addressing organisational challenges (Pedroso *et al.*, 2020).

Increasing system efficiency. P2, P3, and P4 described the role of MAS for their company in increasing system efficiency and improving product quality, carried out through the expansion of strategic programmes through a curriculum that includes the entire educational system to raise the efficiency of teachers and increase understanding and awareness about the external business environment represented by customers and stakeholders, in addition to spreading awareness about focusing on growing revenues and reducing economic costs, which is considered one of the most important aspects of MAS; that is, to raise efficiency and improve product image. Thus, the present results match the literature on the roles of MAS in companies and add characteristics about its parts.

MAS Network within the Case Company

The MAS Network shows the patterns and relationships in the data of using the MAS in the case company, where it works to link the extracted codes to its core concept. Thus, this network shows how these symbols are intertwined to prove the effectiveness of MAS. Please see Figure 1.
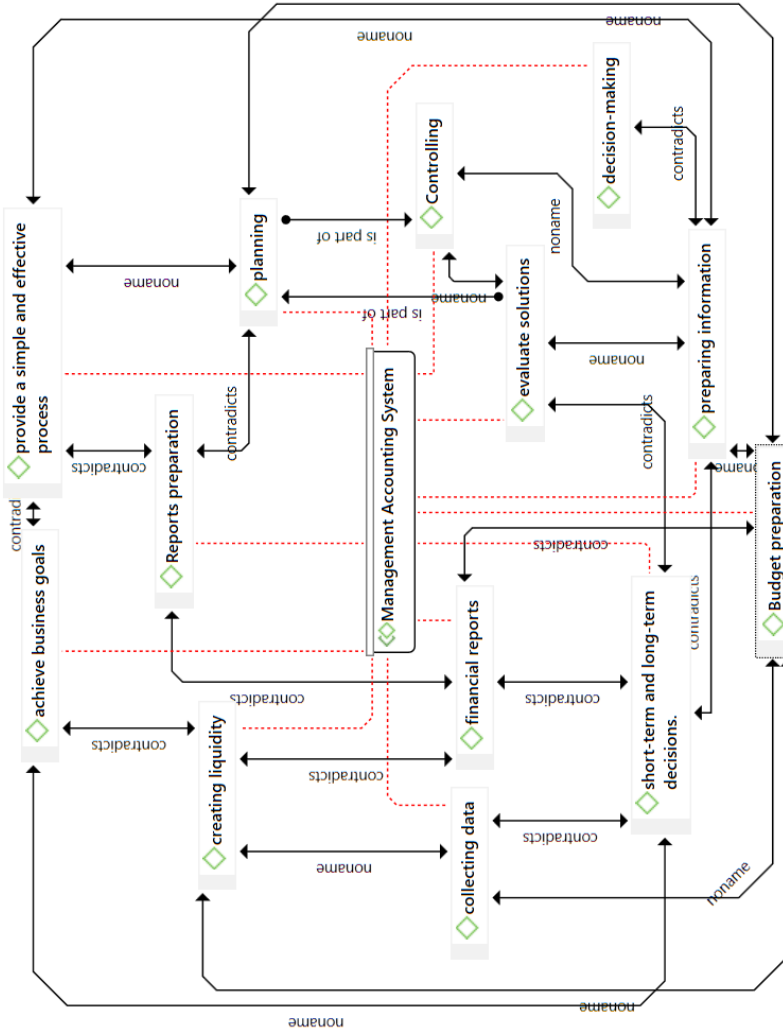
Figure 1: MAS Network based on Atlas.ti 9 (Sourced by author)

According to Figure 1, the above network shows high interconnectedness between the role and importance of MAS within the company relationships.

AABSC Understanding based on the Case Company

Data analysis of the case company shows that the AABSC is one of the modern trends that institutions seek to adopt to face fluctuating environmental obstacles. In addition, the AABSC is a dynamic and flexible tool that can deal with sudden administrative risks and address them through the development of short-term plans (Alharafsheh *et al.*, 2021). Therefore, the MAS of the current company can be flexible and change in response to the environmental risks and address them by aiding decision making. Thus, failure is prevented, and performance can be sustained in the long term. Data analysis shows that the AABSC can be encouraging to exercise shared responsibility and leadership rather than total control of work processes and focus, see value from the customer's point of view, eliminate wastes (things with no exceptional value to the final product), and to listen to the opinions of employees. Thus, this application of AABSC prevents individual decision making, and contributes to the unification of these decisions through heavy reliance on the MAS.

Objectives of AABSC

In this section, through interviews with participants from the case company, this study identifies four objectives of the AABSC: to increase productivity, exploit resources, solve problems, and guide decision makers. All the participants agreed on the importance of these objectives. Several of their opinions are similar and others differ about the explanation. Please see Table 4.

Table 4: Frequency of AABSC Objectives within the Case Company

MAS importance within case company		
Group of codes (items)	**Frequency**	**%**
Increase productivity	17	42
Exploit resources	7	17
Solve problems	5	13
Guide decision makers	11	28
	40	100

Analysis of data in Table 4 shows that the most important goals of the AABSC are as follows:

i. Increase productivity with a frequency of 42%. The use of AABSC can have a strategy to increase productivity by helping people stay on task and setting them up for success, keeping employees focused and engaged while providing them with breathing room. Thus, the findings show that if the staff are happy and comfortable, their productivity increases, which is exactly what the firms need to help grow their business.

ii. Guide decision makers with a frequency of 28%. According to P1, P2, and P4, the top managers always need to make the right decisions; therefore, adopting AABSC is a good step to achieve this goal. P3 stated that AABSC is a particularly useful tool for decision making, which helps the managers gather the necessary and relevant information, weigh the alternatives, and identify a goal to make a decision.

iii. The exploitation of resources with its recurrence rates reaching 17%. The exploitation of natural resources is carried out for economic growth. The participants propose that using AABSC helps their firm and managers reduce wastage of resources and use it to create an appropriate environment. Thus, this goal can help the company gain a deeper understanding of natural resources and motives for these activities and analyse the resources based on their MAS needs (Oliveira *et al.*, 2021).

iv. Solving problems is determined as one of the goals that the AABSC focuses on, with a recurrence rate of 13%. AABSC seeks to help the senior managers in the case company to avoid individual decision making and to follow the MAS to gain financial success, as well as to create a shared understanding between the top management and the staff through strategically relevant aspects.

Advantage of AABSC

Table 5 reviews the advantages of the AABSC on the case company, based on the four interviews with the department managers.

Table 5: Frequency of AABSC Advantage within the Case Company

AABSC advantage within case company		
Group of codes (items)	**Frequency**	**%**
Adjust to market changes	11	31
Adjust to customer demand	15	43
Adjust to internal changes	9	26
	35	100

The data analysis contributes to identifying the advantages of AABSC as an integrated tool for MAS, as shown in Table 5. A frequency of 31% shows that the AABSC can be used to adjust to market changes, and its implementation can help the firm narrow in on the most important decisions to achieve highly effective, well defined, and realistic strategic planning. In addition, 43% of the data analysis shows that AABSC is one of the modern tools that can help firms adjust to customer demand. Keeping current customers happy is key to ensuring their retention. Non-meeting deadlines or ignoring customer inquiries can increase customer dissatisfaction with the company and motivate them to consider competitor services.

Therefore, the implementation of AABSC can help firms to use modern technology such as websites, email, and phone systems, which can enable customers to quickly obtain the information they need as one aspect of customer response. Thus, the company can retain their customers by adjusting to their demands. Moreover, 26% of data analysis shows that implementing AABSC can help any company adapt to internal changes. Focusing on such changes permit increasing production by building new planned tasks, identifying the persons responsible, and tracing work priority, mode, planned duration, and employees to solve the problem. Thus, the AABSC can improve the internal processes and increase innovation and motivation (Klongthong *et al*., 2020).

AABSC Network within the Case Company

The AABSC network shows the patterns and relationships in the implementation data to improve the MAS in the case company, where it links the extracted codes to the core concept. Thus, this network shows how these symbols are intertwined with each other to prove the effectiveness of the AABSC. Please see Figure 2.
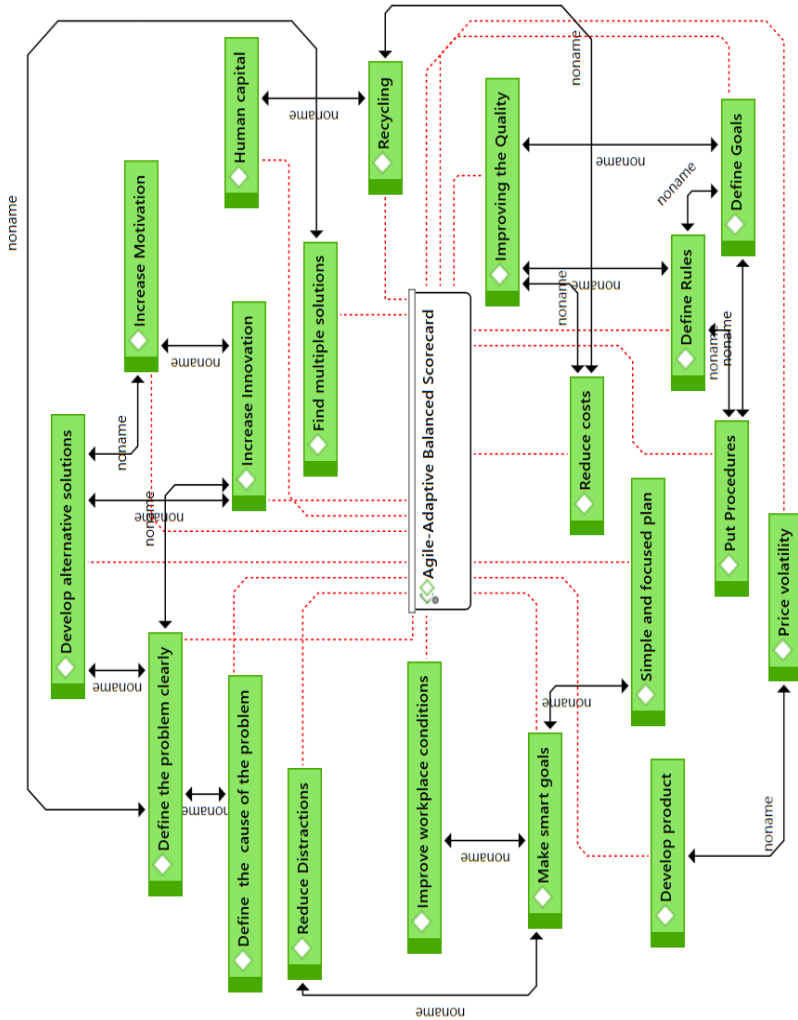
Figure 2: AABSC Network Based on Atlas.ti 9 (Sourced by author)

The network analysis of the implementation of AABSC in the case company shows the importance, objectives, and features of this tool and how it contributes to strengthening MAS of the Iraqi SMEs. The experts of the case company support the implementation of the AABSC, indicating its ability to achieve business stability and continue to compete in the market, through the close link between their objectives and advantages of the tool.

Effectiveness of AABSC on MAS within the Case Company

Data analysis explains how the AABSC can influence the effectiveness of MAS within the case company. The AABSC can help the top management to improve the MAS in addition to helping them understand the level of knowledge between units within the company. Thus, this AABSC helps the company decision makers to process both embedded and independent environmental data to make better investment decisions. On the other hand, the top management can make decisions systematically, which also enables them to overcome the challenges of accommodating complex issues and make sustainable organisational performance measurable and accessible to stakeholders. The AABSC can also help the firm to achieve its economic goals and spread the idea of sustainable development in business (Zawawi & Hoque, 2020). Thus, the MAS and AABSC can help any organisation to expand business, increase profits, support internal operations, increase competitive advantages, pursue goals and customers, and solve their problems. These tools can be considered the compass of senior management in determining the right direction or decision, sorting out wrong trends that can reduce the efficiency levels in performance (Ngo, 2020).

Data Analysis of Word Cloud

The size of a word may be used to depict its frequency and the importance attributed to it by participants. Figure 3 shows the visual representation of text data in this study. The number of times a term appears in the corpus is indicated by its size in the word cloud. In the Word Cloud analysis below, among phrases connected to the AABSC management accounting system, 'management' and 'system' are the most frequently used by the participants.

Figure 3: WordCloud Based on Atlas.ti 9
(Sourced by author)

By considering binary words as one-word, descriptive keyword analysis has been carried out for terms such as 'sustainable development' and 'sustainable performance'. Based on how frequently these appear in the data during the interviews with the case company participants, the most frequent keywords are discovered. According to the word cloud analysis, MAS containing AABSC keywords may be placed in the following order based on how frequently they are used: management, system, accounting, performance, balanced scorecard, financial, flexible, flexible, customer, decision making, quality, cost, and environment. As illustrated in Figure 3, the text analysis reveals that the words management, system, accounting, performance, and balanced scorecard are more prevalent.

DISCUSSION

The data analysis shows the quality of the study findings based on the objectives and advantages of AABSC to improvement the MAS. First, AABSC is an adaptive, flexible tool with a high dynamism, and thus can help the MAS to respond to sudden changes in the business environment and achieve its goals, especially in countries that suffer from economic

turmoil. Second, the findings show that the MAS adoption of the AABSC allows control of all information about customers and their requirements, competitive environments and how they provide services, and thus contributes to the continuation of the company in the market. Third, the findings explain how the MAS of any firm is affected when the AABSC is applied on issues of internal processes, such as increasing the innovation and staff motivation. Last, the findings show that the implementation of AABSC needs a high budget, and this may not be in line with firms that have limited capital, thus its implementation is not compatible with the requirements of these firms.

Research Implications

The results of this study can help and provide guides that can help the managers of institutions, especially SMEs, in addition to leaders and researchers in the social sciences, which is addressed through the sub-discussions below.

Theoretical Implications

The findings of this study contribute significantly to existing literature. This study is considered the first of its kind to use and explore the role of the AABSC as an integrated tool to improve the effectiveness of MAS in SMEs. Moreover, this study uses for the first time the qualitative approach to obtain results, which is an effective contribution to AABSC literature. Lastly, the findings from the interviews are correlated with the results obtained from other literature reviews, which provide a platform for further study to enhance the use of AABSC to improve the MAS in SMEs.

Practical Implications

Another segment that can benefit from this research is the institutions, especially SMEs, in addition to small business owners (SBOs) in organisations that suffer from instability in their business environment and economies due to competition in the local markets. Furthermore, focusing on developing and improving the MAS of SMEs can contribute to increasing the competitive advantage and the ability of enterprises to respond to sudden environmental changes, thereby improving the strategic planning of firms. Finally, this study can enhance innovation and increase

customer satisfaction, hence improving the quality of MAS for decision making in the long term.

Limitations

This study encounters several limitations that are recommended to be addressed in future research. First, the extracted results are from a single case study, and thus cannot be generalised. Second, this study focuses on a small number of participants to control the data and shorten the time for data collection. Therefore, extending the data collection period and allowing more participants to express their opinions can be carried out for future research. Third, the primary data are represented by personal interviews. The data collection can be enhanced with secondary data defined by documents review, observations, magazines, and websites in future studies. Finally, due to the outbreak of COVID-19, the interviews are done online during home quarantine. Accordingly, this study recommends the adoption of field interviews (face to face) to read, understand, and analyse the participants' personality, in addition to their understanding of the study content through the physical analysis represented by the eye-tracking technology and facial reactions.

CONCLUSION

Empirical literature review on AABSC adoption and implementation has considerably advanced over time and can continue to do so by considering macro-level study topics. Moreover, new subjects of interest can be considered, such as the implementation of AABSC as an integrated tool to improve the effectiveness of MAS in SMEs. Firms still struggle to support and enhance MAS to help managers in decision making. However, one of the biggest issues of today's firms is the ability to correctly complete the decision in the long term, leading to a decline in the firm performance. At times, they fail to continue due to the inability of MAS to allow good decision making, which complicates the processes of responding to customer needs, in addition to the failure of controlling the internal processes in product development due to the absence of innovation. According to the suggestions and recommendations mentioned above for future research, this study provides a synthesised outlook on AABSC literature and suggests that

a study schedule can deliver value to managers and researchers in this field. Future studies can also consider suggested topics to develop the literature about AABSC implementation. Finally, this study hopes to encourage other researchers to join this journey by providing new ideas on expanding the current research on AABSC towards improving MAS in firms, especially in SMEs.

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Factors Affecting Food Delivery Riders' Intention to Participate in the Gig Economy

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ABTRACT

Since COVID-19 became a global pandemic, there has been a rise in the number people joining the food delivery platforms (FDPs). Although this form of gig work is gaining its pace, food delivery riders (FDRs) are seen to be falling behind in terms of rules and legislations designed to safeguard their employment. To understand the spread of these unstable forms of employment, it is essential to comprehend the factors that keep FDRs in it. This quantitative study employed PPM to determine the relationship between push, pull, and mooring factors and FDRs' intention to participate in the gig economy; and to test whether these factors prevent or lead to their participative behaviour. The SPSS 26.0 and Smart PLS 3.30 programmes were used to analyse the survey data from 393 respondents. Economic necessities, extra income, flexibility, and control and autonomy, encourage FDRs' gig economy participation, whereas limited alternatives and enjoyment minimise it. It is also evident that FDRs will have lower participation due to the lack of employment protection that also moderates the relationship between economic necessities and their participation in the gig economy. This research provides widespread implications for both theory and practise.

Keywords: *food delivery riders, food delivery platforms, gig economy, precarious employment, labour laws*

INTRODUCTION

'Gig economy' refers to a segment of the labour market where independent firms and contractors utilise internet marketplaces to hire temporary workers and pay them by the project or hour (Roy & Shrivastava, 2020). In the gig economy, customers hire independent freelancers (or 'giggers') via internet platform companies. The advent of this technological breakthrough has allowed companies and customers to have access to inexpensive, on-demand labour, but the experiences of gig workers have been more nuanced. They have access to employment that is very adaptable and may even be entirely independent, but they must also overcome obstacles stemming from the insecurity of the job and their interactions with platform companies (Bajwa *et al.*, 2018). Gig worker refers to a self-employed person who works on many short-term projects or contracts for a variety of different companies. In the field of managing, one's online reputation, some people may find gig work via the use of a website or mobile application, while others may depend more heavily on personal recommendations (Mukhopadhyay & Chatwin, 2020). The Department of Statistics Malaysia (DOSM) defines the gig economy as 'work that is short-term, project-based, and outcome-defined, work that is obtained through an online platform with work doled out in bits and pieces' (Abraham *et al*., 2018). 'Crowd work' which involves doing tasks online, and 'work-on-demand through applications' are also part of the gig economy (De Stefano, 2018).

As of the year 2018, 3,043,300 Malaysians were doing part-time jobs in the private sector or on their own accounts. 559,900 employees were classified as independent contractors (18.4 percent). It was estimated that there were 302.1 thousand male gig workers, making up 54 percent of the total, while there were 257.7 thousand female gig workers (46 percent). Despite being controlled by males, women are overrepresented in the gig economy (38.9 percent) (Ahmad, 2020). The service sector, which accounts for most economic activity, has the most gig workers. Most gig workers work in wholesale, retail, transportation, and storage. These sectors account for 36.8 percent and 16.2 percent of the entire workforce, respectively (Ramli *et al*., 2018). Over 160,000 people in Malaysia are currently working as drivers for e-hailing services. It is currently predicted that there would be between 50,000 and 60,000 Grab and Uber drivers, although there are just 37,000 taxi drivers in the area in less than five years since the start of these

services (Suhaimi *et al.*, 2018). Furthermore, the growth of digital mediums has enabled independent work to be disseminated abroad. According to statistics collected from six of the most prominent English-language labour platforms in the world, the global labour platform economy expanded by more than 26 percent between July 2015 and June 2016, as measured by the number of tasks and projects that were successfully completed.

The topic of employees' involvement in the gig economy has been the subject of several research, with many of these studies examining the aspects that have been demonstrated to have either a positive or negative influence on workers' participation; locus of control, need for achievement, egoistic passion, desire for independence, drive, self-efficacy, risk-taking propensity, and tolerance for ambiguity. For example Karlsson and Wranne (2019), examine intrinsic motivation, competence needs, relatedness needs, and autonomy needs (Jabagi *et al*., 2019), assignment or sales, autonomy, payment by task, and short-term relationship between the worker and the customer (Manyika *et al*., 2016), extra charges, delivery delays and unclear distribution of responsibility (Asih *et al.*, 2019), financial insecurities, isolation, stress, and uncertainties due to short-term schedules. There is a paucity of studies that empirically examine the lack of employment protection as a predictor of employees' engagement in the gig economy in time of COVID-19 pandemic. The notion of Push-Pull-Mooring (PPM), is often employed to ascertain people's propensity to transfer jobs, has also been underutilised in the context of the gig economy. Furthermore, this study found that no studies have been conducted to yet in Malaysia to evaluate variables affecting the intention of FDRs to join in the gig economy. Therefore, the purpose of this research is to fill the gap by identifying the elements that either attract or discourage people from participating in the gig economy. The findings will contribute to the existing literature by providing the relevant stakeholders with the recommendations for the development of better policies, rules, and regulations regarding the administration of FDRs employment in Malaysia.

LITERATURE REVIEW

Intention to Participate in the Gig Economy

The term 'attitude toward behaviour' refers to how positively or negatively one feels about engaging in a certain behaviour, whereas the term 'social norm' describes the degree to which one feels social pressure to engage in a particular behaviour from significant others like family and friends (Liñán & Chen, 2009). In addition, Mamman *et al.* (2016) noted that the complexity of an individual's desire to attempt and how much the purpose was intended to conduct a behaviour is characterised as the activity's aim. The notion of planned conduct, as articulated by Brayley *et al.* (2015), states that the purpose or readiness to participate in the activity is a precursor to action. In addition, Ajzen (2011) argues that one might gauge one's preparedness to do an action by one's intention or desire to show the activity. During the decision-making process, Zhang (2018) listed three factors attitude, subjective norms, and behaviour control that might affect an individual's conduct intentions. One of the things that motivates people to act is their purpose to behave in a certain way (Ajzen, 2012). Some of the oldest research on behaviour intention comes from Fishbein and Ajzen (1977), who state that the concept of behaviour intention was first introduced in the field of psychology. According to Yeo *et al.* (2017), a person's attitude might reveal their willingness to perform. An individual's behaviours are decided by his or her behaviour criteria, and a positive attitude leads to behaviour that result in product or technology adoption. In this research, gig economy participation will be used as a dependent variable.

Push Factors and Intention to Participate in the Gig Economy

Push factors explores into certain unfavourable aspects of life that induce people to leave their homes (Moon, 1995). These elements, often known as stresses, are those that cause individuals to stop using the goods or services that are already available (Kang *et al.*, 2021). In this study, push factors can be defined as the reason that forces FDRs into the gig economy. Push factors describe the unfavourable features of the FDRs. FDRs are encouraged to keep working in the gig economy by these unfavourable characteristics. Push factors, which serve as independent variable in this

study, will include economic necessities, limited alternatives, and extra income.

Economic Necessities

Previous research distinguished between those forced into temporary labour by economic conditions and those unable to obtain permanent job (Feldman, 1990). Korábová (2019) discovered that consumers joined the e-hailing service Uber because of their need for money. The findings reveal that a larger proportion of respondents reported a favourable impact on their plans to participate in the sharing economy. It is claimed that collaborative consumption has already altered the competitive landscape in a number of sectors and industries and promoted the entry of new competitors. Due to its economic advantages (cost-savings), the sharing economy has drawn the attention of many (Henten & Windekilde, 2016). Individuals may have different experiences with gig workers depending on their financial circumstances. Some people may use their gig economy employment as their main source of income, while others may only use it to pass the time between their permanent jobs or other side gigs (Kalleberg & Dunn, 2016). Also, the duration of work seems to influence the amount of salary that gig workers gain (Ashford *et al.*, 2018). As most workers have experienced a reduced income during the COVID-19 pandemic due to various industrial relation exercises (e.g., Layoff, and termination), this study proposes the following hypothesis:

H1a: Economic necessities are positively related to FDRs' intention to participate in the gig economy.

Limited Alternatives

Since the beginning of the pandemic, there has been a significant shift in the working world. The risk of a pandemic has resulted in a dramatic alteration of people's working life, including a rise in the incidence of unemployment, sudden shifts in working hours, and the need that people work from home whenever it is feasible (Lafferty *et al.*, 2022). MacDonald and Giazitzoglu (2019) suggested that the 'gig economy' and other modern labour market features (such as the 'low-pay, no-pay' cycle, self-employment, and 'zero-hours contracts') that young people confront seem to be characterised by a lack of choice. Keith *et al.* (2019) found that workers using Mechanical Turk (MTurk) as their primary source of income

due to them being unemployed. The gig workers can be considered to have limited labour rights such as protection for discrimination, safety, and health purposes (Christie & Ward, 2019). Sevilla (2020) found that working in online transport platforms often means that workers do not have to have a higher education degree and diverse working experiences. The results showed that one of their reasons for joining the gig economy is because of their lack of options in choosing a job. It ranges from limited skills, education, to working experiences. For several participants, these limitations pushed them into working into this industry, which only requires their driver and transport license. Based on these findings, this study proposes the following hypothesis:

H1b: Limited alternatives are positively related to FDRs' intention to participate in the gig economy.

Extra Income

In a study conducted by Moussawi and Koufaris (2015) it was found that money was cited as the primary motivation for participating in crowdsourcing platforms by the respondents. Moreover, employees said that the money they brought in either was a complement to their main source of revenue or was used as their main source of funding altogether. Some gig workers made their living exclusively via one of these sites for a number of years, while others have supplemented their income with the odd gig (Smith, 2016). According to Barany *et al.* (2020), being a Grab partner has enhanced their reputation in the eyes of lenders, making it simpler for them to get loans. This study also found that majority of the respondents claiming joining Grab increased their credibility with lenders. The biggest motivator for gig labour, according to Churchill and Craig (2019), is money. According to Berg *et al.* (2018), a third of employees on digital platforms said that gig work was their primary source of income while the other half said that they undertook this work to supplement the money from other occupations. Diogo and Branco (2019) discovered that Grab drivers were interested in the position since it let them earn more money because they were paid daily, and because it did not put them under excessive stress. Based on those findings, this study proposes the following hypothesis. Based on these differences of findings, this study proposes the following hypothesis.
H1c: Extra incomes are positively related to FDRs' intention to participate in the gig economy.

Pull Factors and Intention to Participate in the Gig Economy

Pull factors are frequently used to describe appealing aspects of a place to visit. The benefits that a location provides to individuals are known as push factors and are sometimes referred to as attractors. This might involve better career prospects, higher income or educational levels, more favourable surroundings, or chances to engage in novel activities (Bansal *et al.*, 2005). Pull forces entice someone to take up a new position (Gussek & Wiesche, 2022). The pull factors, which serves as an independent variable in this study can be defined as the reason that attracts FDRs to participate in the gig economy. The push factors include flexibility, control and autonomy, and enjoyment.

Flexibility

The systems that support the gig economy seem to provide employees an incredible amount of temporal flexibility, allowing them to have complete discretion over how they spend each hour and minute of the day (Lehdonvirta, 2018). From the point of view of employees, flexibility refers to their capacity to define and regulate their working hours, as well as their location of employment, their speed of work, and their work schedules - all of which are essential components of the quality of their jobs (Kalleberg, 2011). Wood *et al.* (2019) argued while emerging research on the gig economy has pointed out that such flexibility remains a fantasy for most employees, the facts remain that workers experience some of the benefits associated with flexible working arrangements hence pull them into the gig economy. According to Chen *et al.* (2019), one of Uber's appeals is the flexibility provided to drivers. Drivers have the option of providing relatively few hours per week, as well as flexible scheduling of these hours throughout the week. The capacity of an Uber driver to adjust on an hourly basis to variations in demands on her time is another significant source of flexibility. According to Ashkrof *et al.* (2020), the main incentive for drivers to join the system was their appreciation for the freedom to select a working schedule and location. Based on these various arguments, this study proposes the following hypothesis:

H2a: Flexibility is positively correlated with FDRs' intention to participate in the gig economy.

Control and Autonomy

According to Ashkrof *et al.* (2020), drivers for ride-sharing services are also fleet owners in addition to being chauffeurs. During the course of their employment, ride-sourcing drivers must make various key decisions, including whether to take a trip, their relocation plans, their working shift, and their geographic location. According to Wood *et al.* (2019), the majority of workers also had to put in long, unpredictable hours despite appreciating the chance to choose their own schedules in order to fulfil client demands. Every person in the gig economy has access to several sorts of control. The types of control are explained by Kalleberg and Dunn (2016), which first, autonomy is a form of the workers' control over what they do on their job, second, scheduling in a way that the workers manage their priorities and timing to find a work-life balance, and how long the workers can keep their jobs. In this section, the framework will focus on the workers' capabilities in controlling their work in order to assess how they experience such control in the gig jobs. MacDonald and Giazitzoglu (2019) found gig workers enjoy the autonomy that they experience during their work on the online transport platforms, a significant number of findings however shows that they experience many concerns regarding their low income. Based on these arguments, this study proposes the following hypothesis:

H2b: Control and autonomy are positively correlated with FDRs' intention to participate in the gig economy.

Enjoyment

Lee *et al.* (2018) found the degree to which users believe they will profit from participating in the sharing economy (in terms of both enjoyment and financial gain) is the factor that has the most impact on their decision to do so. Therefore, in order to promote user engagement in the sharing economy, businesses have to concentrate on conveying the idea that doing so would result in good economic return and a pleasurable experience. In addition, businesses should come up with reasonable pricing plans for the services related to the sharing economy that they provide. According to Smith *et al.* (2014), enjoyment is a positive affective state that happens when a person participates in an event or activity that meets a need or want, including but not limited to the need for love, esteem, belongingness, security, or pleasure. The level of perceived enjoyment associated with engaging in the sharing economy, independent of any potential performance implications, is

referred to as enjoyment (Marquis *et al.*, 2018). The sharing economy has been widely viewed as having significant inherent benefits, and enjoyment is one among them (Oliveira *et al.*, 2022). According to Ostztovits (2021), 63 percent of respondents said that interacting with traditional businesses was less enjoyable than doing so in the sharing economy. According to McArthur (2015), people are drawn to participate in lodging sharing (such as Airbnb) because it gives them a feeling of novelty and real experience. Based on these arguments, this study proposes the following hypothesis:

H2c: Enjoyment is positively correlated with FDRs' intention to continue participating in the gig economy.

Mooring Factor and Intention to Participate in the Gig Economy

Mooring considerations, also known as intervention barriers, are associated with components that encourage human migration. These characteristics are supplementary components to the push-pull effect of PPM and are connected to individual circumstances, mental factors, values, standards of life, and societal effects (Kim *et al.*, 2019). In the absence of a proactive governmental strategy to regulate and support the expansion of paid employment, Rachmawati *et al.* (2022) observed that online ojek riders faced significant obstacles from new types of non-employee labour. In order to evaluate the associated antecedents that may influence FDRs' desire to continue working in the gig economy, this study used a variety of characteristics on precarious employment settings from previous studies.

Lack of Employment Protection

Desperation among freelancers stems from their well-known vulnerability and is exacerbated by the confluence of factors altering their employment landscape. Freelancers working online are inclined to give in to market pressure and keep bidding for additional work, even when doing so is counterproductive because of the growing quantity of available work and the resulting decrease in pay. According to Horney (2016), the emergence of the gig economy and online talent portals has given a new definition to employment, employees, and employers that do not fall under the purview of existing labour laws, posing a significant problem and necessitating

the development of new labour models. Gig employment has detrimental effects on gender equality since it does not offer paid parental or maternity breaks or time off for caregivers (Altenried, 2021). Employment law faces its biggest difficulty, coping with a vastly different reality than when it was created. This article explains why employees need protection. Even when the state provides for it, taking time off can be dangerous since platforms for absence can deactivate or remove employees, and access to positions rely on reputation, with excellent reviews being crucial for recently completed tasks (Goods *et al.*, 2019). According to Popan and Anaya-Boig (2021), self-employed contractors who receive minimal social security are hired by food delivery start-ups like Deliveroo, Uber Eats, or Glovo. This study assumes that the lack of employment protection would not encourage FDRs' participation in the gig economy. Therefore, this study proposes the following hypothesis:

H3: The lower the lack of employment protection between the FDRs and the FDPs, the lower the FDRs' intention to participate in the gig economy.

Lack of Employment Protection as a Moderator

As highlighted earlier, this research is giving emphasis on the precarious work setting in relation to FDRs' intention to participate in the gig economy. The recent Malaysia High Court ruling dated July 9th 2021 that determined the claimant, an e-hailing Grab driver, was not an employee is regarded as being of great significance and could have an impact on FDRs' decision to continue participating in the gig economy (Cheah, 2021). This study predicted that, during the COVID-19 pandemic, the lack of employment protection would moderate the relationship between push and pull factors with FDRs' intention to continue participating in the gig economy. Based on these arguments, this study argues that the lack of employment protection has positive moderating effect on the push and pull factors; hence, the following hypothesis is suggested:

H4a: The lack of employment protection will moderate the relationship between the economic necessities with FDRs' intention to participate in the gig economy.

H4b: The lack of employment protection will moderate the relationship between the limited alternatives with FDRs' intention to participate in the gig economy.

H4c: The lack of employment protection will moderate the relationship between the extra incomes with FDRs' intention to participate in the gig economy.

H4d: The lack of employment protection will moderate the relationship between the flexibility with FDRs' intention to participate in the gig economy.

H4e: The lack of employment protection will moderate the relationship between the control and autonomy with FDRs' switching intention to participate in the gig economy.

H4f: The lack of employment protection will moderate the relationship between the enjoyments with FDRs' intention to participate in the gig economy.

Push Pull Mooring Theory

This research will use PPM to analyse FDRs' gig economy participation. PPM explains human migration (Hou *et al.*, 2014). The PPM idea comes from human migration studies (Lee, 1966), which investigate push and pull factors from origin to destination (Chang *et al.*, 2014). Moon (1995) added mooring aspects to the pull-push concept. In migration theory, mooring factors restrict or assist movement. Loss of job, natural catastrophe, bad working conditions, minimal fringe benefits, and limited promotion opportunities are push factors. PPM theory has been used in many domains. Xu *et al.*(2021) studied online learning platform user switching. Lin *et al.* (2021) studied telelearning's switching intention during the COVID-19 outbreak, Guo *et al.* (2021) studied Chinese customers' switching intention of smartphone manufacturers, and Chang *et al.* (2014) studied the push, pull, and mooring effects in virtual migration for social networking sites. This is completely consistent with the challenges faced by most FDRs who were engaged by the FDPs. FDPs need to solve the challenge of encouraging FDRs to continue taking part in the gig economy. Hence, drawing from the findings of the earlier research, in particular studies made by Angelucci (2020), Keith *et al.* (2019); Sevilla (2020); Paul (2018); and Karlsson and Wranne (2019), as well as the connection between theory and practices made by past studies, this study used the PPM theory as a guide to conduct an investigation into the elements that affect FDRs' intention to participate in the gig economy.
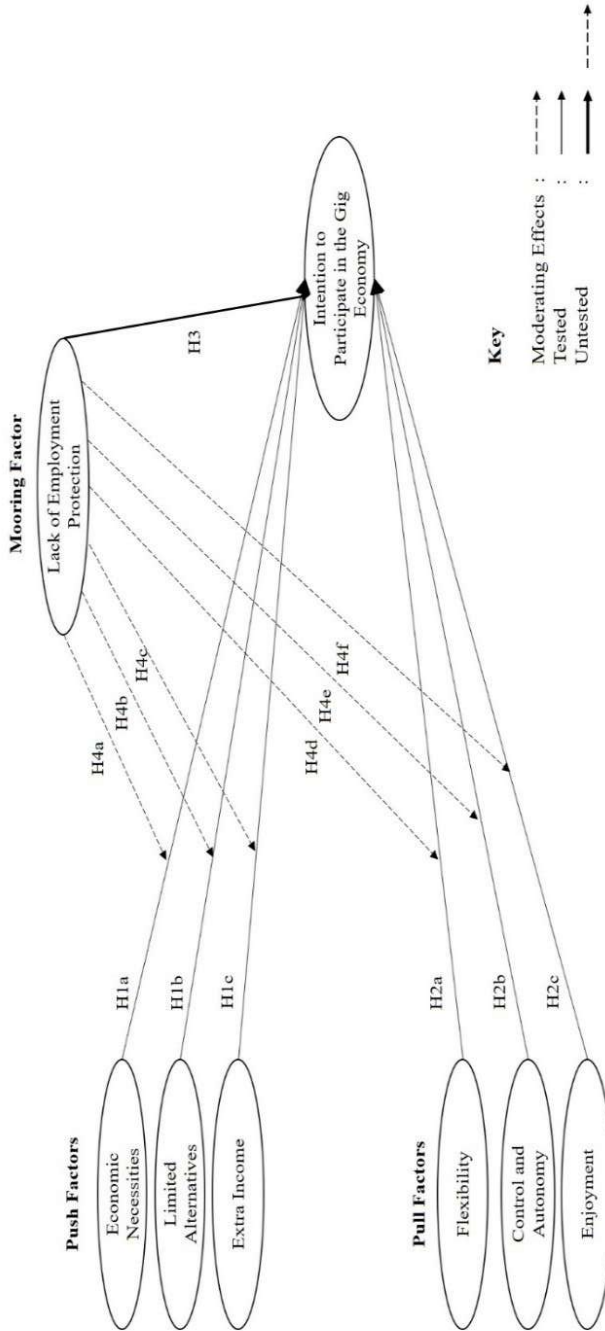
Research Model

Figure 1: Research Model

This research applied PPM theory to identify factors that affect FDRs' intention to participate in the gig economy. Secondly, this study tested whether the PPM variables prevented or supported those intentions by placing particular emphasis on the lack of employment protection (mooring factor). The research model is shown in Figure 1. This study identified seven factors that are hypothesized to directly affect the FDRs' intention to participate in the gig economy.

RESEARCH METHODOLOGY

Research Design

An experimental research design has been used in this quantitative study as it assists in determining the causal relationships between variables. This design assists the researcher by systematically creating a set of procedures to test the proposed hypothesis. The independent variable in experimental research is subjected to intervention, or the active modification of the variable. It is necessary to choose a sample of the population at random, and participants are divided into distinct groups using this method. The participants, the dependent variable, are subjected to an intervention, and the results of this process are documented. If the study finds that the intervention does have an impact on the population in question, then the researcher will examine the changes that have been brought about by the intercession in order to establish how and why those effects came about. The goal of such an investigation is to determine the influence of some external component or independent variable on some other element of interest. According to Kabir (2016), research conducted with the explicit goal of disproving an existing theory is known as hypothesis-testing research. It might be either experimental or non-experimental in nature.

Questionnaire Development and Measurement

In this study, a multi-dimensional, multi-item scale was created. Thirteen dimensions were identified after literature research. The survey's objective was described in the cover letter, along with the confidentiality and anonymity of the responders. A quick explanation on how to answer was also supplied. The questionnaire featured close-ended questions in each

of its five sections. On a five-point Likert scale that ranges from 1-strongly disagree to 5-strongly agree, respondents were asked to indicate how much they agreed with the various statements. Measurement items for constructs were adapted whenever possible from earlier, verified studies. To make sure the items are relevant to this specific study environment, the wordings of the items have undergone rigorous revision. This study modified questions from Sevilla (2020), Bajwa *et al.* (2018), and Graham *et al.*(2017) to better reflect the economic necessities' variables. The same method was used for limited alternatives variables of the said study. The other items for extra income, flexibility, control and autonomy, and enjoyment, were modified from studies executed by Keith *et al.* (2020) and Keith *et al.* (2019). While precarious work setting item was modified from the past studies made by Paul (2018), Rachmawati *et al.* (2022), and Sargeant (2017).

Questionnaire Pre-test

To ascertain the questionnaire is valid and reliable, focus group pretesting method was conducted with 30 FDRs that have been selected randomly. The respondents were identified based on their active communication via FDR's Facebook group especially those selling preloved items such as food delivery gears (indicating a shift in FDPs). They were then contacted directly via Facebook private messages and later communicated via WhatsApp application. The two-week pre-test was finished in October 2021. Based on the pretesting, the terminology of the questionnaire was adjusted to reflect the actual delivery methods utilised by the FDRs' participants based on the findings of the pre-test and interviews. A Malay set of questionnaires has been drafted to suit the FDRs' language barrier. A certified proofreader has been engaged to translate the Malay drafted questionnaire before disseminating them to the FDRs. Emphasis has been given on the ethical considerations in accordance to recommendations made by Bryman and Bell (2007).

Sampling Frame

This study used the purposive sampling method after taking into consideration the aims and goals of the research project, different categories of people are likely to possess unique and significant points of view with regard to the concepts and issues at hand, and as a result, they need to be

included in the sample (Robinson, 2014). According to Palinkas *et al.* (2015), the discovery and selection of examples through purposeful sampling is an approach that makes optimal use of the limited research resources that are available. It is 'used to choose responders who are most likely to offer appropriate and helpful information'. Although various platform contains 'super apps' that allow users to have a range of order delivery options via the app, such as parcel delivery, this study has focused solely on FDRs in accordance with the study's scope. Out of 20 FDPs currently operating in Malaysia (Sia, 2022), five FDPs in Klang Valley has been selected with an estimate 150,000 FDRs.

Data Collection

The survey has been conducted online. A permission has been sought and obtained from several administrators managing FDRs' Facebook for various FDPs operating in Klang Valley to communicate with the FDRs. The questionnaire took an average of 15 minutes to complete. The research's objective was described in the cover letter, which also guaranteed the respondents' anonymity and confidentiality. Potential participants had 10 days to complete and submit the questionnaires for this study. Participants have to consent to providing their informed consent before moving on to the survey questions. Respondents were informed in the questionnaire that taking part in the study was optional. The data was gathered from October 2021 to February 2022. The researchers got 403 surveys from a projected 384 sample size (Raosoft, 2014), with an error margin set at five percent and a confidence range of 95 percent. Ten questions were removed because they did not fulfil the requirements for a minimum of survey completion. A response rate of 92.31 percent was obtained from the 393 questionnaires.

Data Analysis

SPSS 26.0 and SmartPLS 3.30 were used to conduct the analysis. The programme performs statistical analysis on a sizable sample and use structural equation modelling (SEM) to estimate measurement indicators and latent variables in the model. A mathematical model called PLS-SEM provides an objective representation appropriate for processing models in several stages. It is frequently used to assess the relationship between observable and latent variables in the fields of behavioural and social

sciences. Since SmartPLS version 3.30 (Ringle *et al.*, 2015) suits the researchers' prediction-oriented purpose, the researchers used it to analyse the data. Additionally, the model featured a substantial number of latent variables, and the data were not regularly distributed.

RESULTS

Assessment of Reflective Measurement Model

In accordance with the validation guidelines provided by Straub *et al.* (2004) the reflective measurement model needs to undergo at least the following tests in order to be considered fit for use: the unidimensionality procedure, the internal consistency reliability, the indicator reliability, the convergent validity, and the discriminant validity. The goal of unidimensionality is to get rid of the thing that have a less proportional impact on these parameters. To be more specific, the process for removing items consisted of two distinct types: the multidimensionality technique and the unidimensionality approach. Despite the fact that both procedures seem to be quite different while they are being used to carry out the study, they both perform the same essential function in preserving the items that are associated to the factor. In most cases, researchers choose value above quantity (Afthanorhan, 2013).

Demographic Profile of Respondents

This study included the information of FDRs as control variables. The variables include FDRs' age, qualifications, current attachment, years of work, and delivery vehicle used for delivery as shown in Table 1. These control variables were commonly used by scholars (Liang, 2019).

Table 1: Descriptive Statistics of the FDRs' Basic Information

Category	Items	Sample Size	(%)
Age	18-20	41	10.4
	21-30	225	57.0
	31-40	90	22.9
	41-50	37	9.4
	51-60	1	0.3
Qualification	SRP/PMR	5	1.3
	SPM	67	17.0
	STPM/Diploma or equivalent	168	42.6
	Bachelor Degree or equivalent	144	36.5
	Masters/PhD Degree or equivalent	5	1.3
	Others	5	1.3
FDP	Grabfood	152	38.6
	FoodPanda	134	34.0
	BungkusIt	48	12.2
	HomeTaste	27	6.8
	DahMakan	18	4.6
	Others	15	3.8
Years of work	Less than 1 year	269	68.3
	1 to less than 3 years	112	28.4
	3 to less than 6 years	12	3.0
	6 years or more	1	0.3
Delivery Vehicle	Bicycle	1	0.3
	Scooter	6	1.5
	Motorcycle	372	94.4
	Car	15	3.8

Measurement Model Analysis

Examining the measurement model includes convergent and discriminant validity. Loadings, AVE, and composite reliability are needed to establish if convergent analysis was successful (Gholami *et al.*, 2013). Table 2 shows the measuring model.

Table 2: Measurement Model

| Latent Construct	Items	Factor Loadings	Average Variance Extracted	Composite Reliability	Cronbach's Alpha
Control and autonomy	CA	0.688	0.624	0.827	0.763
Enjoyment	E	0.594	0.520	0.812	0.760
Extra income	EI	0.728	0.573	0.841	0.777
Economic necessities	EN	0.714	0.601	0.857	0.779
Flexibility	F	0.797	0.601	0.856	0.776
Intention to participate	ITP	0.692	0.906	0.949	0.767
Limited alternatives	LA	0.668	0.572	0.842	0.761
Lack of employment protection	LEP	0.768	0.709	0.924	0.761

Assessment of Construct Reliability
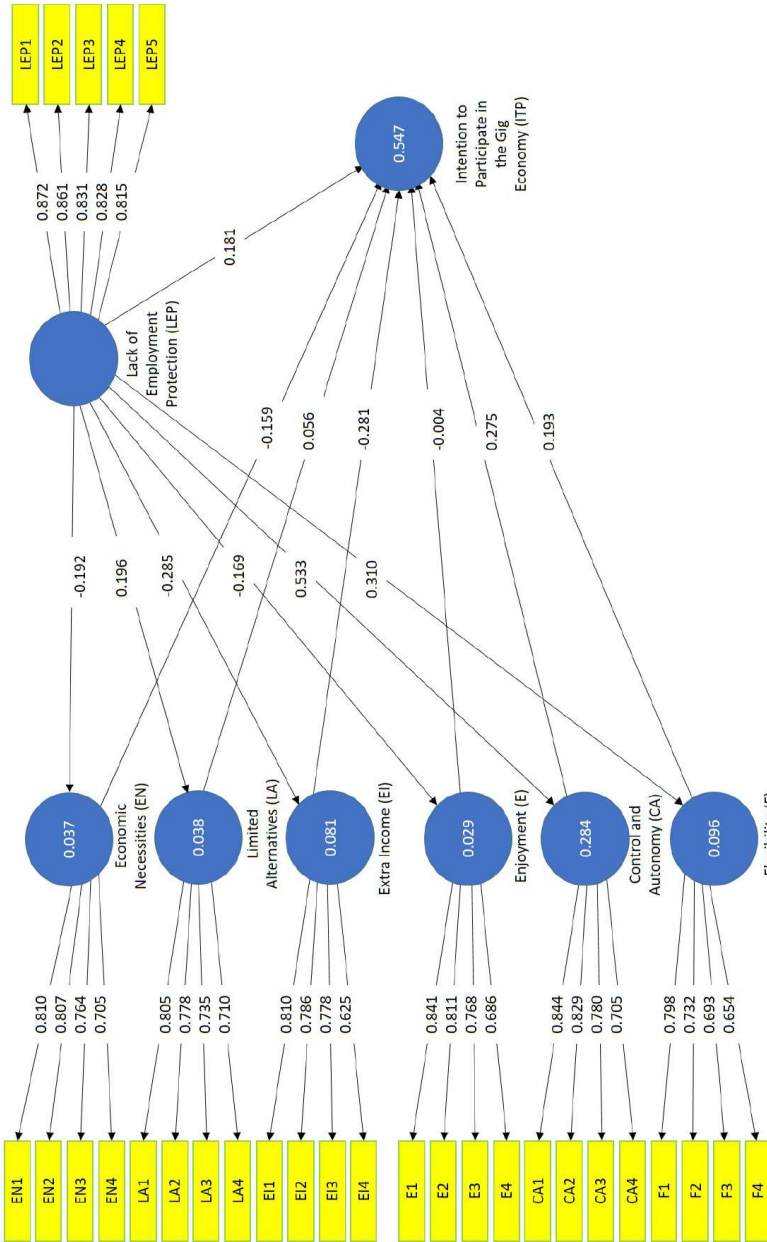
Figure 2: Measurement Model with PLS Algorithm

All item loadings above 0.5 indicate indicator reliability (Hulland, 1999). This study tested the scale items' convergent validity using three criteria. First, as recommended by (Hair Jr *et al.*, 2017). Each construct's composite reliability should surpass 0.70. Each construct's AVE should be >0.50 (Fornell & Larcker, 1981). AVE is the squared indicator loadings divided by the number of indicators. All constructs in this analysis had convergent factor loadings. All loadings were over 0.50, most over 0.60. High factor loadings indicate convergent validity. As all AVE are above 0.50, the model has converged. All constructions' composite reliability and Cronbach's coefficient were over 0.70, ensuring the scale's internal consistency. The structural model was accurate because both R-square and the path coefficient were over 0.43 and 0.65. Figure 2 summarises the measurement model using SEM with eight variables (refer Table 4).

Assessment of Convergent Validity

Convergent Validities produced from AVE observations are the first aspect of the measurement models to be observed. The AVE should be greater than 0.50 (AVE > 0.50) (Fornell & Larcker, 1981). AVE is the average positive association between a set of variables and their related construct or latent variables (LV). This is calculated by dividing the full amount of data (all variables) by the number of constructions or LV. Every AVE was over 0.5, proving convergent dependability (Bagozzi & Yi, 1988). Internal consistency is demonstrated when the composite reliability (CR) is greater than 0.70. (Gefen *et al*., 2000). When Cronbach's alpha is larger than 0.7, the indication is dependable (Nunnally, 1978). When all factor loadings and the average variance were over 0.5, convergent validity was met. The Fornell and Larcker (1981) technique was used to validate divergent validity.

Assessment of Discriminant Validity

Fornell and Larcker (1981) advise calculating the square root of AVE in each variable's correlation coefficient to verify discriminant validity. For every data, the square root of the variance between each structure and each AVE is bigger than any correlation coefficient between structures and the meeting's good discriminative validity requirement. The constructs' correlation exceeds the diagonal value, proving the measurement tool's construct validity.

Cross Loading Criteria of Discriminant Validity

The survey's discriminant validity measures how well questions distinguish across notions or ideas. This will be identified by looking at item cross loading (Table 5) and Fornell and Larcker (1981) criteria (Table 6). Table 3 shows that every loading was larger than the total of the cross-loadings, proving discriminant validity. In the following analysis, the correlations between distinct constructs were compared to the square root of each construct's average variance.

Table 3: Indicator Items Cross Loading

Items	CA	E	EI	EN	F	ITP	LA	LEP
CA	0.843	0.270	-0.192	-0.223	-0.272	0.442	0.243	0.457
E	0.118	0.778	-0.345	-0.150	0.076	0.197	0.159	0.128
EI	-0.136	-0.135	0.810	0.315	0.134	-0.379	0.049	-0.196
EN	-0.225	0.005	0.251	0.810	0.003	-0.296	-0.051	-0.126
F	-0.338	-0.013	0.163	0.102	0.798	-0.341	0.404	-0.307
ITP	-0.546	0.217	-0.468	-0.429	-0.412	0.954	0.241	0.486
LA	0.232	0.061	-0.017	-0.051	0.267	0.185	0.805	0.183
LEP	0.456	0.143	-0.281	-0.139	-0.255	0.462	0.216	0.872

Table 6 shows Fornell and Larcker (1981) discriminant validity results. Bagozzi and Yi (1988), define discriminant validity as the difference between first- and second-principal indexes. All diagonal values were bigger than row and column values, indicating discriminant measures.

Fornell and Larcker (1981) Criteria of Discriminant Validity

An indicator's outer loading on the related construct should be bigger than all of its loadings on other constructs on each item row. Cross loadings that exceed indicator outer loadings indicate discriminant validity issues (Hair Jr *et al.*, 2014). No cross loading differed from the selected indicator by less than 0.2 across each indicator row (see Table 3). Hence, this study shows discriminant validity. The AVE mode compares the square root of the AVE values with the LVC in the row and column (Table 4).

Table 4: Discriminant Validity (Fornell and Larcker Criterion)

Items	CA	EN	E	EI	F	ITP	LEP	LA
CA	**0.791**							
EN	-0.279	**0.773**						
E	-0.138	0.176	**0.779**					
EI	-0.024	0.427	0.404	**0.753**				
F	-0.143	-0.061	-0.034	-0.180	**0.721**			
ITP	0.329	-0.407	-0.210	-0.497	0.419	**0.952**		
LEP	0.562	-0.191	-0.169	-0.286	0.310	0.510	**0.842**	
LA	0.341	-0.084	0.175	0.021	0.332	0.256	0.194	**0.758**

HTMT Criteria for Assessing Discriminant Validity

HTMT was used to evaluate discriminant validity. Table 11 shows results. If the HTMT value is higher than 0.85 (Kline, 2015) or 0.90 (HTMT0.90), discriminant validity is questionable (Gold *et al.*, 2001). Table 5 showed that all values passed HTMT0.90 and HTMT0.85, establishing the measurement model's discriminant validity.

Table 5: Discriminant Validity (HTMT)

Items	CA	EN	E	EI	F	ITP	LEP	LA
CA								
EN	0.303							
E	0.193	0.246						
EI	0.248	0.531	0.521					
F	0.378	0.133	0.115	0.244				
ITP	0.642	0.439	0.242	0.583	0.476			
LEP	0.620	0.194	0.202	0.325	0.344	0.569		
LA	0.414	0.128	0.214	0.161	0.418	0.294	0.219	

Assessment of the Structural Model for Collinearity Issues

As the measurement model assessment was satisfactory, we went on to the structural model assessment. Before model analysis, constructs were tested for collinearity. Sarstedt and Cheah (2019) proposed that VIF values 5.0 indicate predictor collinearity. Table 6 shows construct VIF values, all

below 3.0. All constructions had no collinearity concerns. PLS-SEM analysis depth varies on project scope, model complexity, and existing literature. A comprehensive PLS-SEM study may involve multicollinearity testing.

Table 6: Checking of Collinearity Issues VIF

Items	VIF
CA	2.010
E	2.506
EI	2.050
EN	1.828
F	1.403
ITP	2.929
LA	1.628
LPE	2.654

Assessment of the Path Coefficient, Level of R2, Assessment of the Effect Size (f2), and Assessment of the Predictive Relevance (Q2)
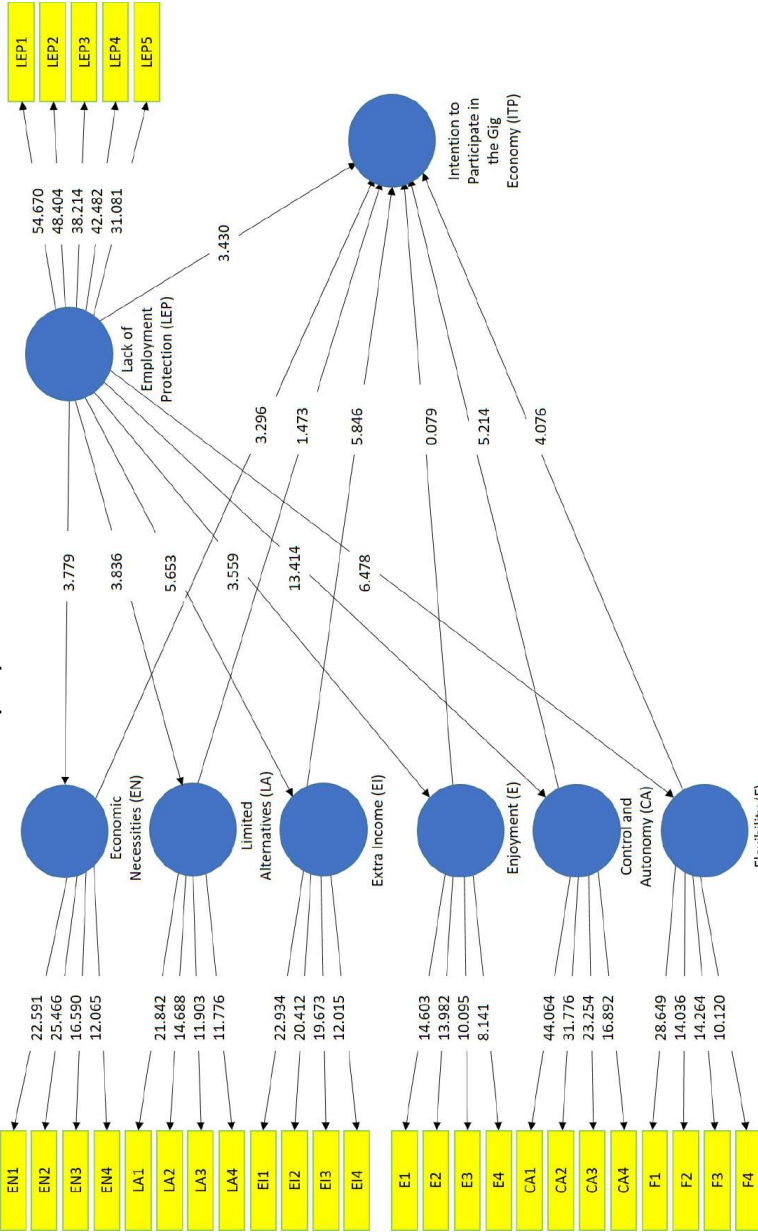

Figure 3: Hypothesis Testing: Bootstrapping Direct Effect Results

After vetting the model for collinearity, this research zeroes in on the model's predictive capability using structural model analysis. Figure 3 displayed the direct effect outcome from bootstrapping. Steiger (1990) explains that the estimations of the path coefficients and the R2 value, which define the predictive power of the tested model, constitute a structural model that denotes the causal links among the constructs in the model. Using a bootstrapping approach with a resample of 5,000, Hair Jr *et al.*, (2017) suggested examining R2, beta (β), and the corresponding *t*-values. Additionally, they suggested that researchers record effect sizes (f2) and predictive relevance (Q2) in their reports.

Hypotheses Testing

Table 7 summarised the theories' direct correlations. EN (= -0.161, *t* >1.96, *p* 0.05), EI (= -0.277, *t* >1.96, *p* 0.05), CA (= 0.273, *t* >1.96, p 0.05), and LEP (= 0.176, *t* >1.96, *p* 0.05) affected FDRs' intention to participate in the gig economy. These supported H1a, H1c, H2b, H2c, and H3. LA and E had no effect on ITP with t values below 1.96 and *p*-values above 0.05. H1b and H2b were not supported. LEP moderated the relationship between EN (= -0.083, *t*-value >1.96, *p*-value 0.05) and FDRs' intention to participate in the gig economy. Hypotheses H4b, H4c, H4d, H4e, and H4f were not supported. The model's R2 for lack of employment protection (0.948) and gig economy participation (0.930) show that 90% of the dependent variable's variance is explained by the independent variable. The benchmark index explains 90% of the variance. According to Nakagawa and Schielzeth (2013), *r* > 0.7 indicates a strong impact size. This study concluded that described variances are adequate.

Table 7: Results of Hypotheses Testing

| HT	Path	Standard Beta	Standard Error	T-Value	P-Values	Decisions
	Push Factors -> ITP					
H1a	EN-> ITP	-0.161	0.048	3.306	0.001	Supported
H1b	LA -> ITP	0.060	0.041	1.370	0.171	Not supported
H1c	EI -> ITP	-0.277	0.049	5.778	0.000	Supported
	Pull Factors -> ITP					
H2a	E -> ITP	-0.047	0.054	0.872	0.383	Not supported
H2b	CA -> ITP	0.273	0.053	5.157	0.000	Supported
H2c	F -> ITP	0.133	0.048	2.701	0.007	Supported
	Mooring Factors -> ITP					
H3	LEP -> ITP	0.176	0.050	3.678	0.000	Supported
	Moderation Effect 1 (Mooring Factors with Push Factors -> ITP)					
H4a	LEP with EN -> ITP	0.083	0.044	2.021	0.044	Supported
H4b	LEP with LA-> ITP	0.041	0.035	1.266	0.206	Not supported
H4c	LEP with EI -> ITP	0.014	0.036	0.375	0.708	Not supported
	Moderation Effect 2 (Mooring Factors with Pull Factors -> ITP)					
H4d	LEP with F -> ITP	-0.043	0.043	1.004	0.316	Not supported
H4e	LEP with CA -> ITP	0.012	0.047	0.226	0.821	Not supported
H4f	LEP with E -> ITP	0.077	0.041	1.760	0.079	Not supported

Assessment of IPMA
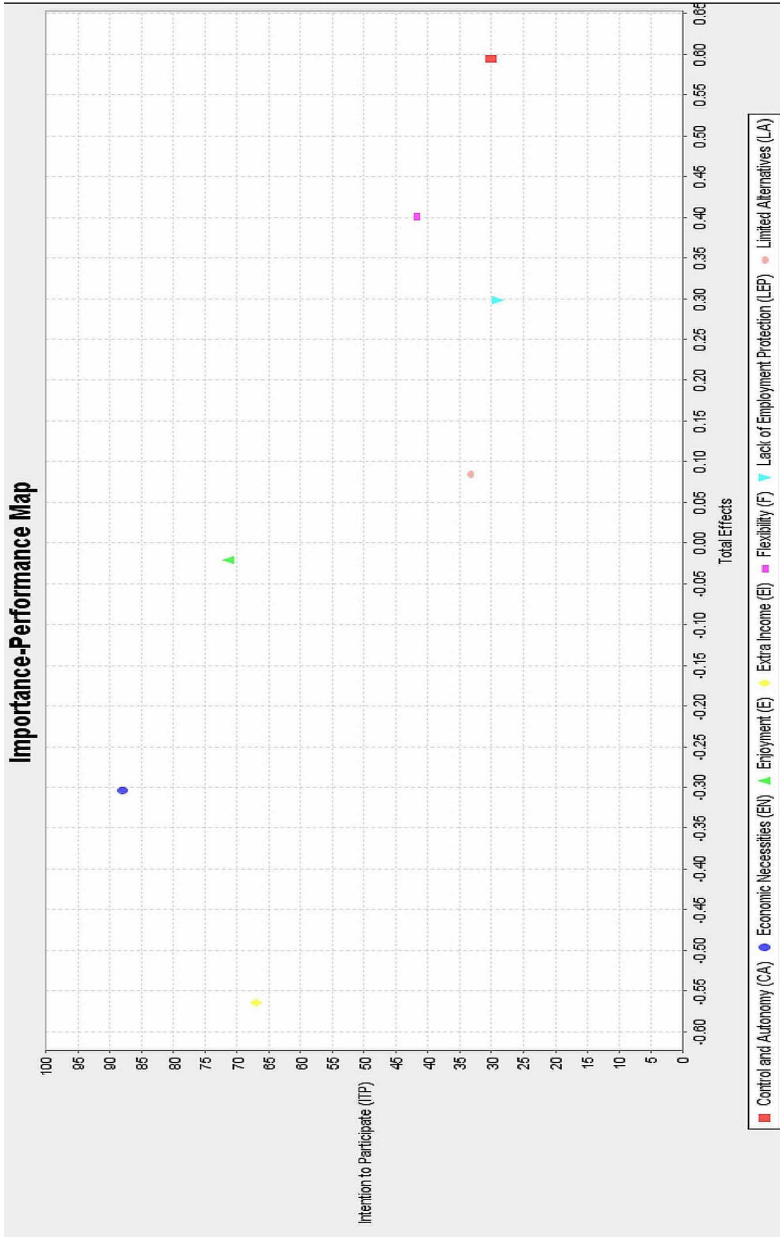
Figure 4: IPMA Matrix Analysis

Table 8: Total Effect and Performance for Intention to Participate in the Gig Economy

Items	CA	EN
CA	0.594	30.120
EN	-0.303	87.957
E	-0.021	71.308
EI	-0.565	67.030
F	0.400	41.833
LEP	0.298	29.150
LA	0.084	33.300

This study employed IPMA with 'gig economy intention' as the target construct. Figure 4 and Table 8 reveal that EN, E, and EI are key ITP components. The three structures also affected ITP well. EN and E shaped the situation's importance.

DISCUSSION

The objective of this study is to identify factors that affect FDRs' intention to participate in the gig economy. Secondly, this study tested whether the PPM variables prevented or supported those intentions by placing particular emphasis on the lack of employment protection (mooring factor). This study found that the 'push factors' (economic necessities, and extra income) exert positive influences on FDRs' intention to participate. The 'pull factors' (flexibility, and control and autonomy) also have positive effect in affecting FDRs' intentions. The same goes with the 'mooring factor' (lack of employment protection) having positive effect in affecting FDRs' intentions to participate in the gig economy. However, this study found neither 'limited alternatives' (push factor), nor 'enjoyment' (pull factor) have positive effect in such intention. 'Lack of employment protection', which was used as a moderating variable, has moderated positive relationship between 'economic necessities' and FDR's intention to participate in the gig economy. This study expanded the push-pull framework by adding a mooring factor to the past studies made by Sevilla (2020), Angelucci (2020), Keith *et al.* (2019), Keith *et al.* (2020), and Paul (2018). In addition to this, this study also compliments the past studies made by Fana *et al.* (2020), Bajwa *et al.* (2018), Rachmawati *et al.* (2022), Graham *et al.* (2017), and Sargeant (2017).

PRACTICAL IMPLICATIONS

Practically, this study provides useful recommendations for FDRs' employment in the country. It allows the relevant stakeholders namely, the Ministry of Human Resources, The Labour Department for Peninsular Malaysia, The Ministry of Finance, The Ministry of Entrepreneur and Collective of Malaysia, The Statistics Department of Malaysia and the Social Security Organization Malaysia to start taking the employment and welfare of the FDRs seriously and emphatically. This is to encourage FDRs' participation in the gig economy. In time of COVID-19 pandemic, FDRs were pushed into gig economy due to the economic necessities and in search for extra income. The finding suggests that FDRs' participations are not voluntary in nature since most of them have experienced job loss because of MCO imposed by the Malaysian government. The loss of income has left them with no option but to join the FDPs to generate a decent income. It is also evident from this study, although flexibility and control and autonomy have positive correlation with FDRs' intention to participate in the gig economy, the lack of employment protection has brought in behavioural change for which the tendency for them to leave the platform would be very high. Although, the lack of employment protection was perceived to be impactful in driving FDRs away from the gig economy, it was evident that due to the economic necessities, FDRs' have no options but to stay. By exploring the different associated antecedents as well as the moderating factors that encourage these FDRs to remain in the gig economy, this study provides empirical evidence on the factors that influence FDRs' intention to participate in the gig economy in this country. According to the Malaysian viewpoint, this study is considered pertinent and significant in determining the demography of FDRs in the nation and variables relating to employment and welfare. The findings of this study have important applications in evaluating the insecure working conditions faced by FDRs and FDPs in the gig economy. Concerted efforts must be geared by promulgating necessary laws, and regulations to safeguard the employment of FDRs in Malaysia.

LIMITATION

This study was subjected to some restrictions. The results of this study may not be generalisable to other regions of Malaysia because it was restricted to

Wilayah Persekutuan Kuala Lumpur and Selangor (Klang Valley). Secondly, because this study is limited to the top five FDPs, thus, it cannot be applied to all FDPs in Malaysia. Third, the nature of FDRs has proven to be a substantial impediment to direct connection with FDPs. Although this study focuses solely on FDRs, the absence of FDPs in this study opens the door for future research. The demographics presented may not highlight these two groups for references because this study is not gender or race focused.

CONCLUSION

This study has witnessed that precarity in terms of 'lack of employment protection', for the FDRs is strongly linked to the absence of sufficient employment protection by the FDPs that lead the FDRs' job to be insecure and unstable. The lack of contractual labour arrangements as contemplated under the Employment Act of 1955, Sarawak Labour Ordinance (Cap 67), and Sabah Labour Ordinance is evidence of this (Cap 67). As FDRs are not defined as workmen under the said Labour Laws, there is so much fear of FDRs to experience job loss. The absence of workmen definition also prohibits them to join labour unions in accordance to the Industrial Relations Act 1967, hence embedded in cultural of precariousness and the ways in which insecurity and competitive culture pit one worker against another. FDRs are part of a global workforce, working in all major cities, and with the potential to contribute to the emergence of a transnational movement of labour. Future research should emphasize more within this grey area. It is becoming more and more clear that fundamental social security and safety should not be sacrificed in favour of autonomy and flexibility, and that the market cannot be trusted to address the precarity of employment. A wake-up call should be given as a result of the COVID-19's heightened precarity at work. Policymakers and platform aggregators must take proactive measures in response to this perilous position. In conclusion, this study contributes to our knowledge of the characteristics of FDRs, the factors that affect and attract them to the gig economy, and the precarious working conditions that both FDRs and FDPs experience. The results showed a variety of intriguing and unexpected factors that affect FDRs' propensity to continue participating in the nation's gig economy, which may pique the curiosity of future scholars for further investigation. This crucial information might also help Malaysian lawmakers realise and establish appropriate legislation to safeguard FDRs'

employment in the nation. In short, the findings are expected to serve as a starting point for further investigation on FDRs specifically and the gig economy in general.

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THE ROLE AND CHALLENGES MET BY PARENTS IN THE IMPLEMENTATION OF MODULAR DISTANCE LEARNING IN MATHEMATICS

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ABTRACT

COVID-19 has had a significant impact on the Philippine educational system. The country shifted from face-to-face classes to distance learning, including modular distance learning. Parents play a vital role for the success of said learning modality. The present study examined the parent's level of understanding of the Mathematical contents, and their extent of parental roles and challenges encountered. It also determined relationships between the parental roles and profile variables versus the encountered level of challenges. Lastly, the study enumerates possible solutions to challenges met by parents. The study was participated by 118 parents. Frequencies and percentage distribution were used to describe the parents' profiles. Net agreement ratings were computed to measure the parents' understanding of the contents of Mathematics and the extent of the roles. The challenges met by parents were the indicators of the level of knowledge of the contents of Mathematics with negative net agreement ratings. It was unveiled that educational attainment and family monthly income are significantly related to the extent of challenges. Moreover, in implementing modular distance learning in Mathematics, parents as monitors, content advisers, and learning counselors were significantly related to the extent of challenges met by parents in implementing modular distance learning in Mathematics.

Keywords: challenges of the parents, modular distance learning, role of parents

INTRODUCTION

The Coronavirus disease 2019 (COVID-19) is an infectious disease that escalated worldwide. It affects all types of people and eventually became a global health crisis in massive proportions. Because of this, the Philippines has transitioned to a new normal education model. Educators' constant advances and strong participation from other stakeholders are the motivating forces behind its development. For instance, the Philippines' Department of Education (DepEd) launched the Modular Distance Learning Delivery to ensure the continuity of education and allow each school to continue fulfilling its mission and vision of providing quality education to every Filipino learner (Dangle & Sumaoang, 2020). Modular learning is a form of distance learning that uses Self-Learning Modules based on DepEd's most essential learning competencies (MELCS). The modules include sections on motivation and assessment that serve as a complete guide of both teachers' and students' desired competencies (Manlangit *et al.*, 2020). It is a learning delivery modality where students learn distanced from the school using a printed module provided by teachers and fetched by parents from school to their children and back to school. In this learning delivery modality, parents will play a vital role as home facilitators.

As a result of the COVID-19 pandemic, which forced school closures and shifted learning to the home, parents have taken on the role of educators as key resources in the home, mainly when supporting learners in completing their modules. These uncertain times have put much pressure on parents, who have a lot of responsibilities besides being their child's teacher at home. They became apprehensive as a result of this. Cai *et al.* (1999) investigated parental engagement roles (motivator, resource provider, monitor, mathematics content advisor, and Mathematics learning counselor) and student mathematics achievement. The findings imply that all five parental engagement roles, taken together, significantly impact children's mathematics achievement, as tested by both the mathematics proficiency exam and the mathematics performance evaluation. According to the findings of this study, parental engagement is a strong predictor of students' mathematics achievement. All five parental roles were discovered to impact student achievement significantly. According to Blazer (2005), family involvement is a substantial predictor of excellent student achievement. Students with their families involved in their education tend to have better

grades and test scores, do more homework, have better attendance, and have more positive attitudes and behaviors.

In the Philippines, most parents chose printed modular distance learning because of the lack of accessibility to gadgets. With this, parents will play a vital role in delivering the curriculum. They will guide, motivate, act as more knowledgeable others (MKO), and be a good learning model for the students because learning will take place in their homes. Traditionally, researchers have concentrated on parental roles that provide direct assistance. Direct, traditional family support (e.g., checking homework) does not appear to be as effective as expected, according to Cai *et al.* (1999). Direct assistance roles include Mathematics content adviser and Mathematics learning counsellor. Indirect assistance roles include motivator, resource provider, and monitor. However, parents are unprepared for the said learning delivery modality and have met challenges. The present study examined the extent of the role of the parents in the implementation of modular distance learning, and its challenges met.

The study generally aimed to investigate the role and the challenges met by parents in the implementation of modular distance learning in Mathematics and the following were the objectives of the study: (a) describe the profile of the parents in terms of sex, age, household size, number of children enrolled in this school year in high school, highest educational attainment, distance from home to school, family monthly income and occupation; (b) examine the parent's level of understanding of the contents of Mathematics; (c) determine the extent of the role of the parents in the implementation modular distance learning; (d) determine the challenges met by parents in the implementation of modular distance learning; (e) ascertain if the profile variables of the parents related to the challenges met by parents in the implementation of modular distance learning; (f) analyse if the extent of the parent's role related to the challenges met by parents in the implementation of modular distance learning; and (g) devise solutions to the challenges met by parents in the implementation of modular distance learning.

METHODOLOGY

Research Design

The study utilised descriptive-correlational research to measure the level of understanding of the contents in Mathematics of the respondents and the role and the challenges met by parents in implementing modular distance learning in Buena Gracia National High School, Municipality of Talacogon, Agusan del Sur, Philippines, 8510. Descriptive research was applied as it determined the level of understanding of the contents in Mathematics, the role of the parents, and the challenges met in implementing modular distance learning in Mathematics. A correlational study was applied because this study determined the significant relationship between the extent of challenges met by parents and the parents' profile and roles in implementing modular distance learning in Mathematics.

Respondents of the Study

Stratified random sampling was utilised in relation to the location of the parents from barangay Buena Gracia and barangay La Flora of the Municipality of Talacogon, Agusan del Sur, Philippines, 8510. The total population of the parents of Buena Gracia National High School was 168. Out of this number, 118 parents were sampled to participate in the study.

Instrumentation

The instrument was an adopted-modified survey questionnaire validated by three experts in the field of Mathematics and in teaching Mathematics. The survey questionnaire was composed of 5 parts: Part I (personal information), which includes gender, age, household size, number of children enrolled in this school year, highest educational attainment, distance from home to school, family monthly income, and occupation. Part II includes statements that measure parents' level of understanding of Mathematics. Part III includes statements that measure the extent of parental roles in implementing modular distance learning. Some of the indicators of Part III were taken from the study of Cai *et al.* (1999). Lastly, part IV includes possible solutions to the challenges met by parents in implementing modular distance learning. The instrument was also pilot

tested at Marbon National High School, one of the schools in Talacogon, Agusan del Sur. There were 30 parents in pilot testing who were randomly selected, producing Cronbach's alpha values of 0.905 and 0.769, for level of understanding the contents and role of the parents, respectively.

Data Analysis

Frequency counts and percentage distributions were used to describe the profile of the parents. In contrast, net agreement rating was used to measure the level of understanding of the contents and the parents' role in implementing modular distance learning. The indicators of the level of understanding contents in Mathematics with a negative net agreement were considered as the parents' challenges using the transformed responses through reversing. Spearman-rank correlation was used to measure the relationship between the extent of challenges and the profile of the parents and their parental roles in the implementation of modular distance learning. Prior to that, data cleaning was done through descriptive statistics by examining missing values, skewness, maximum, and minimum. Table 1 was utilised to interpret the net agreement rating of the respondents in the level of understanding of the contents in Mathematics, and the role of the parents. The scale used was from the Social Weather Stations (2020). Table 2 was the scale used in determining the strength of the relationship.

Table 1: Interpretation for Net Agreement Rating

Net Agreement Rating	Interpretation
+50 and above	Very strong
+30 to +49	Strong
+10 to +29	Moderate
+9 to -9	Neutral
-10 to -29	Poor
-30 to -49	Weak
-50 and below	Very weak

215

Table 2: Strength of Relationship

Negative	Strength of Relationship	Positive
-0.81 to -1	Very strong	0.81 to 1
-0.61 to -0.8	Strong	0.61 to 0.8
-0.41 to -0.6	Moderate	0.41 to 0.6
-0.21 to -0.4	Weak	0.21 to 0.4
0 to -0.2	Very weak	0 to 0.2

FINDINGS AND DISCUSSIONS

Socio-Economic Profile of the Parents

Table 3 shows that the majority of the parents (72.03%) in the study are females, and 28% are males. Besides, most parents (63.56%) were aged 38 - 53 years old. In 2018, Pew Research Center defined persons 38 – 53 as Gen X. According to Moran (2016), Gen X is not considered digital natives. A digital native is a person who grew up in a digital, media-rich environment. With this, parents will have difficulties using technology. In addition, the location, Buena Gracia and La Flora have mobile signal difficulty. As a result, that most of the parents are not digital natives and the location of the parents have mobile signal difficulties, there was a difficulty in implementing online distance learning. Thus, modular distance learning was implemented in Buena Gracia National High School.

It also showed that in many instances, the family household size of the parents could be classified as small to medium and 45.76% of the household has only one (1) number of children enrolled in this school year in high school. More than half of the parents (52.54%) are elementary level, and only a few (2.54%) graduated from college. A large percentage of those who took part in the survey (64.40%) did not even get into high school.

Table 3: Socio-Economic Profile of the Respondents

Variable	Category	f	%
Gender	Male	33	27.97
	Female	85	72.03
Age	22-37 years old	18	15.25
	38-53 years old	75	63.56
	54-72 years old	25	21.19
Household size	Small (three or four members)	39	33.05
	Medium (five or six members)	39	33.05
	Large (seven or eight members)	27	22.88
	Extra-large (nine or more members)	13	11.02
Number of children enrolled in high school	1	54	45.76
	2	47	39.83
	3	14	11.86
	4	3	2.54
Highest educational attainment	Elementary level	62	52.54
	Elementary graduate	14	11.86
	High school level	22	18.64
	High school graduate	15	12.71
	College level	2	1.69
	College graduate	3	2.54
Distance from home to school	Less than 1,000 meters	72	61.02
	1,000 meters and more	46	38.98
Family monthly income	Poor (Less than Php 10, 957 monthly income)	103	87.29
	Low Income (Php 10,957 and above monthly income)	15	12.71
Occupation	Service and sales workers	20	16.95
	Skilled agricultural, forestry and fishery workers	72	61.02
	Elementary occupations	18	15.25
	Craft and related trade works	4	3.39
	Professionals	1	0.85
	Technicians and associate professionals	3	2.54

Most parents live near the school, with 61.02% residing less than 1,000 meters from the school. This follows that the school is very accessible to

the parents. About 87.29% of the parents have an estimated family monthly income of less than Php 10957. According to the Philippine Institute for Development Studies (2020), a family with an estimated monthly income of less than Php 10,957 is considered poor. These parents are dominated by occupation in Skilled Agricultural, Forestry, and Fishery Workers (61.02%). This is because of the geographic location of the community since Buena Gracia, and La Flora are located near Agusan Marsh Wildlife Sanctuary, which is abundant with catfish and carp and is good land for farming.

Level of Understanding of the Contents in Mathematics of the Parents

In Table 4, the parents strongly perceived that they have the capability of guiding their children in accomplishing their modules in Mathematics but weakly agreed that they have adequate knowledge of the contents of topics in Mathematics. In addition, parents perceived their knowledge of the topics in Mathematics could moderately help their children to answer their child's modules. However, parents find the topics or contents in Mathematics hard to understand, and their level of understanding of the contents in mathematics could not allow for great learning outcomes for their children.

Table 4: Level of Understanding the Contents in Mathematics and Challenges Met by Parents

Indicators	Net Agreement	Remark
I have the capability of guiding my child in accomplishing his modules in Mathematics.	33.05%	Strong
My knowledge of the topics in Mathematics helps my child to answer his modules.	11.86%	Moderate
My knowledge of the contents transcends to my child's understanding of the topics in Mathematics	-22.88%	Poor
My knowledge in the topics in Mathematics helps my child's learning.	-29.66%	Weak
I find the topics or contents in Mathematics as hard to understand.	-36.44%	Weak
My level of understanding the contents in Mathematics allows for great learning outcomes of my child.	-39.83%	Weak
I have adequate knowledge of the contents or topics in Mathematics.	-45.76%	Weak

According to Jay and Xolocotzin (2012), many parents would like to help their children with mathematics but are worried about their capacity to do so. The parents of Buena Gracia National High School have challenges in the level of understanding of the contents of Mathematics. This is supported by Jay *et al.* (2018), who stated that parents did not possess an appropriate level of content knowledge to support their child's learning.

Challenges Met by Parents

The challenges of the parents in implementing modular distance learning are the indicators in Table 4 level of understanding of the contents in Mathematics and Challenges of the parents with a negative net agreement rating. A negative net agreement rating means a more significant number of parents disagree than agree with each indicator. According to Garbe *et al.* (2020), a hurdle was a lack of parent content knowledge or pedagogy. They say parents self-identify as lacking in capital to assist children in the subject of Mathematics. Due to the parents' perceptions of their mathematical abilities and attitudes toward mathematics make parental roles in children's mathematics learning challenging. Parents would like to help their children in mathematics, but they meet a number of challenges in doing so (Jay *et al*., 2018).

In Table 4, it can be seen that the parents were challenged with five (5) indicators in the level of understanding of the contents of Mathematics. Parents have no adequate knowledge of the contents of Mathematics. This is why they have difficulties in helping their child in learning. Olivo (2020) reported that parents could not guide their children in completing learning tasks because they did not understand some topics. Trovela (2021) claimed that some parents could not grasp the lessons on the modules.

Moreover, parents find the contents of Mathematics hard to understand, and their level of understanding of the contents of Mathematics could not allow for significant learning outcomes for their child. In addition, parents' knowledge of the contents could not transcend their child's understanding of the topics in Mathematics. In support, Dangle and Sumaoang (2020) stated that parents have challenges understanding and answering their child's modules because it is hard to understand.

Parents' Role as Motivators and Resource Providers

As one of the roles of parents in a child's education in learning Mathematics, they should give appropriate praise, encouragement, and rewards to heighten their child's motivation to learn (Manlangi *et al.*, 2020). Table 5 shows that the parents very strongly maintain good relationships with their children and give appropriate praise, encouragement, and rewards for their children to work hard on solving mathematics problems even though the problem may be difficult.

Table 5: Parents' Role as Motivators and Resource Providers

Indicators	Net Agreement	Remark
As motivators		
I maintain good relationship with my child.	96.61%	Very strong
I give appropriate praises for my child to work hard on solving mathematics problem even though the problem may be difficult.	93.22%	Very strong
I encourage my child to work on mathematics problem even though the problem may be difficult.	89.83%	Very strong
I give rewards for my child to work hard on mathematics even though the problem may be difficult.	85.59%	Very strong
As resource providers		
I provide a conducive place where my child could learn.	91.53%	Very strong
I try to find Mathematics books for my child's references.	87.29%	Very strong
I retrieve the modules from my child to school.	71.19%	Very strong
I fetch the modules for my child from school.	71.19%	Very strong
I can provide internet access for my child's references.	41.53%	Strong

As per Cai *et al.* (1999), several parents claim they continuously give emotional support to their children's mathematical studies. The majority of the parents said that they encourage their children to work hard on mathematics problems at home, even if the questions are difficult. Almost all parents believe mathematics will play an essential role in their children's future life, and many claims to be able to motivate their children

to excel in math. Children get motivated by their parents through praises and appreciation (Ghazi *et al.*, 2010).

Manlangit *et al.* (2020) stated that parents should be responsible for acquiring their child's various materials and resources; they should also prepare a conducive learning study space. Table 5 revealed that the parents very strongly provide a conducive place where their child could learn. They very strongly perceived that they regularly retrieve and fetch modules from their child to school regularly. Accordingly, parents do not have challenges with the schedules of fetching and retrieving modules (Dangle & Sumaoang, 2020). Moreover, parents very strongly try to find Mathematics books for their child's references but firmly provide internet access for their child's references. As to their statistics, over 90% of parents believe they make an effort at home to provide a pleasant learning environment for their children to perform mathematics (Cai *et al.,*1999). Parents buy math-related books, even though parents frequently take their children to public libraries. A range of games and puzzles that help develop children's arithmetic skills are found in nearly 60% of households. Garbe *et al*. (2020) added that parents expressed having just the right number of resources available for their child's learning a home.

Parents' Role as Monitors, Content Advisors, and Mathematics Learning Counselors

In the statistics, parents responded strongly that they allot enough time for their child to finish their schoolwork. Besides, parents make sure that their child sticks to the schedule given by the mathematics teacher and strongly monitor their child's learning and progress by communicating with their child's teachers. As reported by Cai *et al.* (1999), parents regularly check their children's homework and use readily available school tools to keep track of their children's Mathematics requirements on a regular basis.

Table 6: Parents' Role as Monitors, Content Advisors, and Learning Counselors

Indicators	Net Agreement	Remark
As monitors		
I allot enough time for my child to finish his schoolworks.	100.00%	Very strong
I make sure my child sticks to the schedule given by the mathematics teacher.	90.68%	Very strong
I attend school meetings regularly.	83.90%	Very strong
I quarterly get my child's learning progress report card.	83.05%	Very strong
I monitor my child's learning and progress by communicating my child's teacher.	49.15%	Strong
As content advisors		
I make an effort to understand the mathematics my child is answering.	47.46%	Strong
I discuss with my child how mathematics is used in daily life.	28.81%	Moderate
I help my child in answering his mathematics schoolworks.	-1.96%	Neutral
As Mathematics learning counselors		
I know my child's weaknesses in learning mathematics.	85.59%	Very strong
I know some strategies to help my child overcome his/her weaknesses.	27.97%	Moderate
I try to figure out good approaches for helping my child learn different math topics.	27.12%	Moderate
I know my child's strengths in learning Mathematics.	22.88%	Moderate

In Table 6, the parents strongly make an effort to understand Mathematics that their child is studying and moderately discuss with them how Mathematics is used in daily life. Apart from this, parents frequently help their child in answering his/her Mathematics school work. Confirming to Cai *et al.* (1999), parents make an attempt to comprehend the mathematics their children are learning in school, but fewer of the parents believe they are knowledgeable enough to assist their children. Parents moderately explain how mathematics is utilised in everyday life with their children, and frequently assist their children with math homework. Dangle and Sumaoang

(2020) claim that parents do not have adequate time to assist their children with their modules.

Statistics revealed that the parents very strongly know their child's weaknesses and moderately know their strengths in learning Mathematics. Also, they moderately believe that they know some strategies and tried to figure out good approaches to help their child overcomes his/her weaknesses to learn from different Mathematics topics. In accordance with Cai *et al.* (1999), parents believe they know their children's strengths and weaknesses in mathematics, and believe they know how to assist them to overcome their weaknesses. A few numbers of parents are attempting to devise efficient strategies for assisting their children in the learning of various mathematical concepts.

Relationships between the Extent of Challenges and the Profile of the Parents

Table 7 explicitly shows the relationship between the extent of challenges and the profile of the parents. Among the parents' profiles, educational attainment and family monthly income are significantly correlated with their extent of challenges. Educational attainment is strongly related to the challenges parents meet in implementing modular distance learning in Mathematics. Apart from this, the relationship between educational attainment and the extent of challenges has a negative relationship. This simply implies that the higher the educational attainment of the parents, the lower the extent of challenges there is, or the lower the educational attainment of the parents, the higher the extent of challenges the respondents have met in implementing modular distance learning in Mathematics.

Table 7: Relationships between the Extent of Challenges and the Profile of the Parents

Variable 1	Variable 2	Correlation Coefficient	*P*-value	Remark
	Age	0.147	0.112	Not significant
	Household size	-0.090	0.334	Not significant
	No. of children in high school	-0.026	0.784	Not significant
Extent of challenges	Educational attainment	-0.773	0.001	Significant, very strong, inverse relationship
	Distance to school	0.180	0.051	Not significant
	Family monthly income	-0.320	0.001	Significant, weak, inverse relationship

*Tested at 0.05 level of significance using Spearman's rho correlation test

According to Chin (2020), implementing modular distance learning in the Philippines is one of the challenges that parents may face because not all parents have received adequate schooling parental/guardian educational attainment. According to Abuhammad (2020), parents are concerned about their educational backgrounds. Parents with a lower level of education said they could not help their children with specific topics or technology. Manlangit *et al.* (2020) emphasised the significance of parents' educational attainment to increase their trust and competence in leading their children's education and reduce the variety of challenges they met. This concludes that in Buena Gracia National High School, the parents' educational attainment is a factor in the challenges they have met in implementing modular distance learning in Mathematics. This follows that the parents with lower educational attainment have experienced more challenges than those with higher educational attainment. This is because not all parents have received adequate schooling (Chin, 2020).

The family monthly income is weakly related to the challenges met by parents in implementing modular distance learning in Mathematics. Additionally, there is a negative relationship between the family income and the extent of challenges. It infers that the higher the family's monthly

income, the lower the extent of challenges the parents have met. Also, the lower the family's monthly income, the higher the extent of challenges they face. The nature and level of parental involvement are influenced by societal factors, including economic variables (Eccles & Harold, 1993; Hornby & Lafaele, 2011). This explicitly means that the parents of Buena Gracia National High School's family monthly income are a factor that the parents are experiencing challenges in the implementation of modular distance learning in Mathematics. This follows that if the family monthly income of the parents in Buena Gracia National High School is high, the extent of challenges is lower. If the parents' family income is lower, the challenges are greater.

It can also be seen that age, household size, number of children enrolled in high school and distance from home to school shows no significant relationship to the extent of challenges of parents. This follows that in Buena Gracia National High School, parents' differences in age, household size, number of children enrolled in high school, and distance from home to school are not a factor for a parent to experience more challenges than the other.

Relationships between the Extent of Challenges and the Role of the Parents

Table 8 shows the relationship between the extent of challenges and the role of the parents. Out of these five roles of the parents in implementing modular distance learning in Mathematics, parents as monitors, Mathematics content advisers, and mathematics learning counselors were significantly related to the extent of challenges. Parents as monitors are very weakly related to the challenges of a negative relationship. This follows that as parents' perceptions as monitors increases, the extent of challenges decreases. Also, as their perceptions as monitors decreases, the extent of challenges increases. It winds up that as the parents of Buena Gracia National High School attend school meetings regularly, quarterly get their child's learning progress report card, make sure their child sticks to the schedule given by the mathematics teacher, monitor their child's learning and progress by communicating their child's teacher, and allot enough time for their child to finish his/her schoolwork decreases the extent of challenges parents will face.

Parents' role as Mathematics content advisers is significantly related to the extent of challenges in implementing modular distance learning in Mathematics. It is moderately and negatively related to the extent of challenges. In Buena Gracia National High School as parents make an effort to understand the mathematics their child is studying, discuss with their child how mathematics is used in daily life, and help their child in answering his/ her mathematics schoolworks; it decreases the extent of challenges they have met in the implementation of modular distance learning in Mathematics.

Furthermore, there is a significant relationship between parents as Mathematics learning counselors and the extent of challenges. Also, there is a weak and negative relationship between the Mathematics learning counselor role and the extent of challenges. This means that as the parents' perception of mathematics learning counselors increases, the extent of challenges decreases. It can be depicted that if the manifested level as a mathematics learning counselor decrease, the extent of challenges increases. According to Abuhammad (2020), the major challenges were parents' lack of training in managing distance learning techniques and materials and a lack of qualified staff to help them.

Table 8: Relationships between the Extent of Challenges and the Role of the Parents

Variable 1	Variable 2	Correlation Coefficient	P-value	Remark
	As a Motivator	-0.146	0.116	Not significant
	As a resource provider	-0.145	0.118	Not significant
	As a Monitor	-0.182	0.049	Significant, very weak, inverse relationship
Extent of Challenges	As a Mathematics Content Adviser	-0.460	0.001	Significant, moderate, inverse relationship
	As a Mathematics Learning Counsellor	-0.358	0.001	Significant, weak, inverse relationship

*Tested at 0.05 level of significance using Spearman's rho correlation test

One of the challenges parents encounter in implementing modular distance learning, as Dangle and Sumaoang (2020) so eloquently mentioned, is their lack of information about how to guide their child/children intellectually. This concludes that in Buena Gracia National High School if the parents know their child's strengths and weaknesses in learning Mathematics, know some strategies to help their child overcome his/her weaknesses, and try to figure out good approaches for helping their child, and learn different math topics; it decreases the extent of challenges of parents in the implementation of modular distance learning in Mathematics.

It can be regarded that there is no significant difference between the extent of challenges of the parents and their role as motivators and resource providers. This follows that the parents' differences in paying attention to their role as motivator and resource providers to their children has no significant relationship to the extent of their challenges met in implementing modular distance learning in Mathematics.

Possible Solutions to the Challenges Met by Parents in the Implementation of Modular Distance Learning in Mathematics

Table 9 illustrates the frequency of respondents agreeing to possible solutions that could help them in the challenges they have met in implementing modular distance learning. To begin with, parents, according to Jay *et al.* (2018), wanted to know more about their children's progress in Mathematics. It was clearly seen that all the parents (100.00%) agreed that there should be a regular meeting between the parents and teachers to discuss student progress and feedback. Patterson (2020) mentioned that during this time, it is more vital than ever for teachers and parents to interact to assist their children's growth as quickly as possible. In addition, most parents (99.15%) admitted that teachers should inspire parents to value their child's persistence with challenging mathematical tasks.

Furthermore, a significant percentage of parents (98.31%) agreed that teachers should meaningfully communicate current approaches to teaching and learning mathematics because the current approaches and methods taught to their children are different from those when parents are taught in school. Parents claimed they desired more from teachers on mathematical approaches (Jay *et al.*, 2018). Moreover, most parents (96.61%) agreed that

they should visit the teacher to clarify the topics/ contents in Mathematics and that teachers should provide opportunities for parents to engage with mathematical activities at home. This is supported by Jay and Xolocotzin (2012) that family activities can include a variety of mathematical thinking and learning and that parents can draw attention to mathematical activity by modeling, prompting, or disclosing a solution by sharing everyday problems with their children. Besides, more than 90 percent of the parents (95.76%) concurred that teachers should invite parents to share their insights from home and personal everyday mathematical tasks. Finally, with a percentage of 66.95, most of the parents agreed that teachers should schedule a regular home visitation.

Table 9: Possible Solutions to the Challenges Met by Parents in the Implementation of Modular Distance Learning in Mathematics

Possible Solutions	f	%
A regular meeting of the parents and teachers to discuss student progress and feedback.	118	100.00
Teachers should inspire parents to value their child's persistence with challenging mathematical tasks.	117	99.15
Teachers should meaningfully communicate current approaches to teaching and learning mathematics.	116	98.31
The parents will visit the teacher for clarification of the topics/ contents in Mathematics.	114	96.61
Teachers should provide opportunities for parents to engage with mathematical activities at home.	114	96.61
The teacher will invite parents to share their insights from home and personal everyday mathematical tasks.	113	95.76
Teachers should encourage parents to engage in ongoing conversations about mathematics at home.	110	93.22
A regular home visitation should be scheduled by teachers.	79	66.95

Given this, Buena Gracia National High School teachers and school administrators should prioritise having regular meetings with the parents to discuss student's progress and feedback. Also, teachers should inspire parents to value their child's persistence with challenging mathematical tasks. Moreover, teachers should meaningfully communicate current approaches to teaching and learning mathematics. Also, parents agreed on the necessity to visit the teachers of their child for clarification of the topics or contents in Mathematics. Due to this, teachers should provide

opportunities for parents to engage in mathematical activities at home. Additionally, teachers could invite parents to share their insights from home and personal everyday mathematical tasks. Last to prioritise is the scheduling of the teachers to home visitation.

CONCLUSIONS

In conclusion, parents strongly perceived that they are able to guide their children in accomplishing their modules in Mathematics but weakly agreed that they have adequate knowledge of the contents of topics in Mathematics. In addition, parents perceived their knowledge of the topics in Mathematics could help their children answer their child's modules successfully. On the one hand, parents find the topics or contents in Mathematics hard to understand, and their level of understanding of the contents in Mathematics could not allow for great learning outcomes for their child. Also, the parents have challenges in the level of understanding of the contents of Mathematics.

The parents are challenged with five indicators in the level of understanding of the contents of Mathematics. Parents have no adequate knowledge of the contents of Mathematics. This is why they have difficulties in helping their child in learning. Moreover, parents find the contents of Mathematics hard to understand, and their level of understanding of the contents of Mathematics could not allow for great learning outcomes for their child. In addition, parents' knowledge of the contents could not transcend their child's understanding of the topics in Mathematics. The respondents' extent of their roles is not enough and increases the extent of challenges. The respondents met different challenges due to inadequate performance in their roles as monitors, mathematics content advisers, and mathematics learning counselors.

Respondents' profiles are related to the extent of challenges met in implementing modular distance learning in Mathematics, specifically their educational background and family monthly income. Many respondents in Buena Gracia National High School are only elementary level and elementary graduates. The statistics of the study led to the conclusion that the parents of the Buena Gracia National High School students should actively participate in school activities, such as regularly attending meetings.

The parents should actively communicate with teachers about their child's learning progress and ask for clarification about the contents of Mathematics. On the other hand, teachers should actively communicate with parents about different approaches to teaching and learning mathematics, engage parents with mathematical activities at home and inspire parents to value their child's persistence with challenging mathematical tasks.

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REVIEW ANALYSIS FOR TRACEABILITY SYSTEM IN *HALAL* FOOD SUPPLY CHAIN IN MALAYSIA

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ABTRACT

Halal and safety of food supply chain is among the critical issues reported, especially on the aspect of product recall. The industries seem to be lacking in terms of awareness, knowledge, and cost in implementing the traceability system inside food premises. This study aims to conduct an in-depth analysis on the concept of the halal food supply and halal traceability system and examine the challenges faced by the industry in the halal food supply chain. The study adopted the qualitative method where the data were collected through documentary and library-based review of both primary and secondary literature. The gathered data were analysed by using document and content analysis to review documents related to the research's objectives. The finding indicated that halal supply chain management does not only cover the aspect of the halal status of the raw material but also involves tools, machines, and logistics. It shows that a traceability system is adopted to ensure the information related to halal food and products is available and can be traced along the supply chain. It includes the information before the production, such as the sources and origin of the raw materials.

Keywords: halal food, Malaysia, managements, halal supply chain, traceability system

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INTRODUCTION

Islam is a religion that profound a doctrine to govern the comprehensive way of life of human beings. *Al-Quran* and *Sunnah* are holy references for every Muslim to guide their worldly lives including in the aspect of food consumption. *Al-Quran* guides men to choose and eat *halal* and good things, Allah has clearly mentioned in Surah Al-Baqarah verse 168, which means,

"O mankind, eat from whatever is on earth [that is] lawful and good and do not follow the footsteps of Satan. Indeed, he is to you a clear enemy."

Based on the above verse, it is mandatory for a Muslim to find and eat *halal* and good food. The consumption of *halal* food is part of the requirements that Muslims must fulfil according to Islamic laws. According to Kamaruddin (2020), the term *halal* is defined as anything permissible or of no restriction, and the doing of which is allowed by Allah SWT. Moreover, the word *halal* is also connected to the word *toyyiban* which refers to safety, hygiene, and good quality. Thus, *halal* food is not merely referred to something that is permitted to be consumed according to Islamic law, but it is also in compliance with hygiene, safety, and quality criteria.

In food production, the *halal* requirements cover the whole process of the production, from receiving raw material until the finished product and distributed to consumer. During the food preparation, the process must be free from any unpermitted ingredients, either non permissible from the *shariah* aspect or in a hygienic condition. Throughout the supply chain of the food product, the application of a traceability system is very essential and must be practised by food manufacturers to ensure that any rejected product can be traced one step backward and one step forward.

The *halal* food industry has attracted more attention and is gaining acceptance from consumers of both Muslims and non-Muslims worldwide. This is due to their demand for wholesome, pure, healthy, and safe food. The number of Muslim populations worldwide increased that impacting the increased demand for *halal* products. According to the International Trade Centre, the global Muslim population is anticipated to reach 2.2 billion by 2030, expanding at twice the rate of the non-Muslim world, which currently stands at 1.6 billion (International Trade Centre, 2015). When the number

of Muslim populations increased, the demand for *halal* food products in the market will also increase as well. With the development, *halal* food products consequently can easily be available at every corner of the world. According to the *Jabatan Perangkaan Malaysia* (2020), Malaysia and United Arab Emirates (UAE) are among the seven countries that contributed to the highest export rates of *halal* products, and the demand for imported *halal* products worth about 34 billion annually. In addition, many organisations offer *halal* certification services to the industry players for certification and mark of *halal* logo that would attract more consumers to buy the products. The manufacturers also play an important role in safeguarding the *halal* integrity throughout the supply chain to ensure the products are *halal*, safe and quality for consumers' consumption.

The industry also faced obstacles, despite a vast opportunity in the *halal* market. Among the challenges are when the *halal* food industry is not given access to the crisis regarding non-compliance to *shariah* and health matters including food safety matters. Food safety needs to refer to information on sufficient amounts of safe and nutritious food, which is the crucial aspect in sustaining life and promoting good health. Unsafe food which contains harmful bacteria, viruses, parasites, or chemical substances causes more than 200 diseases, ranging from diarrhoea to cancer. It also creates a vicious cycle of disease and malnutrition, particularly affecting infants, young children, the elderly and the sick (WHO, 2022). Uncleaned food may contain hazardous compounds that can cause foodborne illnesses like food poisoning. Food hygiene and safety are critical aspects in the *halal* food industry to ensure that the products are safe for people to consume. To guarantee the product is safe, the food operators must ensure that the food premises are always clean. Besides that, the cleanliness requirements are also extended to the raw materials, the personal hygiene of the food handlers, and proper food preparation and storage.

Implementing a traceability system is crucial at every stage of the *halal* food production throughout the production processes from receiving the raw material to distributing and selling until the product arrives at the end consumer (Suhaiza, 2010). This system is implemented to ensure the product is traceable if there is any reported case of food poisoning, death by referring to the record of the batch of product. A traceability system is a system that has an ability to track and trace the product one step forward, and one step

back through all stages in the supply chain (Suhaiza, 2010). It is important to implement the traceability system in the procurement, production, storing, distributing, and retailing process so that the food premise can detect any misconduct during the process and make improvements to prevent things from happening again.

Food Hygiene Regulations 2009 is a regulation under the Food Act 1983 that embodied an infrastructure that can regulate and control the cleanliness of food premises and food safety to protect consumer health. The owner of the food premise must also provide a food safety assurance programme, as well as a food traceability system in the food manufacturing process that can identify where the food came and is distributed at any specified stage of the food chain from production to distribution (Food Hygiene Regulations, 2009). In Malaysia, the Ministry of Health (MOH) is one of the government authorities that is empowered to control food safety and quality. One of the agencies under MOH that is the Chemistry Department who's responsible for *halal* product analysis and traceability. The Food Safety and Quality Division (FSQD) oversees safeguarding the public from food-borne illnesses and fraud during food preparation, sale, and consumption.

As regards to *halal* compliances, the Department of Islamic Development Malaysia (JAKIM) is the competent authority empowered to oversee *halal* certification and safeguarding the interests of Muslims. JAKIM ensures the *halal* status of the product at every stage by inspecting the *halal* status of the raw material. In additions, the *halal* supply chain is guaranteed by JAKIM by conducting an official site inspection on the food premise (Department of Islamic Development Malaysia, 2020). JAKIM was given the authority to enforce the Trade Description Act (TDA) 2011 against any food establishment or individual who misused the *halal* emblem. The Trade Description Act 2011 and its associated legislation are enforced by the Ministry of Domestic Trade and Consumer Affairs (MDTCA). This Ministry also provides monitoring and enforcement to protect *halal* integrity (Maskom, 2020). Thus, every food premises should practise the traceability system according to the regulations and standards to guarantee the safety of food products to the consumer. Thus, this study aimed to conduct an in-depth analysis of the concept of the *halal* food supply system and *halal* traceability system and the challenges faced in the *halal* food supply chain.

METHODOLOGY

This study aims to conduct an in-depth analysis of the concept of the *halal* food supply system and *halal* traceability system and the challenges faced in the *halal* food supply chain. To achieve the objective, the study adopts a qualitative method where the research is conducted through document and library research. The data is gathered based on a review of primary and secondary literature. The data is gathered and collected from the in-depth study of relevant sources relevant to *halal* from books and journals, as well as secondary sources in the form of clippings from newspapers, magazines, and online media news. This review analysis is conducted to 18 current articles ranging from year 2016 to 2020. The gathered data is analysed using content analysis by conducting reviews on the existing text relevant to the *halal* traceability system in *halal* food. The analysis is carried out by making predictions or analyses related to the classified data. The research benefit from the theoretical aspect is to describe some of the concepts of the *halal* food supply system and *halal* traceability system and the challenges faced in the *halal* food supply chain. This study is beneficial from a practical aspect to advance knowledge and awareness of stakeholders of *halal* food industries to enhance their service and product, especially on the *halal* traceability management system.

RESULT AND DISCUSSION

Concept of *Halalan Toyyiban*

Halal is an Arabic word and defined as permissible or lawful by Islamic law based on the *Quran* and *as-Sunnah* (Ab Rashid & Bojei, 2018). In MS1500:2019, *halal* is a matter that is lawful and permitted in Islam based on the *shariah* and *fatwa* (Department of Standards Malaysia, 2019). Food is considered *halal* after derived from *halal* sources and do not contain of any *haram* things like pigs, carcasses, blood, and *najs*. *Shariah* explains that there are no restrictions on consumption. Most food and drink are *halal* except what is clearly mention of its forbidden in the *Quran* and *Hadith*. While the concept of *halalan toyyiban* is an Islamic concept related to the characteristics of the products good for human consumption. The need for

the practices of *halalan toyyiban* has been clearly stated in the Quran as below:

"And eat of what Allah has provided for you [which is] lawful and good. And fear Allah, in whom you are believers." (Surah Al-Maidah: 88)

"Then eat of what Allah has provided for you [which is] lawful and good. And be grateful for the favour of Allah, if it is [indeed] Him that you worship."

(Surah Al-Nahl: 114)

The above verses highlight the commands of Allah to mankind to choose and consume foods that are *halal* and *toyyiban*. This indicates *halal* and *toyyiban* are two important elements that need to be considered for food. The selection on food and product do not only focus entirely on its sources, but it also must include the element of *tayyib* by ensuring the hygiene practices is implemented during the product making and the food also required to be good, hygiene and safe for human consumption.

According to the Department of Standards Malaysia (2019), the concept of *halal* is clearly defined and the criteria of *halal* food should meet seven conditions. In relation to the conditions, initially the *halal* food must not contain any part of an animal that is prohibited by *shariah* law and *fatwa* for consumption by all Muslims, or that is not slaughtered according to *shariah* law and *fatwa*. Second, according to *shariah* law and *fatwa*, *halal* food does not contain anything that is *najs*. Third, according to *shariah* law and *fatwa*, *halal* food does not intoxicate. Fourth, according to *shariah* law and *fatwa*, *halal* food does not contain any part of a human being or its yield. Fifth, *halal* food is not poisonous or harmful to one's health. Sixth, the *halal* food has not been made, processed, or manufactured with any tool that is tainted with *najs.* Finally, *halal* food has not come into contact with or been in close proximity to, any food that contains any part of an animal that is forbidden in Islam or anything impure during the preparation, processing, or storage. This definition indicates that *halal* is an aspect that meets the required element of *halal* and *toyyib* as it is also related to safe, quality, and hygiene practices.

Food safety is one of the requirements that had been emphasized for certification based on MS1500:2019, the standard is relevant and applicable for producing *halal* food. In addition, the MS1500: 2019 also regulates the management of food premises. The inspection of the raw materials before processing ensures the raw materials are safe before continuing with the production. The application of food safety in food premises is very important to prevent the physical, biological, and chemical contamination of food. The *halal* food which has been produced from *halal* raw material and processed under hygienic condition has fulfilled the aspect of *halalan toyyiban*. The implementation of traceability system is essential to meet the element of *halal* and *toyyib* as it is a guide or procedure which the food premises have developed to ensure the raw material used is *halal*, the working area is in safe and hygiene condition, the worker implement the good hygiene practice and the record and documentation are kept for the traceability process.

Concept of *Halal* Supply Chain Management

Supply chain management is a process of transforming raw materials into product and getting it to the customers (Ballou, 2007). The Evolution and Future of Logistics and Supply Chain Management states that the Council of Supply Chain Management Professionals has stated all activities in sourcing and procurement, conversion (i.e., production), and logistics management are included in supply chain management. According to Rasi *et al.* (2017), supply chain management is a process involving all parties such as suppliers, manufacturers, distributors, and customers which the ingredient received from the supplier will be turned into the finished product by manufacturers, and next to the distributors will distribute it to the customers. According to Ivanov (2018), supply chain covers the network of suppliers, manufacturer, production, distribution, and warehouses. Furthermore, the author explained that raw materials are acquired, transformed into the finished product and delivered to the customer through supply chain.

While *halal* supply chain management is the same as conventional supply chain management, it has been more focused on the element of shariah law. It not only covers the *halal*ness of the raw material but also involves the hygiene and non-contamination of tools, machine, and logistics with non-*halal* substance. Rasi *et al.* (2017) defined a *halal* supply chain as a supply network that pays special attention to and endorses products to

ensure *halal* integrity throughout the supply chain. According to Khan *et al.* (2018), *halal* supply chain is very beneficial to the company as it functions to ensure the *halal* status of the products to the customers. It starts from receiving various permitted raw materials and being spared from cross-contamination with *haram* products. The production, processing, storage, and logistics phase must be processed according to *halal* rule with integrity and honesty, follow the *Shariah* guideline, avoid cross-contamination and ensure segregation between non-*halal* products (Soon *et al.*, 2017). The differences between conventional and *halal* supply chain process are further illustrated by Figure 1 and Figure 2 below.
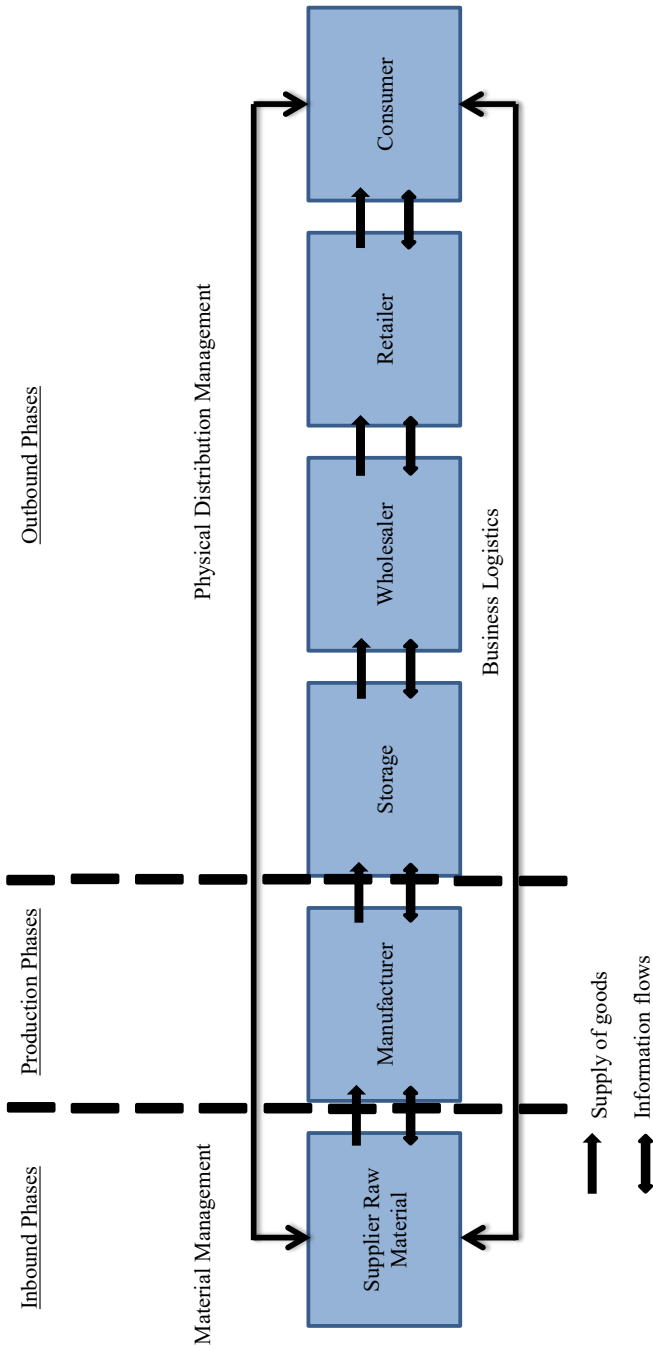
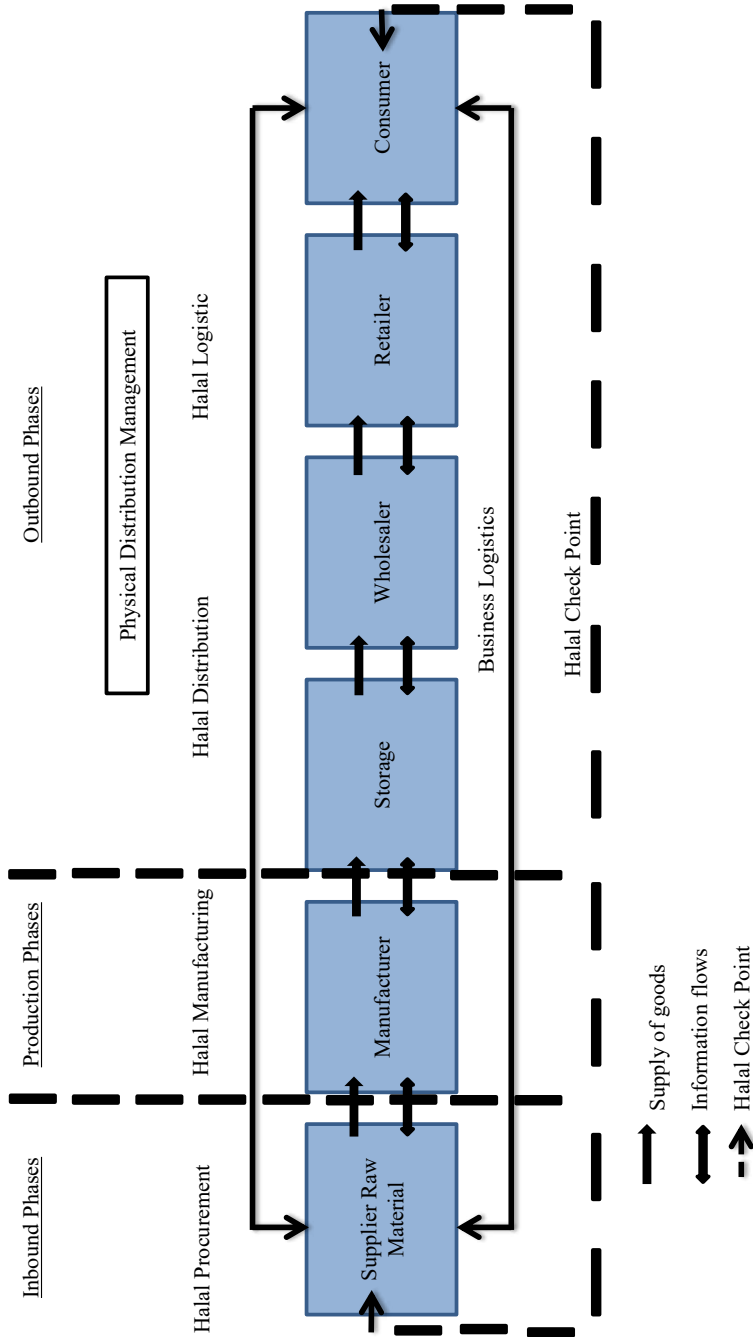**Figure 1: The Flows of a Conventional Supply Chain**

Figure 2: The Flows of a *Halal* Supply Chain Management

The above figures indicate the differences between the flows of a *halal* supply chain management and the flows of a conventional supply chain. The flows of *halal* supply chain management has *halal* assurance management system that assured the *halal* throughout the whole process of supply chain from *halal* procurement, *halal* manufacturing, *halal* distributions and logistic by practicing the *halal* check point. Thus, the *halal* industry players in the supply chain have to ensure *halal* compliance at any of the check points stated. The detail of the whole process is explained as below:

Halal procurement

Producers play an important role in ensuring the whole supply chain is *shariah* compliance state including the procurement stage. Producers should be able to track and trace the raw material used in producing the products to ensure there are no unsafe and non-*halal* materials entering the premises (Ab Rashid *et al.*, 2018). The responsible workers need to ensure all the detailed information of the ingredient received are clear and accurate. The ingredient used must also be stored in an appropriate area and should not be stored together with non-*halal* materials by following the shariah guideline.

Halal distributing and retailing

The transportation used to distribute the products must be free from cross-contamination and avoid mixing with non-*halal* material. The transportation used to distribute *halal* products must not be used to distribute the non-*halal* product. If the transportation is used for both i.e to distribute the *halal* product and then to distribute non-*halal* product, the *sertu* procedure must take place. *Sertu* refers to cleaning the limbs, clothes, locations, utensils, and equipment that come into contact with *najs mughallazah* seven times, one time using water mixed with soil. During the *sertu* procedure, the first soil water is used to wash the contaminated transport, and then followed by the wash of six clean water. In section iv under procedure 17 in *Manual Prosedur Persijilan Halal Malaysia Domestik 2020*, Department of Islamic Development Malaysia stated *sertu* procedure shall be carried out if the transportation is contaminated with *najs mughallazah*.

As regard to the retail shop for marketing of *halal* product, the retailer must monitor the shelf rack to ensure there is a segregation between *halal* and non-*halal* products. This is to avoid occurrence of cross-contamination

of non *halal* product with the *halal* as well as to preserve the *halal* integrity of the product.

Concept of Traceability System

Traceability is the ability to trace any food product one step backward and one step forward at all stages of production starting from receiving raw material until finished product and the traceability can be either using paper tagging or electronic devices. The application of the traceability system is to control and avoid wider disruption such as food safety problems, risks associated with *halal* food, and to reduce the potential of product recalls. The traceability system implemented in the *halal* food supply chain ensures that the raw material or ingredients used in producing the product are *halal*, wholesome, and safe. In addition, the production practice also must be in a hygienic manner and the distribution of the product must be separated from the haram sources to avoid cross-contamination.

Traceability, as defined by the International Organisation of Standardization (ISO), is the ability to track a product's history, application, or location through a sequence of recorded identifications (Mohamad *et al*., 2016). Traceability is defined by the Codex Alimentarius Commission as the ability to track and trace the movement of food or products across the supply chain (Aung & Chang, 2014). On the other hand, traceability is the ability to access or trace any or all information linked to the object under examination, using documented identifications, over its full life cycle (Schuitemaker & Xu, 2020).

Mohamad *et al.* (2016) has summarised several purposes of traceability from different authors. The purpose of implementing traceability is to increase transparency in the production chain. Consumer trust will increase if the information of the product is more transparent. Besides, it is also important to provide a safer food supply chain and reduce the potential for product recalls. According to Aung and Chang (2014), the objective of implementing a traceability system in food manufacturing are improving supply management, easier trace back for food safety and quality, and marketing foods with undetectable quality attributes. All these objectives help the company to reduce the recall expenses and to have lower-cost distribution systems. The application of a traceability system also can help to increase the confidence level of the consumer towards the products.

According to Ab Rashid *et al.* (2019) and Ma'rifat *et al.* (2017), traceability is a tool to assure the information related to *halal* food and products is available and can be traced along the supply chain. It also includes the information of pre-production such as the sources and origin of the raw materials. Khan *et al.* (2018) highlighted that the efficient and effective implementation of a traceability system can reduce and eliminate the risk related to *halal* products. It is imperative to ensure the raw material receiving, procurement, production process, storage until distribution and retailing of the products is preserved from any non-*halal* elements. Thus, traceability also plays an important role in safeguarding *halal* integrity along the supply chain and the success of *halal* supply chain management (Khan *et al.*, 2018).

Traceability Tools and Technology Solutions

The application of a traceability system relies on technologies to ensure the product can be tracked and traced along the supply chain. The use of tools like bar code and RFID for scanning and recording the product codes, lot numbers, and others information in a quick and short time.

Barcode

Barcode is one of the most popular traceability technology tools. It is made up of 12 numeric digits that are assigned to each food item individually. It can retain information such as the product's kind, manufacturer, and country of origin (Dey *et al.*, 2021). If the consumer would like to know more about the product, they just need to scan the barcode using a mobile phone application and able to obtain the information available in online database.

Radio frequency identification (RFID) and wireless sensor networks (WSNS)

Radio Frequency Identification (RFID) is one of the tools and technology which has been widely used to track and trace the products in various supply chains. The tool has been implemented in many areas such as for food products, dairy products, fresh vegetables, and others. RFID technology combined with embedded sensors that enable the creation of temperature tracking systems for feeding logistics (Urbano *et al.*, 2020), which is particularly useful for perishable products. It is made up of passive electronic labels that are attached to items. RFID is a system that transmits

the identity of the product, in the form of a unique serial number wirelessly and using radio waves (Alfian *et al*., 2017).

According to Urbano *et al.* (2020), several authors integrated RFID with several technologies such as the Wireless Sensor Networks (WSNs). The combination of these two tools can trace the product and provide environmental condition information. It also can ensure the requirements are met during the delivery and storage process. Besides, the use of the RFID is to monitor the temperature of perishable food product quality the use of wireless sensor networks is crucial (Alfian *et al*., 2017). Sensor nodes having sensing, processing, and communication capabilities make up WSNs. It has the ability to collect environmental data, convert it to digital format, and send it to a base station via a gateway. The use of WSNs can ensure that perishable food is delivered to consumers in good condition and is safe for human consumption.

Challenges in Implementing Traceability System

There are several challenges in managing procurement in the food grains supply chain. According to Mogale *et al.* (2019), traditional procurement procedures can make the supply chain more expensive and time-consuming due to a lack of timely information, excessive complexity, and ineffective practices.

In addition, according to the International Trade Centre (2015), there are several challenges in implementing traceability systems in food products which are costs, skills and implementation, multiple requirements, and traceability within the framework of food safety management systems. Cost is one of the challenges in implementing traceability. The services and technology implementation used in a company and training incurred a lot of money. The high costs incurred for implementing a traceability system might cause burden to the company especially to a small-scale company in

Reports by Panni Management (2021) highlight that globally, there are many overlapping and conflicting demands from national regulators with a varying degree of food policies and regulations on handling, storage, inspections, and safety standards for allergens, trace elements, pesticides and many more. Nowadays, worldwide food sourcing and different time zones

significantly affect an organisation's response times. With global sourcing, while visibility and verification of raw material sourcing and handling are already of great concern, food fraud and market substitution for economic gain are also additional challenges for importers (Panni Management, 2021). In addition, Panni added that another challenge is the lack of unifying requirements. Current internal systems do not provide a means for reliable and rapid response to trace back data across the food chain. Additionally, data can be challenging to analyse into relevant decision-making formats.

Implementing a traceability system also must be within the framework of food safety management since it requires an effective safety control system. According to Chhikara *et al.* (2018), the traceability system is necessary for all organisations according to the EU's General Food Law. It also required all food companies to execute the traceability frameworks. One of the principles suggested is one up one down, which needs to be implemented by each company in a supply chain, as illustrated in Figure 3 below.
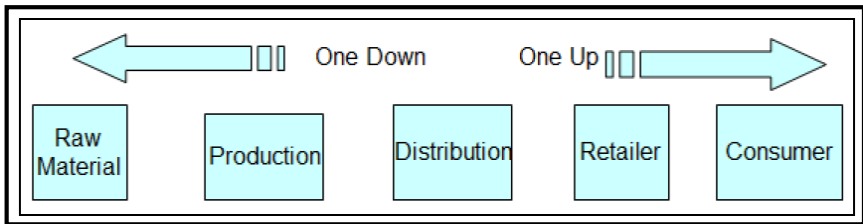

Figure 3: Principle of One Up One Down

Traceability in a Food Supply Chain: Safety and Quality Perspectives, the Bioterrorism Act of 2002 has stated that the record needs to establish and maintain by the person who manufacturers, processes, distributes, or imports the food (Aung & Chang, 2014). Other than that, the Hazard Analysis Critical Control Point (HACCP) has been recommended as the most effective system in maintaining food safety in the supply chain.

Furthermore, according to the study of Abdul Rahman and Abdul (2017), that focused on the implementation of traceability systems through the *Halal* Assurance System (HAS) in *halal* food manufacturing in Malaysia. The study has reviewed several similarity components of HAS, HACCP, and ISO22005:2007. The result of the study shows that HAS is one of

the mechanisms to control, monitor, and prevent any non-compliance in all *halal* food production. This system has been set up based on three concepts which is no *haram* ingredient and material should be used in the production, no *haram* product should be produced, and no disadvantages risk should be taken by the producer. This study has revealed that HAS only provided the basic guideline for the producer, so the integration with another system such as HACCP, ISO22005:2005, and another quality management system must be referred to. According to the Malaysian *Halal* Management System (MHMS) (2020), micro, small, medium, and large industries must implement the traceability system in their food production. For micro and small industry, the Internal *Halal* Control System (IHCS) should be implemented. The IHCS consist of three elements includes *halal* policy, raw material control and traceability system. However, the medium and large industry is required to implement HAS that focussing of ten elements includes *halal* policy, establish the internal *halal* committee, *halal* internal audit, *halal* risk control, raw material control, *halal* training, traceability system, lab analysis, sertu and HAS review. Even though the implementation of HAS can give additional value to the company, if a company avoids practicing the HAS system consistently, it would affect the operation of the company (Abdul Rahman & Abdul, 2017).

Complaints from the customer is a signal to the company that the problems or failures in internal processes occurred that consequently require quick recovery especially on the *halal* and the quality aspect of the product to avoid any dissatisfaction among other customers. However, according to Filip (2013), only a small percentage of customers have submitted their complaints after experiencing bad or negative consumption. Bateson and Hoffman (1999) claimed that for every complaint received by a company, 19 other dissatisfied customers did not make the complaint (Filip, 2013). Based on the customers' complaints, the company has an opportunity to solve their problem regarding the quality of the product and learn to improve their products. On the other hand, the other challenge in management support is cost. Implementing the system requires a lot of money, including improving the system. Dessureault (2019) states that traceability requiring investment but did not contributing to the profit of food premises. Golan *et al.* (2004), determined that there are two costs associated with traceability which are the cost of record-keeping and the cost of product differentiation.

CONCLUSION

The concept of *halalan toyyiban* is an Islamic concept related to the characteristics of the products for human consumption. The application of food safety in food premises is very important to prevent the physical, biological, and chemical contamination of food. The *halal* food which has been produced from *halal* raw material and processed under the hygienic condition has fulfilled the aspect of *halalan toyyiban*. The implementation of traceability system is essential to meet the element of *halal* and *toyyib* as it is a guide or procedure which has been developed by the food premises. The system might ensure the raw material used is *halal*, the working area is in safe and hygiene condition, the worker implement the good hygiene practice and the record as well as documentation are kept for the traceability process. Traceability is the ability to trace any food product one step backward and one step forward through all stages of production to control and avoid broader disruption such as food safety problems and risks associated with *halal* food including to reduce the potential of product recalls. Implementation of traceability system in the *halal* food supply chain is to ensure the raw material or ingredients used in production is *halal*, wholesome, hygiene and safe. The distribution of the product throughout the supply chain also must be separated to avoid any cross-contamination between *halal* and non-*halal* product.

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SMRJ

CHALLENGES ON DISTANCE LEARNING INTERACTION AMONG ACCOUNTING STUDENTS AT STATE-RUN COLLEGE IN AN ISLAND PROVINCE IN THE PHILIPPINES

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ABTRACT

Distance learning became more evident during the COVID-19 pandemic. It became mandatory in different parts of the world just to continue the educational system despite the insufficiency of resources. This paper aimed to determine the challenges encountered by accounting students towards distance learning and their distance-learning interaction. The researchers used descriptive-correlational research. The data was gathered from 100 accounting students in a state-run college in an island province using a structured survey questionnaire and a simple random sampling technique. The study found that accounting students encountered a large extent of challenges in infrastructural limitations and state of mind while learner-learner interaction scored the highest among the types of distance learning interactions. The study also found that challenges encountered were in terms of disturbance in execution, the gap between people, and technological inhibitions have a significant and positive correlation with learner-content interaction. A negative correlation between challenges encountered in terms of the state of mind and learning-instructor interaction was also observed. The findings of the study can be used in enhancing the learning experience of the students and improvement of the learning management of the institution when implementing distance learning education.

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INTRODUCTION

Distance learning in the Philippines is not a new thing in colleges and universities (Publico, 2020). Since COVID-19, the approach was seen to be more evident. Similarly, with other sectors, the education system is affected worldwide which leads to near-total closures of schools, universities, and colleges (Maslen, 2020). For the students to be able to attend classes even at home, the Commission of Higher Education and the Department of Education promoted flexible and blended learning. However, it has been criticized because most students in the country do not have enough resources to support their studies (Magsambol, 2020).

According to Navarosa and Fernando (2020), distance learning today is the 'new normal' in the education system not only for colleges and universities but also for elementary and high schools as well. This brought significant challenges for the students since they must now engage in online distance learning which is totally different from their daily routines. They now experience limited physical or in-person affiliation with peers although research suggests that students typically enjoy taking online courses (Seiver & Troja, 2014).

Distance learning is the use of Information and Communication Technology (ICT) to improve and promote learning as well as the creation of knowledge based on the learner's own experience, practice, and knowledge. Educational institutions have benefited greatly from developments in communication and computing technologies, and there is a constant demand in developing countries to enhance their teaching and learning processes by integrating growing levels of technology into the design and delivery of their curriculum. These new technologies allow for more flexibility in learning and a wider reach for education in many countries worldwide (Salawudeen, 2006).

In addition, education as a structure is not limited to the physical contexts of a typical college campus (Frick, 2020). According to Sinclair College (2020), distance learning is a course delivered via synchronous means at scheduled times on specific days. Using the institution's learning management system to promote tasks, quizzes/exams, and other course materials, an instructor can effectively offer their programme on the same

schedule as if it were conducted in a traditional face-to-face or blended format. As stated by White (2010) the delivery of synchronous real-time interaction to many students through remote instruction is not new while in the literature, there are few studies on the effects of a rapid transition to distance learning.

It must also be acknowledged that students varies in their ability to thrive and flourish rather than struggle because of online learning (Malik *et al*., 2017). Identifying and understanding their learning preferences can make a big difference in how open an individual is to learn about a new topic. People learn in diverse ways, and each has a learning style or preference that aids in the acquisition of new skills and knowledge, as well as the retention of information (Loveless, 2021). Every student has their own preference of learning style for them to understand lectures and answer activities and assessments. Some learn best through pictures and watching videos and not on reading text and instructions while some prefer to read and understand instructions rather than relying on visuals.

There are extant literatures that studied the challenges brought by pandemic and the proliferation of distance learning to education sector. Likewise, there are existing studies on distance learning interaction. However, there are limited studies on how the challenges brought by pandemic affected the learning interaction of the students. This study attempts at providing an analysis on how these challenges affect learning interaction of the students during distance learning to fill in the gap. Also, the result of the study is expected to provide insights to school administrators and teachers on how the students fare during distance learning and how to improve their learning experience.

PROBLEM STATEMENT

Distance learning physically separates the learners from the educators, but the emergence of modern technology particularly the online media bridged the gap between them (Faridah *et al.*, 2021). Despite the emergence of technology like Google Meet, Zoom, Microsoft Teams, Facebook and different types of Learning Management System (LMS) applications which helps the management of learning more doable, there are plenty of challenges

the students encountered during its implementation period. These challenges were aggravated by the fact that students in remote areas where they are geographically isolated and access to internet is a major challenge.

The researchers recognised these challenges brought by the wholesale shift to distance learning as some of these have been documented in other recent works (Besser *et al.*, 2020). Hence, this study aimed to explore the challenges encountered by the accounting students in distance learning and its correlation to learning interaction. Specifically, the study sought to answer:

1. What is the extent of challenges encountered by accounting students in distance learning?
2. What is the extent of distance learning interaction in terms of learner-learner, learner-content, and learner-instructor?
3. Is there a significant correlation between the challenges encountered during the pandemic and distance learning interaction?

REVIEW OF LITERATURES

This study is guided by Moore's Model of Interaction. Moore (1989) came up with the model of interaction to explain how effective teaching and learning at a distance depends upon the nature of interaction and how interaction is facilitated through a technological medium. As indicated in Moore's model there are three types of interactions necessary for effective online education: learner-content, learner-learner, and learner-teacher. Interaction is a crucial element for effective online education that enhances the student learning experience and increases student satisfaction with the course.

The importance of the three types of distance learning interaction namely learner-learner, learner-content, and learner-instructor was quantitatively verified through meta-analysis conducted by Bernard *et al.* (2009). They suggested that the next generation of distance learning interaction should be designed to be more facilitative of purposeful interaction. Casarotti *et al.* (2002) found that interaction during the lesson is a basic factor for the success of distance learning and it stimulates a greater degree of interest, satisfaction, and perceived efficacy.

Learner–learner interaction is communication between students, in pairs or groups, with or without an instructor present (Beltramo, 2017). Shackelford *et al.* (2012) attributed learner-learner interaction to sense of community (SoC). SoC is defined in the literature as 'a feeling of belongingness that members have, a feeling that members matter to one another and to the group, and a shared faith that members' needs will be met through their commitment to being together'. Through conversations with other students, online students build community, create understanding, and query and explain contents among themselves. In a constructivist approach, the instructor participates in these conversations but serves as a facilitator, rather than an authoritarian, who directs the conversation (Wu *et al.*, 2017). Small group interactions reduce student isolation, improve collaboration and advocate for learner-centered practices in online learning. Chen *et al.* (2020) added that students who participate in group discussions can work together to achieve learning goals and to assist and encourage one another as they progress from passive to active learners.

Moreover, Koehler *et al.* (2020) suggests that when students share resources with one another, they become more responsible and accountable for their own learning, their engagement improves, and relationships among members of the learning community are improved. He concluded that enhancing learner-learner interaction helps to focus the student in an active and cognitively complex learning process. Enhancing learner-learner interaction appears to have the greatest impact in terms of improving the overall learning experience in the distance education environment among the forms of interaction.

On the other hand, differences in styles of learning have become important considerations at all levels of education over the last several years (Chen *et al.*, 2020). Examining accounting students' preferred styles of learning is useful for course design and effective instructional methods. Online class as a learning method in accounting courses faces many challenges. The existence of these barriers, however, does not alter the accounting profession's collective conclusion that perseverance and dedication to learning are a prerequisite for a good accounting career and that accounting educators should assist students in developing these learning objectives. According to Narh (2017), the learner-instructor interaction has been regarded as an important learning factor.

Tami and Kang's (2013) study showed results that factors related to instructional interaction predicted perceived learning achievement and satisfaction better than factors related to social interaction. However, it was revealed that social interaction such as social intimacy could negatively affect perceived learning achievement and satisfaction. It reflects that instruction-based tasks and activities tend to provide more predictability of achieving positive results and that how the factors highly affect every activity of the students. There is a study that found learner–instructor interaction factors that predict perceived learning achievement and satisfaction with empirical evidence (Kang & Im, 2013).

For distance learners, interaction with the course content (learner-content interaction) is especially important because it can contribute to successful learning outcomes and course completion. Learner-content interactivity in distance learning is a two-way communication process between a learner and learning materials in various formats through multimedia technology. As claimed by Racheva (2018) E-learning can have a high degree of learner-content interactivity that can inspire learners to participate in their learning with good instructional design strategies and sufficient technical tools. Hasan and Bao (2020) stated that learners who participate in e-learning are actively involved in the development, problem-solving, reasoning, and assessment processes. Indeed, the method of learning chosen by students has a significant effect on the progress of information acquisition.

As mentioned by Chew *et al.* (2008), blended learning became popular and has been widely accepted in many universities because it enhanced the teaching delivery that requires both face-to-face learning and online learning during the pandemic. With the use of technology, face-to-face learning and online learning were supported by blended learning tools such as Web 2.0 applications like YouTube, Facebook, Google Meet, and Google Classroom. Holtzblatt and Tschakert (2011) stated that blended learning web tools enabled educators to upload videos and other learning materials that were not available or deliberated in the textbooks. It benefits both educators and students because online learning materials can be accessed at any time and from any place. Consequently, learning will take place outside of the classroom as well. As believed by Turner (2013) the use of blended learning web resources has benefited educators and students, previous research has

shown that students would only use it if they believed it is simple to use and useful. Although blended learning web tools are beneficial, it has been discovered that students will only use them if access is simple and online learning materials are thought to be useful. Researchers tried to find more ways for all to adapt and become the new normal over time. Since some students do not always have access to the internet, thus some school systems advocate for blended learning.

RESEARCH METHODS

 The study is based on the descriptive-correlational method. The researchers randomly selected 100 out of 541 accounting students enrolled in two campuses of Occidental Mindoro State College. The state-run college offers a Bachelor of Science in Accountancy, a Bachelor of Science in Management Accounting, and a Bachelor of Science in Accounting Information Technology.

The instrument used in the study is a researcher-made questionnaire that was validated by experts. The questionnaire contains five parameters of the challenges of distance learning and three parameters of learning interaction which have five indicators per parameter. The students' responses were measured by a 5-point Likert scale.

Table 1: Convergent Validity and Reliability Results

Construct	AVE	Cronbach Alpha
Learner-learner interaction	0.763	0.731
Learner-content interaction	0.859	0.712
Learner-instructor interaction	0.886	0.710
Disturbance in execution	0.837	0.794
Gap between people	0.914	0.732
Infrastructure limitation	0.772	0.754
Technological inhibition	0.710	0.825
State of mind	0.668	0.798

A reliability analysis was done on the eight factors using Cronbach's Alpha which ranged from 0.710 to 0.825 and exhibited an acceptable level above 0.7 of all the items in the construct (Brown, 2002).

In gathering the needed data, the researchers asked for the permission of the respondents and explained the purpose of the study. The data gathered was categorised, analysed, and interpreted by the researchers using the Statistical Package for the Social Science (SPSS) software. Weighted mean and standard deviation were used to describe the extent of challenges encountered and distance learning interaction while Pearson Product-Moment Correlation Analysis was used in measuring the relationship between the challenges encountered and the distance learning interaction of accounting students.

RESULTS AND DISCUSSIONS

Table 2: Extent of Challenges Encountered in Distance Learning

Challenges	Mean	Interpretation
Disturbance in execution	3.49	To a moderate extent
Gap between people	3.16	To a moderate extent
Infrastructure limitations	3.82	To a large extent
Technological inhibitions	3.07	To a moderate extent
State of mind	3.61	To a large extent

The results indicate that the students encountered to a moderate extent challenges in terms of disturbance in execution (mean= 3.49). This result indicates that most students during distance learning encountered a moderate extent of delays in lectures and disturbance in voice or presentation due to poor internet connectivity and lack of access to resources (e.g., books, PDF or PPT files, video presentation).

The students also encountered to a moderate extent challenges concerning the gap between people as reflected by the 3.16 mean score. This indicates that the majority of respondents somewhat encountered insufficient feedback from instructors and classmates during their distance learning. Mullikin (2020) suggests that when feedback is used as a motivator to encourage students ahead in their learning, the interactions with them shift from retrospective assessments to proactive preparations for future steps. A systematic method should result in immediate, authentic, and consistent feedback during the learning process.

Furthermore, the respondents encountered to a large extent challenges in infrastructure limitation (mean=3.82). This finding implies that the issues in internet access or connectivity, power failures, and inability to engage in an online class due to a lack of infrastructure and increase in workload due to school activities while facing house chores were encountered to a large extent by the respondents. According to Souter (2017) the ability to connect to the internet is critical to realising this vision for the future. It has the potential to increase educational quality in a variety of ways. It provides access to a multitude of information, knowledge, and educational resources, expanding learning opportunities both in and outside of the curriculum.

Moreover, the extent of challenges encountered by the respondents in distance learning in terms of technological inhibitions was to a moderate extent (mean=3.07). This could mean that most of the respondents have a proper understanding of operating different platforms using their mobile phones and laptops during the implementation of online classes. Since technological advancements and infrastructure are improving and supporting distance learning, most students are now skilled and experienced in using different platforms for distance learning. The effectiveness of online learning might be impacted by many factors such as technological aspects, user-friendly online platforms, class activities, and assessments (Wijekumar *et al.*, 2006; Shuey, 2002).

Lastly, the challenges encountered in terms of the state of mind of the respondents were noted to a large extent (mean=3.61). It only shows that most of the respondents are having a large extent of challenges in engaging in distance learning because of procrastination, mental stress due to the pandemic, lack of motivation, and being interrupted in online classes (by family, noise, etc.) which brings less confidence to the student. The shift to online classes, suspension of physical classes, excessive use of gadgets, home confinement, and decrease in social support increases the burden on the mental well-being of children (Lee, 2020; Loades *et al.*, 2020).

Table 3: Extent of Distance Learning Interaction

Learning Interaction	Mean	Interpretation
Learner-learner	4.19	To a large extent
Learner-content	3.56	To a large extent
Learner-instructor	3.92	To a large extent

Based on Table 3, the extent of learner-learner interaction has a mean score of 4.19. Learner-learner interaction is two-way communication between and among learners to exchange ideas or information related to course content or completing a group task. Interactions with peers allow the students to deepen their understanding of theoretical knowledge and of how to better apply theoretical knowledge in practice (McDuff, 2012).

Furthermore, Table 3 reveals that the extent of learner-content interaction has a mean score of 3.56. This could mean that the students engaged in distance learning typically spent a large extent curating, selecting, processing, and evaluating online learning content themselves. Distance learning that has a high degree of learner-content interactivity can inspire learners to participate in their learning (Racheva, 2018). Also, Kara *et al* . (2021) found that learner-content interaction was a significant predictor of perceived learning in an online class.

Lastly, learner-instructor interaction scored a mean value of 3.92 which is interpreted as a large extent. In a distance learning context, learner-instructor interaction provides a direct relationship between student and teacher that solves the conflict in understanding person, process, and other matters regarding distance learning (Terzi & Çelic, 2005). It can be noted that the role of the instructor is crucial to the success of distance learning. Students give importance that instructors were asking about their concerns, giving consideration, and providing detailed lessons, and constructive and timely feedback about their work. For the students, it increases their eagerness to learn because of the guidance they received from the instructor for them to fully understand the lessons.

Table 4: Correlations for Challenges Encountered in Distance Learning and Learner-Learner Interaction

Challenges in Distance Learning	Learner-Learner Interaction	
	r	*p*-value
Disturbance in execution	-0.082	0.415
Gap between people	-0.031	0.760
Infrastructure limitations	-0.086	0.392
Technological inhibitions	-0.064	0.525
State of mind	-0.026	0.796

As shown in Table 4, the results of the correlations analysis revealed that all parameters of challenges encountered in distance learning are not significantly correlated to the learner-learner interaction. This could mean that the extent of challenges encountered by the students in all factors does not affect the extent of their interactions with other students. So (2008) mentioned that although students with a high level of collaborative learning are more satisfied with their distance courses than those who perceived low levels of collaborative learning, its relationship is not statistically significant.

Table 5: Correlations for Challenges Encountered in Distance Learning and Learner-Content Interaction

Challenges in Distance Learning	Learner-Content Interaction	
	r	*p*-value
Disturbance in execution	0.344	0.001
Gap between people	0.214	0.032
Infrastructure limitations	0.121	0.231
Technological inhibitions	0.212	0.034
State of mind	-0.005	0.962

The results of the correlational analysis conducted are shown in Table 5. It shows that challenges encountered in terms of disturbance in execution, the gap between people, and technological inhibitions are significantly related to learner-content interaction. Learner-content interaction is about the learner's engagement and interaction with the subject matter in ways that suit individuals, their styles, and approaches to studying, and its time, place, and pace (Naidu, 2017). The result could mean the extent of learner-content interaction was significantly affected by the extent of the disturbance they encountered while studying and when they feel disconnected from their peers

and family. Also, the extent of learner-content interaction was significantly affected by the extent of challenges they encountered with regard to distance learning technology (Shuey, 2002). However, Zimmerman (2012) pointed out that very few empirical studies have attempted to examine the role that learner-content interaction plays in course success outcomes.

Table 6: Correlations for Challenges Encountered in Distance Learning and Learner-Instructor Interaction

Challenges in Distance Learning	Learner-Instructor Interaction	
	r	*p*-value
Disturbance in execution	0.009	0.925
Gap between people	0.032	0.749
Infrastructure limitations	-0.131	0.194
Technological inhibitions	0.097	0.339
State of mind	-0.279	0.005

Table 6 shows that the extent of the state of mind of the students has a significant and negative weak relationship with the extent of learner-instructor interaction (Schober *et al.,* 2018). It only proves that the student's mental well-being is significantly affected by their interaction with the instructors. The extent of challenges that may affect the mental well-being of the students decreases as their interaction with the instructors increases.

Jurik, Groschener, and Seidel (2013) emphasize that verbal teacher-student interactions are meaningful for student learning and motivation. While, Duta *et al.* (2015) state that the teacher's communication style might impact the students' motivation and attitude when creating an engaging and educational atmosphere.

CONCLUSION

COVID-19 pandemic has brought significant changes in the education system in the country. Remote areas like island province encountered a great extent of challenges in the delivery of distance learning because of infrastructure limitation and technological inhibitions of both learners and teachers. Distance learning also brought great extent of challenges that could possibly affect the mental well-being of the students. The school

administrators should enjoin the faculty to increase the time allotted to consultation to promote the mental well-being of the students as it decreases the challenges relative to it.

During the implementation of distance learning, the tertiary students relied on themselves to learn. This was manifested in the student's assessment on the extent of learner-learner interaction which scored the highest among the three variables. School administrators and teachers may consider enhancing and updating the learning modules, lecture videos, and other instructional materials given to the students. Improvement of student access to library should be prioritised to enhance the learning experience of the students who preferred to study by themselves.

Student engagement with course content is also affected by the extent of student separation from teachers, peers, and family. This was manifested by the positive correlation between the challenges encountered by the students in the gap between people and learner-content interaction. Likewise, positive correlations between challenges encountered by the students in terms of disturbance in execution and technological inhibition, and learner-content were also noted. Other factors that positively affected learner-content interaction were disturbance in the execution of learning modalities like poor internet connection, doing household chores, and lack of focus brought by their learning environment and technological inhibition.

Lastly, a negative correlation between challenges encountered in terms of the state of mind and learning-instructor interaction was also observed. It implies that the higher the interaction of instructors to students, the lower the challenges encountered by the students in their mental well-being. It is suggested that the school may consider investing in appropriate educational technologies, promoting socialisation between students, faculty, and school support staff, and expanding the technology education programme as it significantly increased the learner-content interaction of the students.

Educational institutions may not or should not be able to stay away from distance learning as a mode of instruction delivery as they invested a lot of resources into it. Also, studies have shown the effectiveness of distance learning when applied appropriately in different courses. Hence, the utilisation of distance learning and face-to-face learning modalities at

the same time will be the new trend in the educational system in the post-pandemic era.

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