Knowledge Sharing Behaviour to Accelerate Green Practices Adoption for Construction Industry

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Abstract
Green practices in the construction industry are coined based on the concept of protecting the environment and providing a more environmentally friendly solution for the construction activities. Various green practices had been introduced namely in the use of green materials, green management and also technology. However, after decades of efforts, the industry is still daunted by the issues such as lack of awareness and knowledge that hinder the full adoption of green practices in the industry. Thus, this paper aims to explore the knowledge sharing behaviour among construction stakeholders to accelerate green practices adoption in the construction industry. There are four knowledge sharing behaviours identified from this paper that possibly can influence the green practices acceptance and adoption in the industry. This paper is based on conceptual findings conducted through literature review.
Keywords: Construction, Stakeholders, Green Practices, Knowledge Sharing, Malaysia

Introduction
Green practices adoption is a way forward for the construction industry as the answer to environmental issues. Green practices had been introduced to the construction stakeholders for covering all stages of construction delivery starting from the inception until project completion. The nature of construction project delivery involved series of activities and various stakeholders from various backgrounds. Construction project is known as labour intensive industry consisting of stakeholders from different educational and skills backgrounds (Duodu & Rowlinson, 2021). For instance, architects, engineers, and surveyors are regarded as the design team and the constructing team as the builder. Each stakeholder carries different functions and contribute different weights.

It is commonly acknowledged that green building is an effective approach through which the need for implementing sustainability and sustainable development within the construction industry can be addressed (Sev, 2008: Son et al., 2011). In Malaysia, the green practices have embarked in the Malaysian construction industry as means to expedite quality and product for the clients who are environmentally concerned towards sustainability where various initiatives and methods have been studied to meet the demands of the local construction market for uplifting the standard up as par with those of the developed country (Sim & Putuhena, 2015). There have been limited empirical studies to identify the strategies in promoting green practices and practices adoption in the construction industry, which have so far also been only country-specific studies.

There have been various promotion strategies for green practices adoption in other countries such as Singapore where the government's co-funding and incentives, policies and regulations for green development, and collaboration with research institutes and firms to study the benefits of green business parks have been identified as the most feasible solutions for overcoming the significant barriers to the adoption of green business parks, thus promoting green business parks adoption (Hwang et al., 2017). In addition, widening the coverage of government incentives to include the usage of green products and technologies, developing a project management framework for green construction, educating owners on the future benefits of green buildings, organizing construction tours to educate the public about the benefits of green building, and subsidy from the government for research and development (R&D) in green building systems and management have been identified to promote the adoption of green building (Hwang & Tan, 2012). Whereas in Hong Kong, mandatory environmental regulations by the government, and organisations from government and non-governmental sectors have enforced requirements and establishment of standards. The enforcements have been found as important factors in facilitating the successful adoption of green procurement in construction projects (Wong et al., 2016). Financial and further market-based incentives such as the availability of better information and on cost together with benefits of Green Building Technologies, as well as green labelling and information dissemination have also been momentous in promoting Green Building Technologies adoption in the United States (Darko et al., 2017).

Potbhare et al (2009) had pointed out that the availability of better information on cost and benefits of green building guidelines, availability of institutional framework for effective implementation of green building guidelines, educational programs for developers, contractors and policy makers related to green building guidelines, and creation of environmental awareness by workshops, seminars, and conferences were crucial strategies for promoting the rapid adoption of green building guidelines. Li et al (2014), however, contended that it is critical to enhance the environmental awareness of stakeholders, strengthen technology research and communication, and formulate relevant policies and regulations. Scholars have also argued that financial and regulatory incentives schemes are of great importance to the successful adoption of green building technologies and practices. Hakkinen and Belloni (2011) further claimed that developing the awareness of clients about the benefits of green buildings is one of the most essential actions to encourage green building. Moreover, as the attitudes and behaviours of consumers and the public have a significant influence on the promotion of green building, strengthening publicity and education has been considered an effective means to boost public awareness of environmental sustainability and customers' willingness to pay for green buildings.

The need to go green depends on the client's decision during planning stage. However, it is also dependent on the project's scope and budget. Monetary factor is one of the challenges in the introduction of the green practices by the stakeholders (Heffernan et al., 2015; Shafii & Othman, 2005; Tafazzoli, 2017; Sharma, 2018). Apart from financial factor, spreading awareness and knowledge on green practices is also being highlighted as the low hanging fruits to introduce green practices (Hwang & Ng, 2013). Knowledge sharing is an important mechanism to spread the awareness among the construction stakeholders on the importance of green practices.

Despite of the many benefits that green practices offers, their implementation still encounters several kinds of barriers and problems where a lack of knowledge and awareness of green practices and their benefits are still low, a lack of government incentives to name a few (Zhang et al., 2011; Zhang et al., 2011; Zhang et al., 2011; Qian et al., 2015; Chan et al., 2016). According to Agenda 21 of the Sustainable Construction Industry in Developing Countries (SCIDC), sustainable construction is perceived to be a holistic and integrative concept striving to restore harmony and balance between the environment, economy, and society (Du Plessis, 2002). However, when it comes to developing countries, the adoption of even very basic aspects of sustainability are still in their infancy level. For instance, developed countries have been focusing on efficient resource utilization and the reduction of their environmental impact, whereas developing countries have a lower degree of achievement such as the non-existence of building energy codes which makes the process of adoption challenging (Durdyev et al., 2018). From the construction project developers' perspective, investigated the level of knowledge and awareness about sustainable construction in Malaysia. The vast majority of developers were reluctant to implement sustainable construction concepts due to their lack of knowledge and cost concerns, and even amongst large project developers, few were adopting the concepts (Zainul-Abidin, 2010). In spite of the various sustainability-assessment tools and methods have been introduced, particularly advanced countries and a few developing ones, the level of awareness and knowledge about green practices is low, which affects the delivery of sustainable projects (Cambodia Contractors Association, 2015; Durdyev et al., 2018). Thus, this paper will highlight the importance of knowledge sharing element and how it might influence the stakeholder's green behaviour.

Literature Review
Introduction to green construction
The term "green" refers to how a structure is constructed rather than how it appears (Kumar, 2020). Reasonable structure materials by definition are materials which locally made and sourced with reduced transportation expenses and carbon dioxide (CO_2) outflows, they could comprise of reused materials, a lower ecological impact, thermally viable, needing less vitality than regular materials, utilising inexhaustible assets, low in hurtful discharges, and are monetarily supportable (Kumar, 2020). Green building guides mentioned a wide diversity of "alternative" materials that can alternatively replace conventional product in this sector (Krueger et al., 2019). Besides, green building is a set of philosophy and techniques that aims to create and make use of the built environment as environmentally friendly as possible (Krueger et al., 2019). Green construction focuses on limiting negative effects on the environment while adding some positive benefits from design stage to assembly stage and on the functionality of the structure after completion. Any construction will have unavoidable environmental impact (Krueger et al., 2019). However, with an increasing worldwide

emphasis on sustainability, the construction industry must take steps to both reduce their own carbon footprint when constructing a new structure and design that structure to run in a sustainable manner for many years to come.

Malaysia's green technology initiatives consist of a number of initiatives and policies aimed at increasing the use of environmentally friendly approaches in all sectors in order to reduce reliance on fossil fuels and their environmental impact. This policy will not only boost Malaysia's economy and social well-being but will also encourage service and system providers and businesses to purchase assets that have been certified as green. Moreover, Ministry of Works Malaysia's National Construction Policy 2030 (NCP2030) was developed with the objective of embracing the sustainable built environment through two strategic points: developing quality, reliable, sustainable, and resilient infrastructures, as well as promoting environmentally friendly construction materials and bolstering the waste management system (Anuar et al., 2021).

Malaysia has always been a forerunner in implementing the development agendas offered by different regional and international organisations. Since then, the government has embraced the notion of sustainability through its national framework. At the United Nations General Assembly (UNGA) in 2015, Malaysia has endorsed the 2030 Agenda for Sustainable Development and adopted the Sustainable Development Goals (SDGs) through its national development plan. The environment is a key component of the SDGs, the green growth strategy outlined in the 11th Malaysia Plan represents the government's effort to manage natural resources, conserve the environment, and mitigate the effects of climate change. These initiatives are being carefully pursued through numerous programmes and laws targeted at environmental conservation in the country. The enabling environment is vital as an integrated support system in supporting the success of SDG implementation at all levels (Yusof & Ariffin, 2020).

Green Practices in Malaysian Construction Industry
1. Green Materials & Technology

Green technology is an approach which produce or improve the materials into non-toxic and environmentally friendly products. It is also a process of converting existing energy into renewable sources of energy (Darko & Chan, 2016; Sam et al., 2011). The importance of green technology and materials in construction is to enhance water saving, indoor cooling, reduce waste and pollution, and decrease energy consumption (Mahat et al., 2019). According to Jainudin et al (2017), green buildings and renewable energies such as solar, hydro and biogas are forms of green material sources that can be utilised in construction industry. Moreover, these green technologies incorporated into the building design and construction to create sustainable environment and enhance economic growth (Mahat et al., 2019). Among the most common green technology used in construction industry is the Industrialised Building System or known as IBS. IBS technology aims to contribute for a fast and cleaner construction method on construction site.

Wide variety of green building materials and technologies such as green-roof technologies; waste reduction technologies (Shen et al., 2009); solar power systems (Huang & Wu, 2007); and technologically enhanced heating, ventilation, and air-conditioning systems (UNEP, 2003) have been identified in the literature. Furthermore, there are six (6) criteria of green technology which consist of Indoor Environment Quality (EQ), Energy Efficiency (EE), Materials and Resources (MR), Innovation (IN), Water Efficiency (WE) and Sustainable Site Planning and Management (SM) (Suhaida et al., 2011).

2. Green rating tools

Two kinds of approaches have been practiced in implementing the green benchmarking system. The first one is based on a multi-criteria credit system: a certain amount of credits within a prescribed range is assigned to each issue/topic in a set of specific categories that are considered to have an impact to the overall building sustainability. The second approach is based on synthetic environmental indicators quantified by means of a Life Cycle Assessment (LCA) procedure. The latter is a scientific method to assess the environmental impact of buildings, but it is more complex and onerous than the criteria-based system (Mattoni et al., 2018). Specifically, in Malaysia, there are few tools available such as Green Building Index (GBI), *Penarafan Hijau* (Ph JKR) and Malaysian Carbon Reduction and Environmental Sustainability Tool (MyCREST). Each tool has demonstrated its capacity in showing the sustainability level of a building. However, differences in nature and assessment characteristics have caused complications to stakeholders in comparing the green performances of each building that utilised different rating tools. Moreover, each rating tools is aimed to be applied in different stages of construction works (i.e., design, construction, operation, and maintenance) and none of them cover the whole process cycle, resulting in the need of adopting different assessment methods to evaluate the same project at different stages.

Green Building Index (GBI) is recognised as a voluntary rating tool for a green building to promote sustainability in the built environment and raise awareness on environmental issues (Green Building Index, 2021). In the GBI rating, the criteria are more focused on the energy efficiency and indoor environmental quality as they have the greatest impact in the areas of energy use and the well-being of residents and users of the building. GBI looks into six main criteria such as Energy Efficiency, Indoor Environmental Quality, Sustainable Planning and Management, Material and Resources Water Efficiency and Innovation. A move to promote a green building concept which began in 2009, has been successful with more than 579 certified projects in the country, fulfilling the criteria rated by GBI (Green Building Index, 2021)

Green certification or *Penarafan Hijau* (Ph JKR) is a green building rating tool on the building's performance towards sustainability developed based on the latest requirement by the government (Hamid et al., 2014). *Jabatan Kerja Raya Malaysia* (JKR) has started to practice green initiative in projects implemented since the 8th Malaysian Plan (PH JKR, 2013). In realising how profound the impact of the government projects is on the whole construction, coupled with the commitments shown by the government in embarking on the green building practice, they have developed this specific tool in order to measure the sustainability level of the government projects administrated by JKR. Ph JKR focuses on the design stage and assessments are based on the listed set of criteria. It covers four types of building, including non-residential new building, non-residential existing, non-residential without air conditioner, and health service building (Adzar et al., 2019).

Malaysian Carbon Reduction and Environmental Sustainability Tool or MyCREST is developed through joint effort by *Kementerian Kerja Raya, Jabatan Kerja Raya* and Construction Industrial Development Board as main partners under the authority of the Honourable Ministry of Works, together with other related stakeholders. MyCREST is also a tool other than GBI that guides construction industry players and stakeholders to design, construct and operate buildings that integrate low carbon and sustainable practices (Abdul Rahman, 2017). This Green Building Rating Tool is designed as a sustainable building rating system or tool that aims to quantify, hence reduce built environmental impacts in terms of

carbon emissions and environmental implications while taking into account a more holistic building life-cycle view starting from pre-design up to demolition stage (Ohueri et al., 2019). The criteria involved consists of three certification phases: design, construction, and operation and maintenance. Depending on phases being rated, the criteria are adjusted for different requirements and relevance according to that particular phase (Isma et al., 2018).

3.Building Integrated Management (BIM)

Internet of Things (IoT) is the connection of objects physically to the Internet through sensors to drive supply chain process (Albishi et al., 2017). Embedding IoT in the green business model of construction firms leads to the application of technologies such as network communication, cloud computing, software applications, protection and privacy of occupants in buildings and delivery of smart buildings and cities (Albishi et al., 2017).

The integration of BIM in the green business model has several advantages such as: (1) promotes sustainable environment, economic and social dimensions by reducing the bulk of paper-based processes for project documentation in the construction industry, (2) ensures the automation of the green construction process, (3) enhances the value proposition and value configuration of green construction activities upon which construction firms can develop their revenue structure for green design and services to clients (Lamptey et al., 2020), and (4) promotes collaboration and communication across different professions involved in the green construction supply chain. In the current practice, the uptake of technology in the construction industry is low and much effort is needed to boost the application of technological innovations such as digital technologies in the construction industry.

Theoretical Background

Knowledge refers to a theoretical or practical understanding of a subject. Knowledge management (KM) has become a very common term in the twenty- first century, as it has been applied to a wide spectrum of activities and areas with the purpose of managing, creating, and enhancing intellectual assets (Shannak, 2009). It has become enriched with a huge wealth of contributions from many scholars and an extensive accumulation of experiences. From a deeper point of view, KM should be a kind of working method and philosophy. KM is a part of the field of management studies, but it is also closely integrated with information and communication technologies (Mihalca et al., 2008). In fact, KM can be observed from several perspectives, as there are a number of fields that contribute to it. Prominent among them are the fields of philosophy, cognitive science, social science, management science, information science, knowledge engineering, artificial intelligence, and economics (Kakabadse et al., 2003).

Knowledge sharing is the act of making the required knowledge accessible to others within organizations (Akhavan & Namvar, 2021). Employees' knowledge, skills, and experiences are shared and enhanced over knowledge sharing. It ensures that an organisation's knowledge is available to employees whenever they need it, and it has several advantages, including the retention of intellectual assets, increased productivity and managing tacit knowledge. The effectiveness of knowledge sharing includes a range of practices to identify, create, represent, and share knowledge within a business, and can provide vital resources for organisations as they progress (Ahmad & Daghfous, 2010). The roles of knowledge sharing in the KM is to support knowledge communication and can lead to innovation, consideration, transparency, and trust (Akhavan & Namvar, 2021). Thus, organisations must provide their workers with adequate and conducive environment for

exchanging their ideas and personal skills which, in turn, might elevate the satisfaction level among workers (Rafique & Mahmood, 2018).

The criteria of knowledge sharing are openness in communication, interpersonal trust, motivation, and technology acceptance. Each of these criteria will be discussed in detail below. The outline of criteria based on literature is illustrated in Table 1.

1. Openness in communication

Openness in communication can be defined as the ability to encourage sharing of ideas and collaboration. It also can be simplified as relationships with peer, downward, and upward directions of communication, respectively (Schiller & Cui, 2010). According to Al-Gahtani and Shih (2009), openness in communication can contribute good impact on employees' attitudinal behaviour. Furthermore, it serves as an important social cue for group members to understand the company's climate and provide group support and encouragement for knowledge sharing through social interaction among group members (Wu & Lee, 2016). Open-plan office spaces increase employee communication and information sharing by incorporating it into everyday work routines and sharing it in informal meetings in open workplaces. Employees like to share their perspectives and discuss technological issues in more casual situations

2. Interpersonal trust

According to Umar et al (2021), trust allows people to learn from one another and fosters a pleasant working atmosphere. Increasing employee trust can lead to more tacit knowledge exchange and organisational commitment. Studies had shown that when there is a supportive and cooperative knowledge culture, employees are more inclined to trust one another and share information. Effective management and leadership are necessary in creating interpersonal trust among workers while developing a knowledge culture. In a knowledge-sharing environment, a supportive organisational culture is required, which may be achieved by implementing suitable interventions and regulations (Kim & Park, 2020).

3. Motivation

A study conducted by Oliver and Kandadi (2006) explained that employees who actively contribute to the organization's expertise are apparent to everybody. People are more likely to participate in KM initiatives and improve knowledge culture in organisations when they receive recognition from top management. Hence, when employees have a lot of autonomy and work in a cognitively demanding profession, they are more inclined to contribute. As a result, organisations must promote and recognise these distinctive qualities to encourage personnel (Gagné et al., 2019). Individuals who are secure in their expertise are more likely to offer it based on their own personal interests, and independent of the organisation. Both internal and extrinsic motives play a role in knowledge sharing, and managers should work to improve both forms of motivation (Nguyen et al., 2019).

4. Technology acceptance

The most recent technological advancements have resulted in new ways for employees to carry out their duties (Tseng, 2017). KM implementation is using various IT results in a variety of solutions such as groupware, workflow, content management, enterprise portal, e-learning, semantic Web, and social media (Harandi, Nia & Valmohammadi, 2019). As a result,

construction businesses should encourage the use of technology to increase information exchange. The effectiveness of knowledge sharing can be increased through identifying potential and ethical issues related to digitalisation in the workplace, as well as providing ethical guidelines for knowledge sharing and digital environments adoption (Kim & Park, 2020). Keshavarz (2021) explained that the nature of knowledge sharing aids all employees in combining information resources, increasing efficiency and competitiveness. Consequently, all useful information and expertise may be consolidated and made readily available.

Table 1
Criteria of Knowledge Sharing

	Definition	References
Openness in communication	Openness in communication at the workplace is able to encourage sharing of ideas and collaboration. It is portrayed by Schiller and Cui (2010) as relationships with peer, downward, and upward directions of communication, respectively. It gives a positive impact on employees' attitudinal behaviour, including attitude, subject norms, and perceived behaviour control. (Al-Gahtani & Shih, 2009).	Schiller and Cui (2010 Al-Gahtani and Shih (2009)
	With the social interaction among group members, it serves as an important social cue that guides group members to understand the climate of the company and provide group support and encouragement for knowledge sharing (Wu & Lee, 2016).	Wu and Lee (2016)
	Abdelwhab et al. (2019) indicates that open workspace environments increase communication among staff member and increase knowledge sharing when it is embedded in the daily work routines and shared in informal meetings in open workspaces. Employees prefer to exchange their insights and discuss technical problems in a more informal setting.	Ali et al (2019)
	According to Schiller and Cui (2010), the degree of openness to communication is higher in face to face (F2F) conversations than that through IM (instant messaging), but such a relationship differs in different cultures.	
Interpersonal trust	Lack of trust is a barrier to knowledge and information sharing, thus may affect organisational effectiveness (Umar et al., 2021). With trust, one can learn from others and inculcates positive working environment. Boosting trust among employees is able to	Kim and Park (2020); Umar et al (2021)

	increase tacit knowledge sharing and organisational commitment. (Umar et al., 2021). A study conducted by Kim and Park (2020) implies that employees are more likely to trust each other and share knowledge when there is a supportive and cooperative knowledge culture. In developing knowledge culture, effective management and leadership are required in developing interpersonal trust among workers. Kim and Park (2020) suggest the supportive organisational culture is needed in knowledge sharing environment by implementing appropriate interventions and policies.	
Motivation	Employees who actively contribute to the organisational knowledge, are visible to the whole organisation. The recognition from senior management directly motivates people to participate in KM activities and enhance knowledge culture in organisations (Oliver & Kandadi, 2006). Moreover, Gagne et al. (2019) mention that employees are more motivated to share when they work in a cognitively demanding job and have a lot of autonomy. Hence, to motivate employees to participate actively in KM activities, it is important for organisations to support and recognise these individual capabilities. If individuals are confident about their knowledge, they tend to share their knowledge based on their individual interest regardless of organisational settings. According to Nguyen et al. (2019), both intrinsic and extrinsic motivations are important influencing factors towards knowledge sharing, and managers should strengthen both types of motivation.	Oliver and Reddy Kandadi (2006); Gagné et al (2019) Nguyen et al (2019)
Technology acceptance	With the latest technologies developed, it brings innovations on how employees perform their job. Technologies allows the expansion and universalising the scope of knowledge, and enhance the speed of knowledge transfer (Tseng, 2017). Applying various IT in KM implementation leads to numerous solutions such as groupware, workflow, content management, enterprise portal, e-learning, semantic Web and social media (Harandi, Nia & Valmohammadi, 2019). Hence, organisations should support the use of	Tseng (2017); Kim and Park (2020) Gottschalk (2000) Harandi et al (2019)

	technology to improve effective knowledge sharing. To increase the effectiveness of knowledge sharing, Kim and Park (2020) suggest that organisations need to identify potential and ethical issues related to digitalisation in the workplace and provide ethical guidelines for knowledge sharing and to adopt digital environments. The nature of knowledge sharing helps all staffs to combine information resources, improve efficiency and increase their competitiveness (Keshavarz, 2021). Therefore, all valuable information and knowledge can be converged and are easily accessible.	Keshavarz (2021)

Based on the discussion of theoretical background on knowledge sharing behaviour, it can be adopted into green practices model. This paper has proposed four criteria for knowledge sharing behaviour for green practices adoption model, which are openness in communication, interpersonal trust, motivation, and technology acceptance. The knowledge sharing behaviour is expected to help accelerate the green practices adoption among construction players. Knowledge sharing is one of the important approaches in transferring knowledge from one to another, within the organisation or to another organisation. The importance of knowledge sharing is demonstrated through acceptance indicators as shown in Table 2.
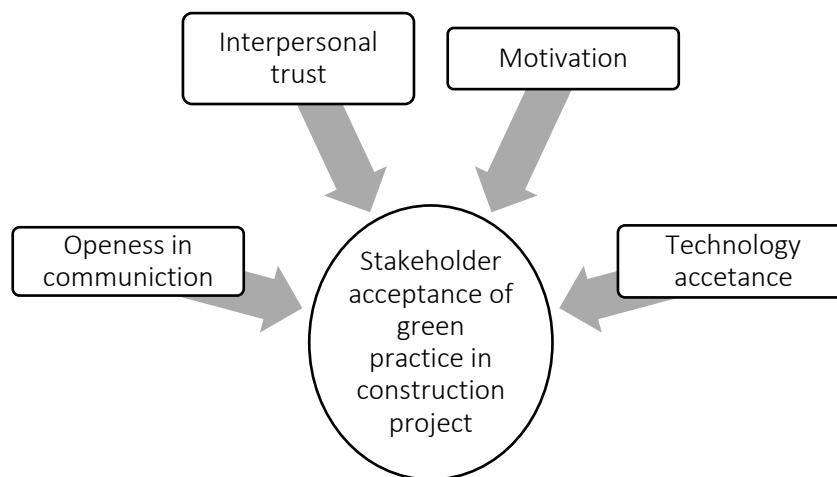

Figure 1: Main Factors for Knowledge Sharing Behaviour for Green Practice Model
Table 2

Acceptance Indicators for Knowledge Sharing's Factor

REFERENCE INDICATOR / ACCEPTANCE INDICATORS KS	Ref (1)	Ref (2)	Ref (3)	Ref (4)	Ref (5)	Ref (6)	Ref (7)	Ref (8)	Ref (9)	Ref (10)	Ref (11)	Ref (12)	Ref (13)	Ref (14)	Ref (15)	Ref (16)	Ref (17)	Ref (18)	Ref (19)	Ref (20)	Ref (21)	Ref (22)
Shared target among project team	X	X	X																			
Identification of Project's Green Goals				X	X	X																
The availability of shared information throughout the phases on green practice							X	X	X	X	X											
Feedback from external green auditor												X										
Achieving project's green goals													X	X	X							
Receiving incentive																X	X	X				
Receiving reward and recognition																	X	X	X			
Usage of current technology such the BIM, IBS and also the e-based management																				X	X	X

References: 1. Nguyen (2021); 2. Koo et al (2022); 3. Snyder et al (2013); 4. Mehdikani and Valmohammadi (2019); 5. Lim et al (2020); 6. Ofori-Boadu et al (2012); 7. Baharum and Pitt (2009); 8. Biotto et al (2012); 9. Cheng et al (2008); 10. Leal-Millán et al (2016); 11. Zhang et al (2020); 12. Albawwat (2020); 13.Vuori and Okkonen (2012); 14. Choi et al (2020); 15. Bhatti et al (2021); 16. Göhler et al (2022); 17. Nguyen (2020); 18. Nguyen et al (2019); 19. Martín-Pérez et al (2012); 20. Shi et al (2021); 21. Bigliardi et al (2014); 22. Ismail (2021)

Discussions And Conclusions

The green practices for construction project aim to achieve construction environmental sustainability as well as to generate positive impact on the economic and social aspects. However, the adoption of green practices requires a paradigm shift from the industry as the stakeholders are already feeling complacent with the traditional way the projects are being delivered. In order to persuade the stakeholders to continuously exchange information and knowledge pertaining the green practices including the benefits and the guidelines, there is a need for the latest information being disseminated from time to time and behavioural change is observed. This study has identified four main attributes to the knowledge sharing behaviour that can help to accelerate the green practices acceptance among the stakeholders by providing a model which integrates the concepts of green practices and knowledge sharing. The contribution of knowledge sharing in green construction practice is essential for fostering innovation, collaboration, education, performance improvement, and policy development. By sharing knowledge and experiences, professionals can collectively work towards creating more sustainable and environmentally friendly buildings, thereby contributing to the overall well-being of the sustainable environment. The outcome from this paper will need to be further validated empirically by testing the proposed model to ensure relevancy within the local construction industry context.

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