sustainability

MDPI

Article

Collaborative Behavior in Relational Contracting Projects in Hong Kong—A Contractor's Perspective

Shoeb Ahmed Memon [1,*], Steve Rowlinson [2,3], Riza Yosia Sunindijo [4] and Hafiz Zahoor [5]

1 Faculty of Science & Technology, Technological and Higher Education Institute of Hong Kong, Hong Kong, China
2 Department of Real Estate & Construction, The University of Hong Kong, Hong Kong, China; steverowlinson@hku.hk
3 Faculty of Society and Design, Bond University, Robina, QLD 4226, Australia
4 School of Built Environment, University of New South Wales, Sydney, NSW 2052, Australia; r.sunindijo@unsw.edu.au
5 Department of Construction Engineering & Management, National University of Sciences & Technology, Risalpur Campus, KPK 24080, Pakistan; hafiz.zahoor@mce.nust.edu.pk
* Correspondence: samemon85@thei.edu.hk or samemon@connect.hku.hk

Abstract: The construction industry in Hong Kong has adopted relational contracting (RC) as a way forward to address frequent conflicts in construction projects and to promote sustainable development. Despite this effort, adversarial behavior of project team members is still prevalent, stemming from conflicting agendas, which hinders the successful implementation of RC. There is a need to improve collaborative attitudes and behavior among project team members in RC projects, but there is still a lack of understanding of factors that can promote this inter-organizational collaboration. Therefore, using the theory of planned behavior, this research investigates factors that form relational attitudes, collaborative intentions, and collaborative behavior, and their relationships in RC projects in Hong Kong. Quantitative data were collected from experienced practitioners in RC projects and were analyzed using structural equation modeling (SEM). The results reveal that senior management commitment and relational norms are needed to nurture relational attitudes, which in turn influence the development of collaborative intentions. These intentions can eventually promote collaborative behavior, which is expressed by teamwork, affective trust, and extra-role behavior (striving beyond roles to maintain collaboration). The findings advance knowledge and contribute to practice by providing a structured process to nurture collaboration in RC projects for sustainable development.

Keywords: collaborative working; collaborative behavior; Hong Kong; relational contracting

Citation: Memon, S.A.; Rowlinson, S.; Sunindijo, R.Y.; Zahoor, H. Collaborative Behavior in Relational Contracting Projects in Hong Kong—A Contractor's Perspective. *Sustainability* **2021**, *13*, 5375. https://doi.org/10.3390/su13105375

Academic Editors: Johan Larsson, Anna Kadefors and Per Erik Eriksson

Received: 9 April 2021
Accepted: 10 May 2021
Published: 11 May 2021

1. Introduction

Uncertainty, project complexity, and a lack of inter-organizational collaboration (IOC) are leading contributors to poor construction project performance. Growing project complexity and uncertain business environments have led construction organizations to be involved in inter-organizational relationships, to achieve mutual interests [1] and strengthen IOC. Likewise, the growing trend for sustainable construction requires collaboration among project stakeholders with different agendas, practices, and expectations.

In order to operate successfully in this environment, literature recommends the incorporation of sustainable project management practices to steam collaboration across organizational boundaries [2]. Implementing alternate governance models is a common way adopted by construction organizations to promote sustainable practices through collaboration [3]. In this case, relational contracting (RC) as an alternative governance model in construction paves the way for better project performance [4] and for promoting sustainable development in the construction industry. RC aims to cultivate collaborative

relations among project teams, through soft and hard elements [5,6]. Elements, such as contracts and payment methods, are considered hard elements, while trust and teamwork are examples of soft elements. According to researchers [7], both hard and soft elements complement each other at various stages of a project in RC. Although hard elements are essential in defining practices, soft elements are crucial in the formation of a collaborative environment [5,8,9]. As a result, there is currently an increasing reliance on soft elements for managing relationships. Many scholars argue that it is necessary to study the contributions of soft elements, such as teams' attitudes and behaviors, to the success of managing construction projects [10–16]. Research has also shown that positive attitudes can assist IOC, while negative attitudes affect other partners' resolve to achieve common project goals [13].

Underpinned by the importance of soft elements for collaboration, there is a need to identify collaborative attitudes and behavior for a better IOC in the construction industry [14]. This need is also evident from two industry review reports commissioned in Hong Kong, which argues for IOC to improve the performance of the construction industry [17,18]. It was understood that the low level of IOC in RC projects in Hong Kong is often attributed to the contractor side of the integrated project team (IPT) [19]. Therefore, it is essential to understand the contractor's view of collaborative behavior in RC because the contractor project team (CPT) tends to be at arm's length even in RC projects [14,17,19]. Understanding the contractor's view is significant because their behavior tends to dominate behavioral patterns in construction projects.

Based on the need to increase the participation of contractors in IOC, the paper aims to investigate the CPTs' collaborative behaviors in Hong Kong relational contracting projects using the theory of reasoned action or planned behavior. The theory explains attitudes as a prerequisite for behavior [20], where positive attitudes will be reflected in positive behaviors through the mediation of intentions and vice versa [21]. The theory sees intentions as the crux of motivations, decisions, and effort for realizing actions and behaviors [22,23]. In order to achieve the research aim of the study, two research objectives were formulated:

Research Objective One: *To assess relational attitudes, collaborative intentions, and collaborative behavior of CPTs in relational contracting projects.*
Research Objective Two: *To establish the relationship between relational attitudes, collaborative intentions, and collaborative behavior of CPTs in relational contracting projects.*

To fulfil research objective one, the factors and practices that reflect relational attitudes, collaborative intentions, and collaborative behavior were presented. Based on these factors and practices, the levels of relational attitudes, collaborative intentions, and collaborative behavior of contractors in RC projects were assessed quantitatively. Following research objective one, research objective two employed structural equation modeling (SEM) to establish the relationship between relational attitudes, collaborative intentions, and the collaborative behavior of contractors to test the applicability of the theory of planned behavior in this context. By understanding this relationship, ways to improve contractors' collaborative behavior in RC projects in Hong Kong can be recommended so as to improve IOC for promoting sustainable development.

2. Relational Contracting and Collaboration—Key Lessons from the Literature

2.1. Relational Contracting

The concept of RC was initially presented in the seminal works of Ian Macneil and Stewart Macaulay in 1960s. Stewart Macaulay defined RC as a working relationship among contractual partners often relying on social norms [24]. Ian Macneil explained a relational contract as an "exchange relationship", based on cooperation among the parties in the said relationship [25]. In relational contracts, parties are expected to adhere to mutually developed and shared norms, which guide the resultant behavior [26]. Several definitions of RC are offered in literature. However, there appears to be a lack of agreement among scholars for an inclusive definition. In an effort to provide an inclusive definition of RC

and explain various forms of RC, scholars in construction management have adopted three main approaches. The first approach uses similarity levels to define RC [27–30]. This approach is mainly grounded on a literature review to identify the dimensions of RC and various RC forms. Studies adopting this approach rely on the content analysis of articles in the area of RC. These studies present a simplistic yet logical explanation of RC. The second approach narrates Ian Macneil's RC norms [31–33]. These studies operationalize RC norms in the construction context and incorporate RC norms within their framework to study "relational behavior" [31] as a measure of integration [32] and relational transaction in construction projects [34]. The third approach seeks the support of institutional theory to present a robust explanation of RC [35,36], and different forms of RC [37]. This approach argues that the financial-legal system, illustrated by transaction cost economics and adopted in construction projects, is unable to deliver fruitful results for large-scale projects [36]. Instead, effective project governance is achieved through "institutional pillars" [38], which provide an essential guide for predicting behaviors in organizational settings in construction projects [35,36]. Regulative pillars consider the economic interests of the parties involved in projects and become performance-based assurances of the future. Normative pillars consider the development of a shared identity using the co-location of teams and BIM for linear information sharing. Cognitive pillars help to develop a shared identity by shaping culture using objective alignment, team integration, and teamwork. Normative and cognitive pillars are useful in cases where projects are being procured using traditional methods [36,39]. This present research considers RC as a governance approach for nurturing trusting relationships among project teams, encouraging them to work collaboratively beyond their traditional roles [40]. It is argued that these trusting relationships developed through RC enable project teams to generate exceptional results due to goal alignment and commitment to collaborate [41].

Many RC contractual forms are adopted in the construction industry worldwide. Each has its geographical origin, which is later developed and adopted in many other countries. For example, project partnering was initiated by the US Army Corps of Engineers for minimizing disputes through informal arrangements [30]. RC contractual forms involve different levels of collaboration among project teams [42]. Project partnering focuses on efficiency and requires a lower level of collaborative approach, while an integrated project delivery is considered a powerful approach underpinned by a trust-based relationship [43]. It can be concluded that the level of collaboration is related to governance focus in a particular project.

2.2. Coordination, Cooperation, and Collaboration

Often confused with each other, "coordination", "cooperation", and "collaboration" are highly relevant terms in inter-organizational relationships. The terms present a view of relationship profundity between or among entities. Coordination is the arrangement of symbiotic activities for achieving a shared goal [44]. On the other hand, cooperation explains the informality of relation without a common goal [45]. Cooperation is often branded in a dyadic relationship which can be understood well through an interactive process between entities [46]. Finally, collaboration is defined as a "mutually beneficial and well-defined relationship entered into by two or more organizations to achieve common goals" [45]. When project teams are organized, there is cooperation among the parties, which leads them to coordinate different inter-organizational functions that are required by their roles. In turn, this cooperation and coordination successfully leads to a sense of collaboration among the partners. Collaboration refers to a high level of integration among teams, where integrated strategies are used to achieve a common goal [47]. Collaboration is "an evolving process whereby two or more social entities actively and reciprocally engage in joint activities aimed at achieving at least one shared goal" [44]. Collaboration is a multi-level concept that includes aspects of coordination, cooperation, and teamwork. Collaboration in construction occurs among the different stakeholders such as designers,

the client, and the contractor, which goes beyond their traditional roles to develop an integrated relationship [48].

2.3. Effective Collaboration through Teamwork in Relational Contracting Projects

Teamwork is a closely related concept to collaboration [44]. Teamwork exercised by stakeholders in a construction project is an example of IOC at the team level; it is a measure of collaboration [49]. Effective teamwork and collaboration are dependent on the quality of interactions among teams when performing inter-dependent tasks [49]. It is the "sharing of knowledge and skills to facilitate collaboration and agreed on productivity" [50]. Collaborative teamwork behaviors are conceptualized as coordination, cooperation, and information exchange in an integrative framework [51]. A collaborative effort in partnering (a form of RC) is achievable by means of teamwork, and once parties appreciate collaboration, it will reflect positive attitudes and behaviors [52]. Furthermore, the versatility of today's construction projects requires teams to withstand various assignments and roles. Teamwork, in this case, is essential in the accomplishment of these assignments and roles, and is an indispensable feature of RC projects [53,54]. Research found a positive relationship between teamwork and project performance [55]. Research has also found that, in RC, collaboration and teamwork are essential for effective information sharing to avoid issues in projects [56].

3. Theory of Planned Behavior

Attitude is the "tendency to respond with favorableness or unfavorableness to a psychological object or concept" [20]. Attitudes have received particular attention in social science research, especially in the aerospace and health sciences [57–59]. The theory of planned behavior (TPB) explains attitudes as a predictor of behavior [20]. The theory proposes an attitude–behavior framework, which has undergone various changes over time. A finalized version of the TPB framework was proposed by Ajzen [20]. TPB establishes well-grounded relationships between constructs [22,23,60], for studying attitudes and behaviors. The theory was initially proposed to uncover individual behaviors. However, it has frequently been used to assess organizational level constructs and behaviors as well, for example [31,61]. The TPB was adopted to study partners' attitudes and intentions to establish partnering in Hong Kong [61]. The current study has also developed a framework which considers constructs at the organizational level to study partnering intentions. Unlike Zheng et al. [31], who used TPB to study relational behavior in construction projects and explained how relational behaviors such as solidarity, flexibility, and information sharing create better relationships, this study has conceptualized some of the RC norms as relational behaviors in construction projects.

An application of the TPB framework at the organizational level explains the usefulness of the theory. This current study only focuses on the attitude–behavior relationship because it is assumed that delivery modalities in construction projects assist in governing behaviors (motivating and restraining behaviors). Delivery modalities may be one of the reasons for different behaviors from project teams. Thus, the essence of perceived behavioral control and norms, which are aimed to establish/constrain behavior, is partly achieved through delivery modalities in construction projects. Similarly, delivery modalities such as collaborative agreements, guaranteed maximum price, and an open book system indeed develop confidence and provide resources (maybe intangible) to motivate partners for collaborative behavior.

4. Hypotheses Development

The conceptual framework in Figure 1 presents senior management commitment (SMC) and relational norms (RN) as two dimensions of relational attitudes and collaborative intentions (CI), and collaborative behavior as teamwork (TW), affective trust (AT), and extra-role behavior (EXB). The conceptual framework suggests that when project teams have developed relational attitudes, which are facilitated by senior management commit-

ment and relational norms, they will develop collaborative intentions. These collaborative intentions are then reflected through team integration activities. As a result, collaborative intentions may assist the teams in espousing collaborative behavior through better teamwork, in forming an emotional attachment, and in willingly striving for excellence.

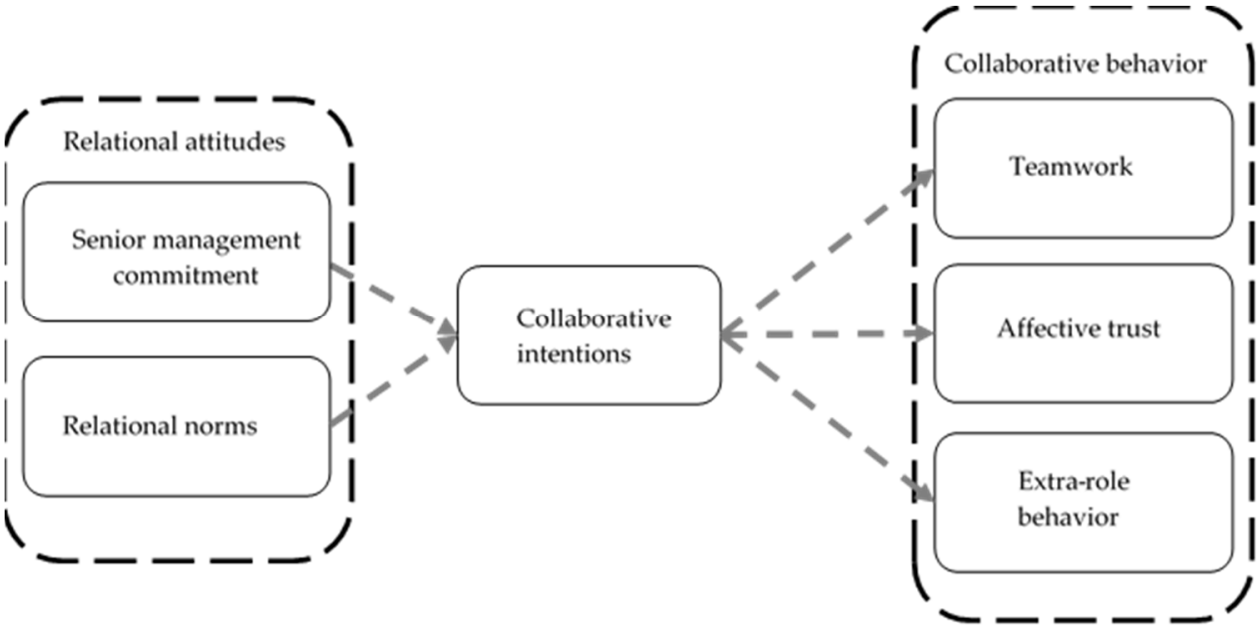

Figure 1. Conceptual framework.

4.1. Relational Attitudes and Collaborative Intentions

Attitudes are essential in explaining behavior [20]. Positive attitudes from project teams drive teamwork, cooperation, and collaboration [14,15,62]. Attitudes are described as "relational attitudes for collaboration", and in construction projects, these attitudes are facilitated by senior management commitment and relational norms [53]. Once project teams develop relational attitudes, they are more likely to engage in collaborative activities [61]. It is reported that when people have internalized organizational norms (relational norms in the case of projects), they become involved in team integration and cooperation in a project [63]. Based on the existing literature, the following Hypothesis (H1) is proposed:

Hypothesis 1 (H1). *Relational attitudes have a positive impact on collaborative intentions.*

4.2. Collaborative Intentions and Teamwork

The intention is "the decision to perform a certain action" [21]. It is a significant predictor and a mediator in an attitude–behavior relationship [23]. Collaborative intentions require the willingness or engagement of a team in collaborative activities. For example, the active involvement of a team in team integration activities reflects positive collaborative intentions [64–66]. Such team integration was found to promote a flexible environment for collaboration, where information and knowledge are exchanged freely among the team members [67,68]. A way to achieve team integration is by developing an IPT, along with goal setting and alignment, and regular team-building activities [69]. It is suggested that IPTs result in a continual flow of information regarding design adjustments, scope changes, and improved efficiency [69,70]. In this case, an IPT refers to "a group whose members are organized based on objectives of a project, where they work beyond the boundaries and identities of their parent organization" [71]. This objective alignment leads to better teamwork [53]. In summary, once teams have reflected their collaborative intentions, these will improve and sustain teamwork [50]. This leads to the second hypothesis as follows:

Hypothesis 2 (H2). *Collaborative intentions have a positive impact on teamwork.*

4.3. Collaborative Intentions and Affective Trust

Affective trust can be defined as "shared beliefs of teams to willingly accept vulnerability based on the positive prospects of each other" [72]. Trust promotes a sense of accomplishment among the partners in a relationship [73], which leads to improvements in team members' abilities to perform collaboratively [74]. In this relationship, collaborative intentions, which can be manifested by team building activities, informal dialogues and meetings, and facilitated workshops, can improve trust due to the continuous interactions [73]. This leads to the third hypothesis as follows:

Hypothesis 3 (H3). *Collaborative intentions have a positive impact on affective trust.*

It should also be noted that a higher level of trust among project teams reduces focus on control mechanisms in a relationship, thus increasing reliance on informal ways in a contractual relationship [75].

4.4. Collaborative Intentions and Extra-Role Behavior

Extra-role behavior improves the sustainability of the group [76]. It "benefits organization or is intended to benefit organization, which is discretionary, and which goes beyond existing role expectations" [77]. Extra-role behavior is explained as an individual's role in supporting members of their partner organizations [48,78]. Moreover, it is about challenging existing ideas and actions in the IPT [78]. Once teams have reflected collaborative intentions, members will be further motivated and will strive beyond their roles in a project to sustain the collaborative environment. This research, therefore, proposes the following hypothesis:

Hypothesis 4 (H4). *Collaborative intentions have a positive impact on extra-role behavior.*

5. Research Methods

5.1. Data Collection

This research used a questionnaire survey as a tool for collecting data. Before administering the survey, it was essential to formulate a base sample. To achieve this, the Hong Kong Institute of Engineers (HKIE) Yearbook, the Hong Kong Construction Association (HKCA) directory, the Hong Kong Institute of Construction Managers (HKICM) directory, and various other companies and project websites were used to find the email and postal addresses of individuals working as contractors, allowing the researchers to send postal surveys and emails to the individuals. Members who have worked in RC projects were requested to complete a questionnaire. Individuals without RC experience may have been a significant factor in the low response rate (13.4%). Out of 100 valid responses received through the questionnaire survey, 81% were project managerial staff, such as project directors, project managers, construction managers, site managers, and design managers, and 19% were non-managerial staff, such as engineers, coordinators, and quantity surveyors. About 54% of the responses were obtained from civil engineering projects, 27% from railway projects, and 14% from building projects and few others. A formula for computing the proposed sample size for each fit index and to determine the minimum sample size for achieving the required power for a particular fit index was used [79]. This research adopted a formula (see Equation (1)) for computing a minimum sample size for achieving the required value of the root mean square error of approximation (RMSEA) index. The value of a degree of freedom (*df*) for the model was calculated using SPSS AMOS, δ (1-β) using R software, and the value of $\varepsilon = 0.05$ was considered. The results suggested that a

minimum sample of N = 71 was required to achieve the required value of RMSEA. There were 100 respondents in this research, thus, the sample was adequate.

$$N_{\varepsilon} = \frac{\delta_{1-\beta}}{\varepsilon^2 df} + 1 \quad (1)$$

The initial survey was piloted with 4 professionals and 14 Doctor of Philosophy (Ph.D.) students for review. Reviewers were asked to evaluate the language, structure, and relevance of questions, and length of the questionnaire. The final version of the survey had three parts: the information and consent form, the respondents' information, and the multi-item questions for measuring constructs. The questionnaire was administered to Hong Kong's construction projects through the Lime online survey tool and the Hong Kong Free Post service (HFP No. 34 SYP).

5.2. Measurement of Constructs

Primarily, the measurement of constructs was based on the theoretical and empirical literature concerning relational contracting and collaborative working. The construct of collaborative behavior was conceptualized as a higher-order construct with three unique constructs: teamwork, affective trust, and extra-role behavior. Table 1 presents all the constructs and their source references. Respondents were asked the extent to which they agreed or disagreed with the statements based on their experiences in recent RC projects. All items were measured using a 5-point Likert scale.

Table 1. Measurement of constructs.

Construct	Item	Factors (Acronyms)	Short Description of Measurement Items	Key Sources
Relational Attitudes (RA)	RA1	Senior Management Comitment (SMC)	Senior management commitment for resources	[53]
	RA2		Senior management commitment for delegation of authority	
	RA3		Senior management commitment for developing good relationships	
	RA4		Senior management commitment for engaging in project-related discussions	
	RA5		Mentoring team members	
	RA6	Relational Norms (RN)	Adoption of 'no-blame culture'.	
	RA7		Fair treatment	
	RA8		Identifying and reporting problematic areas	
	RA9		Believing others are trustworthy	
	RA10		Not taking others for granted	
	RA11		Adopting 'best for project approach'	
Collaborative Intentions (CI)	CI1		Intention to integrate/integrated project team	[67,69]
	CI2		Intention to align/aligned project objectives	
	CI3		Intention to conduct/conducted team building exercises	
	CI4		Intention to conduct/conducted facilitated workshops	
	CI5		Intention to conduct/conducted dialogues and meetings for maintaining good relationships	

Table 1. *Cont.*

Construct	Item	Factors (Acronyms)	Short Description of Measurement Items	Key Sources
Collaborative Behavior (CB)	TW1	Teamwork (TW)	Open communication	[49]
	TW2		Open sharing of information	
	TW3		Satisfaction with the information shared	
	TW4		Close synchronization of interdependent tasks	
	TW5		Clear linkage for interdependent tasks	
	TW6		No redundancy among the tasks	
	TW7		Recognition of strengths and weakness	
	TW8		Exercising knowledge and skills to their best	
	TW9		Balanced contribution of ideas, skills, knowledge, and experience	
	TW10		Supporting other project teams	
	TW11		Putting in best efforts for resolving the issue	
	TW12		Contribution from all concerned in decision making	
	TW13		Personal engagement	
	TW14		Working as one team	
	TW15		Being proud of the involvement	
	TW16		Feeling responsible for sustaining relationships	
	AT1	Affective Trust (AT)	Comfortable being relied on by others	[72]
	AT2		Keeping promises	
	AT3		Working with a high level of integrity	
	AT4		Being fair to others	
	AT5		Looking after interests of others	
	EXB1	Extra-role Behavior (EXB)	Voluntarily helping others	[48,76]
	EXB2		Voluntarily teaching/learning from others	
	EXB3		Voluntarily providing innovative suggestions	

6. Data Analysis

6.1. Preliminary Analysis of Data

Before conducting the primary data analysis, all responses were checked for missing values and unengaged responses in the data. A total of one hundred valid responses were used for further analysis. Furthermore, because the research used a questionnaire for measuring all constructs, a common method variance (CMV) issue may have existed, which could affect the relationships in the model. To assess CMV in the data set, the Hartman's single-factor test was conducted. Factor analysis results indicated that 40% of the variance was explained by a single factor, suggesting that a CMV issue was unlikely as variance explained by a single factor was less than 50% [80].

6.2. Reliability and Factor Analysis

The reliability of the instrument was analyzed using Cronbach's alpha and the coefficients of the constructs. Cronbach's alpha values lower than 0.70 (project team member's contribution) were excluded from further analysis [81]. Low reliability reflects a lack of consistency in the measurement of the construct in a given context. As the current study adapted constructs from the literature, it was essential to verify the structure of the constructs in this research context. To do this, the study adopted a principal component analysis (PCA) with Varimax rotation.

Table 2 presents the results of the reliability test and the factor analysis for the constructs in the study. Cronbach's alpha results higher than 0.70 suggest adequate reliability of the scale [81]. Later, constructs were extracted by analyzing factor loadings, eigen values, communalities, variance explained, scree plot analysis, and Kaiser–Meyer–Olkin (KMO), and Bartlett's test results. All factors presented in Table 2 show acceptable results based

on the criteria suggested [82]. Based on the analysis of factor loadings and communalities, the following factors were removed: (1) the adoption of the 'no-blame culture' (RA6); (2) decisions that are based on a contribution from related project teams (TW12); and (3) my team is comfortable being relied upon by other project teams (AT1).

Table 2. Results of reliability and factor analysis.

Construct	Sample Adequacy	Chi-Square/df	Sig.	Eigen Value	Variance Explained	Cronbach's Alpha	Factors	Details
Relational attitudes	0.877	475.73/45	0.00	5.122	62.014	0.834	SMC	RA1-RA5 (-RA6)
				1.08		0.834	RN	RA7-RA11
Collaborative intentions	0.829	225.53/10	0.00	3.257	65.147	0.865	CI	CI1-CI5
Teamwork	0.854	695.95/66	0.00	1.617	70.397	0.848	COM	TW1-TW3
				1.071		0.709	COR	TW4-TW6
						0.608 (rejected)	TMC	
				5.759		0.726	MS	TW10-TW16
						0.899	TC	(-TW12)
Affective trust	0.815	185.00/6	0.00	2.844	71.104	0.819	AT	AT2-AT5 (-AT1)
Extra-role behavior	0.712	118.01/3	0.00	2.260	75.435	0.834	EXB	EXB1-EXB3

6.3. Convergent and Discriminant Validity Test

To assess the convergent validity, confirmatory factor analysis (CFA) was conducted using IBM SPSS AMOS 23. CFA was used to assess the convergent validity of the model, using all factors with the observed items and then correlating them [82]. All identified and scrutinized indicators from constructs RA, CI, TW, AT, and EXB were used for analysis. These indicators were then correlated to perform CFA. All indicators produced parameter estimates of more than 0.50, as suggested [83]. The model fitness indices were Chi-square/degree of freedom ($\chi 2/df$) = 1.538 < 3, p-value = 0.000, Tucker–Lewis Index (TLI) = 0.868, comparative fit index (CFI) = 0.883, and RMSEA = 0.07. These model fitness indices indicated decent results except for TLI and CFI, which were marginal. To improve model fitness, it was decided to correlate error terms for items RA7 and RA8, I3 and I4, and TW10 and TW11. Correlating error terms produced improved results of TLI (0.888) and CFI (0.901), which were acceptable [84].

A constrained test approach was useful in assessing the discriminant validity. This approach uses CFA in AMOS; each pair of constructs is subjected to unconstrained covariance (2-factor) and constrained (1-factor) covariance to one [85]. If the unconstrained model presents significantly lower Chi-square, the discriminant validity of the construct is established. A constrained test approach was used for all constructs in the study. The results suggested a significantly lower $\chi 2$ for the unconstrained (2–7 factor) than the constrained (1-factor). This indicated that all constructs fulfil the criteria of discriminant validity.

6.4. Model Testing

An SEM model was developed based on the research model in Figure 2. The model presents relational attitudes (RA), collaborative intentions (CI), and aspects of collaborative behavior (TW, AT, and EXB). Relationships among constructs were tested using SEM. Two main aspects were important in testing the model. The first aspect of testing the model was to assess the model fitness. The second aspect was an analysis of regression weights for the constructs. The values for the model fitness were $\chi 2/df$ = 1.447, p-value = 0.000 TLI = 0.890, CFI = 0.901, and RMSEA = 0.06, which suggests an acceptable fit of the model based on the criteria. Analysis of regression weights suggested a significant and robust contribution to relational attitudes. However, mentoring team members showed a slightly low but

significant contribution. SMC showed 0.86 coefficient at $p \leq 0.001$. CPT believed that senior management alone had a more significant role in shaping the relational attitudes of the project teams. The regression weights for the relational norms contributed 0.89 coefficient at $p \leq 0.001$. The path estimate for relational attitudes to collaborative intentions was 0.92 coefficient at $p \leq 0.001$. The result confirms hypothesis (H1), which suggests a positive impact of CPT's relational attitudes on collaborative intentions.

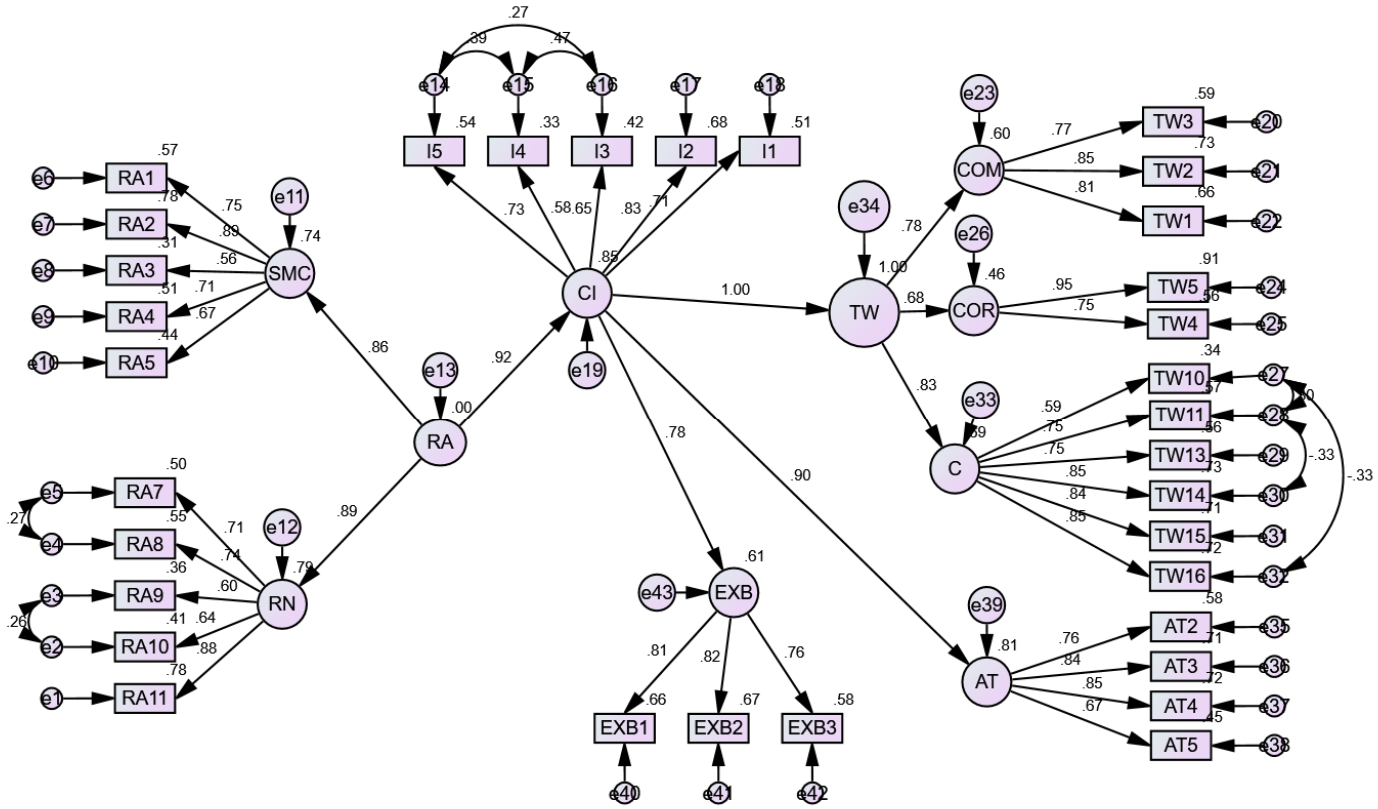

Figure 2. Standardized parameter estimates of the SEM model (Chi-square/df = 1.447, *p*-value = 0.000, TLI = 0.890, CFI = 0.901, and RMSEA = 0.06).

Furthermore, regression weights for items of collaborative intentions reflect significant results. The regression weights for COM, COR, and a newly formed construct (C) were 0.78, 0.68, and 0.83 coefficients at $p \leq 0.001$. The path estimate for collaborative intentions and teamwork was 1.00 coefficients at $p \leq 0.001$. The result confirms hypothesis H2, which suggests a positive impact of collaborative intentions on teamwork. The path estimate for collaborative intentions and affective trust was 0.90 coefficients at $p \leq 0.001$. The result suggests the significant and robust impact of collaborative intentions on affective trust and confirms hypothesis H3. It shows AT as an excellent contributor to collaborative behavior. Lastly, the path estimate for collaborative intentions and extra-role behavior was 0.78 coefficients at $p \leq 0.001$. The result suggests the significant and robust impact of collaborative intentions on the extra-role behavior of team members, confirming hypothesis H4. The positive and significant relationship between constructs reflects the party's interest in going the extra mile to achieve the project goals which, in turn, benefit all project teams [48]. To achieve better fitness of the model, a modification was conducted.

7. Discussion

The motivation of the current research was to investigate the collaborative behavior of project teams in Hong Kong construction projects for sustainable project management. This research presents a CPT's view of a complex relationship among multiple parties in RC.

The model tested in the research confirms the hypotheses proposed in the study. The CPT believes that relational attitudes of the project teams have a profound impact on the level of integration a project team achieves within a project and ultimately championing a collaborative behavior. The findings are in line with the study conducted by Suprapto et al. [55]. The impact reflected in the results shows the importance of relational attitudes in shaping the relationships. As mentioned in the introduction section on the industry context, each party perceives collaborative behavior differently, especially CPT which remains at arm's length despite agreeing on RC principles. A study on partnering projects in Hong Kong showed that a contractor team is still considered responsible for any or every issue highlighted in a project due to its lead role [14].

Nevertheless, this paper argues that the commitment of senior management and the resolve for collaboration assist in the integration of project teams. It also paves the way for effective information sharing and a collaborative environment in the project [68,69]. This would reflect collaborative intentions for a collaborative environment. Although there has been criticism that teams in construction projects show their interest and intent for collaboration in the initial stages, this does not work well in the project execution phase. This finding may also contribute to the notion that teams use lip service and do not intend to collaborate in the project and the project faces problems in the later stages [14]. In this regard, team integration activities may potentially inform collaborative intentions.

The results suggest that when IPT has successfully developed relational attitudes and reflected collaborative intentions, it will lead them to engage in teamwork. It is asserted that commitment and intention to collaborate sustain teamwork [50]. Presenting a contractor's view on collaboration, it was argued that teamwork ensures collaboration [86]. In addition, continuous working interactions during the team integration process would allow trust in other teams, such that individual project teams would be fair with the others, and they would work with integrity, keep project-related promises, and finally look after the interests of other project-related teams as well. The development of trust will enhance the collaborative working capability of partners [53,74]. Lastly, collaborative intentions will improve extra-role behaviors from members of the project teams to engage voluntarily in exercises such as teaching/learning from other team members, helping others in their work assignments, and providing innovative suggestions to improve the work environment. Inter-dependency created during team integration activities will enhance project team members' resolve for working beyond their traditional duties in a project [87]. A relational contracting project, where project teams have developed a sufficient level of IOC and teamwork, can manage unforeseen events [30].

7.1. Contributions

This study contributes to a theoretical explication of collaborative behavior of project teams in Hong Kong relational contracting projects. Earlier exploration of the collaborative framework [35] provided an essential qualitative tool for strategic decision making. In contrast, this study contributes to the quantitative identification of collaborative behavior so that project teams could readily adopt it. Collaborative behavior developed by project teams will allow them to keep up with performance expectations and avoid potential problems. This study contributes to the explication of relational attitudes and collaborative intentions of project teams [10,14,88]. This study further confirms theoretical relationships among the constructs of the study, suggested in the TPB framework, see [20], along with the previous use of the theory in inter-organizational relationships, for example [31,61]. This study confirms the efficacy of the TPB framework at the team level. The results of the study suggest an acceptable fit for model based on adapted constructs of the TPB framework.

7.2. Limitations

The framework in the study presents CPTs' view of collaborative behavior. Because the contractor's team is the lead team in the execution of a project, their behaviors may determine its success. As such, the framework in this study may not reflect clients' and

consultants' perspective of collaborative behavior. Future studies should examine the relationship of collaborative behavior with project performance and relationship continuity, which is a vital link [33,48,53]. Studies may consider verification of the results to provide a comprehensive explanation of collaborative behavior. Furthermore, due to the limited sample size, the role of delivery modalities was not examined. A moderating effect of relational delivery modalities using SEM may provide more insights into the framework.

8. Conclusions

RC is a project delivery strategy that can reduce conflict among project team members and, thus, improve project performance. In this case, effective inter-organizational collaboration is needed to ensure the success of RC and sustainable project management in construction [2]. Previous studies (for example, Suprapto et al. [55]) found that attitudes are key in developing teamwork, which is a factor of collaboration. Building upon previous studies, this current research suggests that collaborative intentions mediate the relationship between relational attitudes and collaborative behavior. Senior management commitment and appropriate norms are indeed essential to develop the right attitudes for collaboration. However, despite these relational attitudes, there may be difficulties in nurturing collaborative behavior across organizations without collaborative intentions, which are manifested by regular team integration activities. Finally, collaboration itself is demonstrated by teamwork through information sharing and open communication, the development of affective trust, and extra-role behavior, which is the willingness to support others beyond existing role expectations. The results, therefore, signify the assertion that RC's soft practices improve inter-organizational collaboration and sustainable development in the construction industry [89].

The framework advances existing understanding of collaborative behavior in RC projects by identifying the soft elements needed to promote such behavior. Practically, the practices and norms embedded in the framework can be adopted by project team members to improve collaboration in RC projects.

Author Contributions: The work is extracted from a doctoral research work conducted by S.A.M. under the supervision of S.R. at The University of Hong Kong. R.Y.S. and H.Z. contributed to writing—original draft preparation. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: The study was conducted in accordance with the Ethical Considerations and protocol was approved by the Human Research Ethics Committee of the University of Hong Kong (EA1503020).

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: The data presented in this study are available on request from the corresponding author.

Conflicts of Interest: The authors declare no conflict of interest.

References

1. Cropper, S.; Ebers, M.; Huxham, C.; Ring, P.S. Introducing inter-organizational Relations. In *The Oxford Handbook of Inter–Organizational Relations*; Cropper, S., Ebers, M., Huxham, C., Ring, P., Eds.; Oxford University Press: Oxford, UK, 2008; pp. 3–24. [CrossRef]
2. Larsson, J.; Larsson, L. Integration, application and importance of collaboration in sustainable project management. *Sustainability* **2020**, *12*, 585. [CrossRef]
3. Ring, P.S.; Van de Ven, A.H. Developmental processes of cooperative interorganizational relationships. *Acad. Manag. Rev.* **1994**, *19*, 90–118. [CrossRef]
4. Eriksson, P.E.; Volker, L.; Kadefors, A.; Lingegård, S.; Larsson, J.; Rosander, L. Collaborative procurement strategies for infrastructure projects: A multiple-case study. *Proc. Inst. Civ. Eng. Manag. Procure. Law* **2019**, *172*, 197–205. [CrossRef]
5. Bygballe, L.E.; Dewulf, G.; Levitt, R.E. The interplay between formal and informal contracting in integrated project delivery. *Eng. Proj. Organ. J.* **2015**, *5*, 22–35. [CrossRef]

6. Faems, D.; Janssens, M.; Madhok, A.; Looy, B.V. Toward an integrative perspective on alliance governance: Connecting contract design, trust dynamics, and contract application. *Acad. Manag. J.* **2008**, *51*, 1053–1078. [CrossRef]
7. Kwawu, W.; Hughes, W. The impact of relational contracting on the construction industry. In Proceedings of the 21st Annual ARCOM Conference, London, UK, 7–9 September 2005.
8. Kadefors, A. Trust in project relationships—inside the black box. *Int. J. Proj. Manag.* **2004**, *22*, 175–182. [CrossRef]
9. Pinto, J.K.; Slevin, D.P.; English, B. Trust in projects: An empirical assessment of owner/contractor relationships. *Int. J. Proj. Manag.* **2009**, *27*, 638–648. [CrossRef]
10. Bresnen, M.; Marshall, N. Partnering in construction: A critical review of issues, problems and dilemmas. *Constr. Manag. Econ.* **2000**, *18*, 229–237. [CrossRef]
11. Eriksson, P.E.; Nilsson, T.; Atkin, B. Client perceptions of barriers to partnering. *Eng. Constr. Archit. Manag.* **2008**, *15*, 527–539. [CrossRef]
12. Eriksson, P.E.; Atkin, B.; Nilsson, T. Overcoming barriers to partnering through cooperative procurement procedures. *Eng. Constr. Archit. Manag.* **2009**, *16*, 598–611. [CrossRef]
13. Gadde, L.E.; Dubois, A. Partnering in the construction industry—Problems and opportunities. *J. Purch. Supply Manag.* **2010**, *16*, 254–263. [CrossRef]
14. Ng, S.T.; Rose, T.M.; Mak, M.; Chen, S.E. Problematic issues associated with project partnering—The contractor perspective. *Int. J. Proj. Manag.* **2002**, *20*, 437–449. [CrossRef]
15. Rahman, M.M.; Kumaraswamy, M.M. Multicountry Perspectives of Relational Contracting and Integrated Project Teams. *J. Constr. Eng. Manag.* **2012**, *138*, 469–480. [CrossRef]
16. Rahman, M.M.; Kumaraswamy, M.M.; Ling, F.Y.Y. Building a relational contracting culture and integrated teams. *Can. J. Civ. Eng.* **2007**, *34*, 75–88. [CrossRef]
17. McKinsey and Company. *Building for a Better Future—Vision 2030 for the Hong Kong Construction Industry*; Construction Industry Council: Hong Kong, China, 2016.
18. Tang, H. *Construct for Excellence–Report of the Construction Industry Review Committee*; Printing Department; Hong Kong Special Administrative Region Government: Hong Kong, China, 2001.
19. South China Morning Post, Contractors' Not Cooperating' with MTR on Delayed High-Speed Rail Link to Mainland China. Available online: https://www.scmp.com/news/hong-kong/economy/article/1803002/some-contractors-not-cooperating-mtr-delayed-high-speed-rail (accessed on 19 May 2015).
20. Ajzen, I. The theory of planned behavior. *Organ. Behav. Hum. Decis. Process.* **1991**, *50*, 179–211. [CrossRef]
21. Fishbein, M.; Ajzen, I. *Predicting and Changing Behavior: The Reasoned Action Approach*; Taylor and Francis: New York, NY, USA, 2011. [CrossRef]
22. Armitage, C.J.; Christian, J. From attitudes to behaviour: Basic and applied research on the theory of planned behavior. *Curr. Psychol.* **2003**, *22*, 187–195. [CrossRef]
23. Sheeran, P. Intention—behavior relations: A conceptual and empirical review. *Eur. Rev. Soc. Psychol.* **2002**, *12*, 1–36. [CrossRef]
24. Macaulay, S. Non-contractual relations in business: A preliminary study. *Am. Sociol. Rev.* **1963**, *28*, 55–67. [CrossRef]
25. Macneil, I.R. Many Futures of Contracts. *South. Calif. Law Rev.* **1973**, *47*, 691.
26. Memon, S.A.; Hadikusumo, B.H.; Sunindijo, R.Y. Using social interaction theory to promote successful relational contracting between clients and contractors in construction. *J. Manag. Eng.* **2015**, *31*, 04014095. [CrossRef]
27. Nyström, J. The definition of partnering as a Wittgenstein family-resemblance concept. *Constr. Manag. Econ.* **2005**, *23*, 473–481. [CrossRef]
28. Yeung, J.F.; Chan, A.P.; Chan, D.W. The definition of alliancing in construction as a Wittgenstein family-resemblance concept. *Int. J. Proj. Manag.* **2007**, *25*, 219–231. [CrossRef]
29. Yeung, J.F.Y.; Chan, A.P.C.; Chan, D.W.M. Defining relational contracting from the Wittgenstein family-resemblance philosophy. *Int. J. Proj. Manag.* **2012**, *30*, 225–239. [CrossRef]
30. Lahdenperä, P. Making sense of the multi-party contractual arrangements of project partnering, project alliancing and integrated project delivery. *Constr. Manag. Econ.* **2012**, *30*, 57–79. [CrossRef]
31. Zheng, X.; Lu, Y.; Le, Y.; Li, Y.; Fang, J. Formation of Interorganizational Relational Behavior in Megaprojects: Perspective of the Extended Theory of Planned Behavior. *J. Manag. Eng.* **2017**, *34*, 04017052. [CrossRef]
32. Harper, C.M.; Molenaar, K.R.; Cannon, J.P. Measuring constructs of relational contracting in construction projects: The owner's perspective. *J. Constr. Eng. Manag.* **2016**, *142*, 04016053. [CrossRef]
33. Ning, Y. Boosting Public Construction Project Outcomes through Relational Transaction in Singapore. Ph.D. Thesis, National University of Singapore, Singapore, 2013.
34. Ning, Y.; Ling, F.Y.Y. Reducing hindrances to adoption of relational behaviors in public construction projects. *J. Constr. Eng. Manag.* **2013**, *139*, 04013017. [CrossRef]
35. Walker, D.H.; Lloyd-Walker, B.M. *Collaborative Project Procurement Arrangements*; Project Management Institute: Newtown Township, PA, USA, 2015; Volume 1, p. 220.
36. Henisz, W.J.; Levitt, R.E.; Scott, W.R. Toward a unified theory of project governance: Economic, sociological and psychological supports for relational contracting. *Eng. Proj. Organ. J.* **2012**, *2*, 37–55. [CrossRef]

37. Lloyd-Walker, B.; Walker, D. Project alliances in Australasia—Differences with other forms of relationship based procurement. In Proceedings of the 11th Euram Conference, Tallinn, Estonia, 1–4 June 2011; pp. 1–40.
38. Scott, W.R. *Institutions and Organizations: Ideas, Interests, and Identities*, 4th ed.; Sage Publications: Newbury Park, CA, USA, 2013.
39. Børve, S.; Ahola, T.; Andersen, B.; Aarseth, W. Partnering in offshore drilling projects. *Int. J. Manag. Proj. Bus.* **2017**, *10*, 84–108. [CrossRef]
40. Jeffries, M.; Rowlinson, S. Public-private partnerships and Relationship-Based Procurement Approaches. In *New Forms of Procurement: PPP and Relational Contracting in the 21st Century*; Jeffries, M.C., Rowlinson, S., Eds.; Routledge: Abingdon, UK, 2016; pp. 13–34. [CrossRef]
41. World Commerce and Contracting. IACCM 2019 Benchmark Report. Available online: https://www.worldcc.com/Resources/Content-Hub/View/ArticleId/9498/IACCM-2019-Benchmark-Report (accessed on 7 April 2021).
42. Walker, D.H.; Lloyd-Walker, B.M. Characteristics of IPD: A Collaboration Framework Overview. In *Routledge Handbook of Integrated Project Delivery*; Rowlinson, S., Walker, D., Eds.; Routledge: New York, NY, USA, 2020.
43. Walker, D.H.; Lloyd-Walker, B.M. Making sense of collaborative forms of relationship-based construction procurement. In Proceedings of the Engineering Project Organization Conference, Devil's Thumb Ranch, Tabernash, CO, USA, 9 July 2013.
44. Bedwell, W.L.; Wildman, J.L.; DiazGranados, D.; Salazar, M.; Kramer, W.S.; Salas, E. Collaboration at work: An integrative multilevel conceptualization. *Hum. Resour. Manag. Rev.* **2012**, *22*, 128–145. [CrossRef]
45. Mattessich, P.W.; Monsey, B.R. *Collaboration: What Makes It Work? A Review of Research Literature on Factors Influencing Successful Collaboration*; Amherst H. Wilder Foundation: St. Paul, MN, USA, 1992.
46. Pinto, M.B.; Pinto, J.K.; Prescott, J.E. Antecedents and consequences of project team cross-functional cooperation. *Manag. Sci.* **1993**, *39*, 1281–1297. [CrossRef]
47. Gajda, R. Utilizing collaboration theory to evaluate strategic alliances. *Am. J. Eval.* **2004**, *25*, 65–77. [CrossRef]
48. Anvuur, A.M. Cooperation in Construction Projects: Concept, Antecedents and Strategies. Ph.D. Thesis, University of Hong Kong, Hong Kong, China, 2008.
49. Hoegl, M.; Gemuenden, H.G. Teamwork quality and the success of innovative projects: A theoretical concept and empirical evidence. *Organ. Sci.* **2001**, *12*, 435–449. [CrossRef]
50. Baker, D.P.; Day, R.; Salas, E. Teamwork as an essential component of high reliability organizations. *Health Serv. Res.* **2006**, *41*, 1576–1598. [CrossRef] [PubMed]
51. Rousseau, V.; Aubé, C.; Savoie, A. Teamwork behaviors a review and an integration of frameworks. *Small Group Res.* **2006**, *37*, 540–570. [CrossRef]
52. Thompson, P.J.; Sanders, S.R. Partnering continuum. *J. Manag. Eng.* **1998**, *14*, 73–78. [CrossRef]
53. Suprapto, M. Collaborative Contracting in Projects. Ph.D. Thesis, TU Delft, Delft University of Technology, Delft, The Netherlands, 2016.
54. Tabassi, A.A.; Ramli, M.; Bakar, A.H.A. Effects of training and motivation practices on teamwork improvement and task efficiency: The case of construction firms. *Int. J. Proj. Manag.* **2012**, *30*, 213–224. [CrossRef]
55. Suprapto, M.; Bakker, H.L.; Mooi, H.G. Relational factors in owner–contractor collaboration: The mediating role of teamworking. *Int. J. Proj. Manag.* **2015**, *33*, 1347–1363. [CrossRef]
56. Walker, D.H.; Rowlinson, S. *Procurement Systems: A Cross-Industry Project Management Perspective*; Tylor and Francis: Abingdon, UK, 2008. [CrossRef]
57. Flin, R.; Yule, S.; McKenzie, L.; Paterson-Brown, S.; Maran, N. Attitudes to teamwork and safety in the operating theatre. *Surgeon* **2006**, *4*, 145–151. [CrossRef]
58. Helmreich, R.L.; Foushee, H.C.; Benson, R.; Russini, W. Cockpit resource management: Exploring the attitude-performance linkage. *Aviat. Space Environ. Med.* **1986**, *57*, 1198–1200. [PubMed]
59. Taylor, C.L. Attitudes toward physician-nurse collaboration in anesthesia. *AANA J. Am. Assoc. Nurse Anesth.* **2009**, *77*, 343.
60. Ajzen, I.; Fishbein, M. Attitudes and the attitude-behaviour relation: Reasoned and automatic processes. *Eur. Rev. Soc. Psychol.* **2000**, *11*, 1–33. [CrossRef]
61. Cheng, E.W. Intentions to form project partnering in Hong Kong: Application of the theory of planned behavior. *J. Constr. Eng. Manag.* **2016**, *142*, 04016075. [CrossRef]
62. Ling, F.Y.; Ke, Y.; Kumaraswamy, M.M.; Wang, S. Key Relational Contracting Practices Affecting Performance of Public Construction Projects in China. *J. Constr. Eng. Manag.* **2013**, *140*, 04013034. [CrossRef]
63. Phua, F.T.; Rowlinson, S. How important is cooperation to construction project success? A grounded empirical quantification. *Eng. Constr. Archit. Manag.* **2004**, *11*, 45–54. [CrossRef]
64. Lawrence, P.R.; Lorsch, J.W. Differentiation and integration in complex organizations. *Adm. Sci. Q.* **1967**, 1–47. [CrossRef]
65. Hughes, T.; Williams, T.; Ryall, P. It is not what you achieve it is the way you achieve it. *Total Qual. Manag.* **2000**, *11*, 329–340. [CrossRef]
66. Memon, S.A.; Rowlinson, S. An investigation into the attitude and relational behaviour in relationship based procurement (RBP): A conceptual framework. In Proceedings of the Engineering Project Organization Conference, Scotland, UK, 24–26 June 2015.
67. Baiden, B.K.; Price, A.D. The effect of integration on project delivery team effectiveness. *Int. J. Proj. Manag.* **2011**, *29*, 129–136. [CrossRef]

68. Baiden, B.K.; Price, A.D.; Dainty, A.R. The extent of team integration within construction projects. *Int. J. Proj. Manag.* **2006**, *24*, 13–23. [CrossRef]
69. Bosch-Rekveldt, M.; Smith, J.; Mooi, H.; Bakker, H.; Verbraeck, A. The application of value improving practices: Team integration pays off. In Proceedings of the 11th Euram Conference, Tallinn, Estonia, 1–4 June 2011; Available online: https://bit.ly/36x9qt0 (accessed on 18 November 2015).
70. Klakegg, O.J.; Pollack, J.; Crawford, L. Preparing for Successful Collaborative Contracts. *Sustainability* **2021**, *13*, 289. [CrossRef]
71. Izam Ibrahim, K.; Costello, S.B.; Wilkinson, S. Key practice indicators of team integration in construction projects: A review. *Team Perform. Manag. Int. J.* **2013**, *19*, 132–152. [CrossRef]
72. Rousseau, D.M.; Sitkin, S.B.; Burt, R.S.; Camerer, C. Not so different after all: A cross-discipline view of trust. *Acad. Manag. Rev.* **1998**, *23*, 393–404. [CrossRef]
73. Zineldin, M.; Jonsson, P. An examination of the main factors affecting trust/commitment in supplier-dealer relationships: An empirical study of the Swedish wood industry. *Tqm Mag.* **2000**, *12*, 245–266. [CrossRef]
74. Costa, A.C.; Fulmer, C.A.; Anderson, N.R. Trust in work teams: An integrative review, multilevel model, and future directions. *J. Organ. Behav.* **2018**, *39*, 169–184. [CrossRef]
75. Mellewigt, T.; Madhok, A.; Weibel, A. Trust and formal contracts in interorganizational relationships—Substitutes and complements. *Manag. Decis. Econ.* **2007**, *28*, 833–847. [CrossRef]
76. Tyler, T.R.; Blader, S.L. *Cooperation in Groups: Procedural Justice, Social Identity, and Behavioral Engagement*; Psychology Press: Philadelphia, PA, USA, 2000.
77. Van Dyne, L.; LePine, J.A. Helping and voice extra-role behaviors: Evidence of construct and predictive validity. *Acad. Manag. J.* **1998**, *41*, 108–119. [CrossRef]
78. Raelin, J. Does action learning promote collaborative leadership? *Acad. Manag. Learn. Educ.* **2006**, *5*, 152–168. [CrossRef]
79. Kim, K.H. The relation among fit indexes, power, and sample size in structural equation modeling. *Struct. Equ. Modeling* **2005**, *12*, 368–390. [CrossRef]
80. Podsakoff, P.M.; Organ, D.W. Self-reports in organizational research: Problems and prospects. *J. Manag.* **1986**, *12*, 531–544. [CrossRef]
81. Nunnally, J. *Psychometric Methods*; McGraw-Hill: New York, NY, USA, 1978; pp. 7–21.
82. Kline, R.B. *Principles and Practice of Structural Equation Modeling*, 4th ed.; Guilford Publications: New York, NY, USA, 2015.
83. Byrne, B.M. *Structural Equation Modeling with AMOS: Basic Concepts, Applications, and Programming*, 2nd ed.; Routledge: New York, NY, USA, 2013. [CrossRef]
84. Pituch, K.A.; Stevens, J.P. *Applied Multivariate Statistics for the Social Sciences: Analyses with SAS and IBM's SPSS*, 6th ed.; Routledge: New York, NY, USA, 2016.
85. Anderson, J.C.; Gerbing, D.W. Structural equation modeling in practice: A review and recommended two-step approach. *Psychol. Bull.* **1998**, *103*, 411. [CrossRef]
86. Rahman, M.M.; Ugwu, O.O.; Kumaraswamy, M.M. Relational integration for sustainable infrastructure. In Proceedings of the Fifth Brunei International Conference on Engineering and Technology, Bandar Seri Begawan, Brunei, 1–3 November 2014; Available online: https://bit.ly/2O0DlUc (accessed on 27 December 2016).
87. Cheung, S.O.; Zhu, L.; Lee, K. Incentivization and Interdependency in Construction Contracting. *J. Manag. Eng.* **2018**, *33*, 04018010. [CrossRef]
88. Memon, S.A.; Rowlinson, S. Exploring Project Teams' Collaborative Behaviours in Hong Kong's Relational Contracting Projects. *Proj. Gov. Controls Rev.* **2019**, *2*, 80–91.
89. Wong, K.K.; Kumaraswamy, M.; Mahesh, G.; Ling, F.Y. Building integrated project and asset management teams for sustainable built infrastructure development. *J. Facil. Manag.* **2014**, *12*, 187–210. [CrossRef]