Comparative Study of the Variables in Construction Project Briefing/Architectural Programming

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Abstract: Briefing is the process by which client requirements are identified, clarified, and articulated in the early design stage of construction projects. It is crucial to the successful delivery of construction projects. Considerable research has been conducted in briefing during the past two decades. However, researchers consider many current briefing practices to be inadequate, and little research has been done in sufficient depth to explore briefing variables in the construction industry. This paper introduces a comprehensive framework of the variables that have an impact on construction project briefing. A questionnaire survey was conducted to validate these variables among project managers and architects in Hong Kong, the United Kingdom, and the United States. The results indicate that although no significant differences existed between the samples in the United Kingdom and the United States on the variables for construction project briefing, the views of the samples in Hong Kong deviated from the two Western countries. The Western professionals have more positive answers to most statements in the questionnaire. The findings have significant implications for industry practitioners in producing their guidelines for the briefing process and for writers in drafting how-to briefing guide for construction projects.

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Introduction

Briefing (known as architectural programming in the United States) is the process by which a client informs others of his or her needs, aspirations, and desires, either formally or informally; and a brief is a formal document that sets out a client's requirements in detail (CIB 1997). Hershberger (1999) defines architectural programming as the first stage of the architectural design process in which the relevant values of the client, users, architect, and society are identified; important project goals are articulated; facts about the project are uncovered; and facility needs are made explicit.

The briefing process is crucial to the successful delivery of construction projects, as well as to the satisfaction of clients (Shen et al. 2004; Yu et al. 2005). Many problems in construction projects can be traced back to briefing. The famous Pruitt Igoe project in the United States, which solved the financial and image problems of public housing, was demolished in 1976 because it did not respond to the behavioral and social needs of users (Duerk 1993). This incident illustrates well that systematic identification of client requirements during the briefing process is a prerequisite to project success. In the past two decades, briefing has received a great deal of attention from researchers and practitioners. Many briefing guides have been developed to improve existing briefing practices (CIDA 1993; Duerk 1993; CIB 1997; Salisbury 1998; Hershberger 1999; CRC 2001; Pena and Parshall 2001). Despite these efforts, many researchers still consider the current briefing practice to be inadequate (Smith et al. 1998; Barrett and Stanley 1999; Kamara et al. 2002, Yu et al. 2005). Many project briefs may not truly reflect client requirements. Kamara et al. (2002) indicate that limitations exist in current practice and in the framework for briefing. Yu et al. (2005) pointed out that a lack of a comprehensive framework is one of the problems associated with briefing. The limitations in the existing framework for briefing can shift the focus away from the requirements of the client and can result in problems in briefing practice (Kamara and Anumba 2001). However, to date, little attention has been devoted to developing a comprehensive framework for investigating the variables of construction project briefing. Whereas there have been many studies on briefing in the construction industry, little research has been done to develop a theoretical framework and subsequently produce a practical framework for construction project briefing/architectural programming.

In this paper, perceptions about variables in construction project briefing in Hong Kong, the United Kingdom, and the United States were investigated. A comparative study on the perceptions of clients and architects on briefing variables using professionals from Hong Kong and Western nations (the United Kingdom and the United States) was conducted. Discussions of

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the implications of the findings across 13 briefing variables for practicing industry professionals were provided. These findings are useful for industry practitioners so that they can produce their own policies in the briefing process. Moreover, the findings can serve as a basis for writers can draft a common and comprehensive briefing guide for construction projects.

Research Methodology

Brainstorming Session and Literature Review

The research project was approached through an initial brainstorming session to identify variables likely to be significant in a theoretical framework for briefing. Two professors in building construction and a Ph.D. student with more than 10 years' experience in the construction industry participated in the session. This session was followed by a comprehensive literature review that confirmed or rejected the variables as significant and included other variables that initially were not identified. Initially, 11 variables were identified and confirmed following the literature review. This number was then expanded to 16 variables, including risk management, conflict management, flexibility, facilitation, stages of briefing, and process and the importance of road mapping. Facilitation was deleted, since it would be investigated in the value management process used in construction project briefing. After grouping some of the variables, 13 variables (see section entitled "13 Variables in Briefing") were identified as having an impact from a theoretical perspective and became the theoretical foundation for the project. These 13 variables were investigated in detail to identify their impact (if any) on the briefing process of construction projects. The variables identified were included in a working document (Yu 2007), which included a detailed description of each. This research document concluded with the variables that are most likely to influence how the process is undertaken and the development of a theory behind the variables involved in the briefing process.

Questionnaire Survey

A questionnaire survey was conducted to identify any missing variables of briefing and validate the established theoretical framework. Questions were designed with reference to the aforesaid working research document.

Design and Layout of the Questionnaire

The questionnaire has four sections. The first section collects background information about the respondents. The second section is designed to collect opinions from respondents on the briefing practices. The 13 variables of briefing are tested and verified in the third section. The last section asks an open-ended question to identify the critical success factors (CSFs) of briefing.

The questionnaire was designed in a simple "tick-it" format to facilitate easy completion. A Likert scale was generally adopted. This instrument is widely used for measuring opinions, beliefs, and attitudes. The five possible responses were "strongly agree," "agree," "neutral," "disagree," and "strongly disagree."

As part of a pilot study, the preliminary questionnaire was sent to three experienced architects and two academicians in Hong Kong for comments. The questionnaire was then revised on the basis of the comments collected. The improved questionnaire was again sent to four experienced architects in Hong Kong, two academicians, and one director of an architectural firm in the United Kingdom, as well as two experienced and senior architects in the United States for review in the second pilot study. The final questionnaire is given in the Appendix.

Sample Selection and Profile of the Respondents

The target population of the survey includes all client's project managers and architects in Hong Kong, the United Kingdom, and the United States. In Hong Kong, the questionnaire was mailed and e-mailed to 150 experienced professionals, including 21 public and quasi-public clients, 25 private clients, and 104 architects. The names of these individuals were obtained from the Hong Kong Institute of Architects (HKIA) Directory 2003 and the Builder Directory 2003. They were either directors, senior project managers, associates, or senior architects. Considering the size of the Hong Kong construction industry, where, as an illustration, only about 160 architectural firms are in the territory, the sample size is significant enough for survey purposes. A reminder letter was sent to those who had not returned the questionnaire 3 weeks after it was sent, and subsequent telephone calls were made. There were 51 valid responses out of 144 questionnaires; after deducting the six undelivered questionnaires, the response rate was 35%.

In the United Kingdom, 100 e-cards were sent to the members of the Royal Institute of Architects (RIBA) in different cities. Their names and e-mail addresses were obtained from the RIBA Web site. Initially, the e-cards were sent in two bulk e-mails and were blind carbon copied to conceal the distribution list. Three weeks later, the response rate was disappointing, and a first reminder letter was therefore sent to the 100 RIBA members, alerting them to the briefing questionnaire Web link. Five weeks later, the response rate was still disappointing; and a second reminder letter was sent to the 100 RIBA members with an enclosed hard copy of the questionnaire and three options to complete the questionnaire: (1) to access the Web link; (2) to return the completed questionnaire by mail; or (3) to send the completed questionnaire by fax. There were 18 valid responses, indicating a response rate of 18%.

In the United States, 150 e-cards were sent to the members of the American Institute of Architects (AIA) across different cities. The names and e-mail addresses were obtained from the AIA web site. Initially, the e-cards were sent in three bulk e-mails and blind carbon copied to conceal the distribution list. Three weeks later, the response rate was disappointing, so 150 personal e-cards were sent to remind the AIA members to complete the questionnaire. A total of 20 valid responses were received, representing a response rate of 13%.

The responses obtained were clear because most of the questions requested the respondent to check the boxes, and the responses for the open-ended questions were in point form or short simple sentences. In Hong Kong, telephone calls were made to clarify any queries, whereas in the United Kingdom and the United States, e-mails were sent as follow-up actions. Incomplete questionnaires and responses from other regions (obtained as a result of the Web-based questionnaire) apart from Hong Kong, the United Kingdom and the United States constituted an invalid survey, since the study focused on those three regions.

Statistical Analyses

Nonparametric tests, the Mann-Whitney tests, were undertaken to assess whether statistically significant differences or divergences existed among the groups. The matched parametric testing methods were not employed in this study, since the parametric assump-

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tions were not fulfilled and the variables were measured by using an ordinal scale of measurement (Abdel-Kader 2001; Love et al. 2004). The Mann-Whitney test is used to investigate differences between two groups (the United Kingdom and the United States were treated as one group, and Hong Kong was the other one).

Testing the Hypotheses

Null hypothesis: No difference exists between the two populations, so they have the same mean

$$H_0: \mu_1 = \mu_2$$

Alternative hypothesis: A difference exists between the two populations; in particular, they have different means

$$H_1: \mu_1 \neq \mu_2$$

Level of significance for testing these hypotheses

$$\alpha = 0.05$$

In the test, the results are interpreted by the Z and p value. If the p-value is less than 0.05, H_0 is rejected. It can be concluded that a significant statistical difference exists between the groups.

13 Variables in Briefing

From the initial brainstorming and comprehensive literature review, 13 variables that have an impact on the briefing process were identified. Some of the variables require consideration at particular points in the briefing cycle, whereas others are present throughout the life cycle of a facility from commencement of the briefing stage. The variables are as follows:

Projects

A project is a change-oriented event defined as an enterprise comprising physical and nonphysical activities that include a preproject stage to ensure effective planning and a post project stage to ensure successful absorption into core business. Therefore a project is a separate, temporary activity apart from the organization's core business but one that will make a change. A brief for a project requires that the initiator of the brief accept change. The brief is ideally compiled during the first stage of a project, preproject planning, and will encapsulate and make explicit decisions taken at the preproject planning stage. It is important to spend time planning at the preproject stage to ensure a comprehensive definition of the project, since decisions made in the early stages will influence the rest of the project (Yu et al. 2007).

Stakeholder Management

Stakeholders are defined as "those groups or individuals with whom the organization interacts or has interdependencies" and "any individual or group who can affect or is affected by the actions, decisions, policies, practices or goals of the organization" (Carroll 1993). In the briefing process, it is necessary to consider the interests of stakeholders, both primary and secondary, and to maintain a balance between different stakeholder interests. Those with responsibility for the briefing process should strive to maintain a good working relationship among all stakeholders. Primary stakeholders have a legal contractual relationship to the project. This group includes the project owner, suppliers, functional groups, investors, and those from the public domain (such as communities and institutions) that provide infrastructures and markets, whose laws and regulations must be obeyed, and to whom taxes and other obligations are owed. Secondary stakeholders are those who influence, or who are influenced or affected by, the project but who are not regularly engaged in transactions with it and may not be essential for its survival (Pinto 1998). To understand the various interested parties in the project, all types of stakeholders should be identified and represented during the early stages of the project. The stakeholders' commitment, interest, and power should be assessed before the briefing exercise. Much time and effort should be devoted to the key players in the briefing process.

Teams and Team Dynamics

The briefing team is project-focused and interacting; it consists of individuals who are willing to sacrifice individualism for collectivism. An important objective of team building is to break down the barriers to effective communications, encouraging listening and understanding of the project (Blyth and Worthington 2001). Team membership should be effective and balanced, as indicated by the ACID test. Members of teams should be chosen on the basis of their ability to contribute information and to enable or undertake decision making.

The ACID test is a useful aid to selecting team members.

Authorize—include those having the authority to make decisions during the workshop process.

Consult—include those to be consulted during the workshop process and without whose consultation the workshop would be suspended.

Inform—exclude those who merely have to be informed of the outcome of the workshop.

Do—include those who have to translate the outcomes of the workshop into action.

Client Representation

A client is considered to be the sponsoring organization or the initiator, who is directly responsible for the production and development of the project (Bresnen 1990). There are many different types of clients: large owner/occupier, public sector, developer, refurbishing retailer, and small owner/occupier—all of which have different requirements and ways of going about projects. The client type will influence the decision to build, including whether it is part of a long-term strategic plan, a response to unanticipated changes, or if it is opportunistic. MacPherson et al. (1992) identified that one of the problem areas of briefing was the representation of the client interest groups, such as incomplete identification of all interest groups and how they should be represented in the decision-making unit. Therefore, ensuring adequate representation of client groups is important to address client needs and to prevent distortion of the brief.

Change Management

Change management in this study refers to the task of managing change from a proactive posture in a project. A change project essentially involves three stages: understanding the status quo (as-is) situation, specifying the desired future (to-be) situation, and planning and implementing an effective migration path from 'as-is' to 'to-be.' During the briefing process, the client should be made aware of the impact of change during the design and construction process (Kelly and Duerk 2002). The most difficult change management occurs when change results from inaccura-

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cies in design caused by incomplete, unclear, or ambiguous project information generated at the early stage of the project process. This may result from, for example, the appropriate stakeholder information not being incorporated at a particular stage in the development of the project (Kelly et al. 2004).

Knowledge Management

Knowledge is defined as "information interpreted by the individual and applied to the purpose for which it is needed" (Bender and Fish 2000). Knowledge management is an umbrella term for making more efficient use of human knowledge that exists within an organization. Fundamental to briefing therefore is the mapping of individuals contributions to organizational project knowledge to determine the membership of the project briefing team (Kelly and Duerk 2002). Teamwork, collaboration, face-to-face contact, and effective communication structures are essential in ensuring that knowledge management is a success (McCampbell et al. 1999).

Risk and Conflict Management

The concept of risk is related to the activities that flow from decisions made by the client, where the outcomes of those activities may differ from expectations (Loosemore 1999). These differences are the result of uncertainties that are inherent in the formation on which the client bases his or her decision making. It is widely accepted that during the initial appraisal phase, risk management is most valuable since a great deal of flexibility in design and planning remains that allows consideration of ways in which various risks might be avoided or controlled (Thompson and Perry 1992).

In the briefing process, conflict occurs whenever disagreements exist in a social situation over issues of substance or whenever emotional antagonisms create friction between individuals or groups (Schermerhorn 2003). It is most beneficial to construct conflict management plans during the predesign stages of a project, and such plans should incorporate preventive and reactive elements (Loosemore 1999). Collaboration and problem solving are preferred to gain true conflict resolution during the briefing process.

Postoccupancy Evaluation and Postproject Evaluation

Postoccupancy evaluation (POE) has been defined as "a diagnostic tool and system which allows facility managers to identify and evaluate critical aspects of building performance systematically" (Preiser 1995). POE and postproject evaluation (PPE) are management tools within the broader context of facilities management. They aim to improve the performance and quality of buildings. Successes, failures, and previous experiences of what does and does not work well should be used to aid in better decision making in the briefing process for subsequent projects. The more detailed a postoccupancy evaluation or postproject evaluation, the more likely it will support and influence decisions made in the briefing process.

Critical Success Factors and Key Performance Indicators

CSFs are the statements indicating how improved business practice must be achieved if an organization is to be able to accomplish its mission (McCabe 2001). The CSFs in the briefing process range from clear objectives and requirements of the project to trust and involvement of key stakeholders (CIB 1997). Key performance indicators (KPIs) are the means by which an organization can measure the progress being made to ensure that the CSFs are being achieved. KPIs generally include time, cost, and quality, as well as satisfaction of stakeholders.

Types of Business and Organizational Theory

The briefing process must consider that the team may be formed of many different types of organizations with different success criteria. This success criterion is most influenced by stakeholder satisfaction. For example, a government organization or a not-for-profit organization will differ greatly in its success criteria from those in the team who aim to make a profit from the project.

Decision Making

Briefing involves a lot of decision making by individuals and by groups. Effective decision-making processes are the backbone of an effective briefing strategy. Knowing when to make decisions and what kinds of decisions must be made are crucial to the success of any project (Blyth and Worthington 2001). A good briefing team should not limit itself to just one decision-making method and it should operate in contingency fashion by changing decision methods to best fit the problem and situation at hand.

Communications

The briefing process is essentially one of communication. Effective communications among all parties are needed to identify, clarify, and represent the client requirements. The most important critical success factor of briefing was open and effective communication in the questionnaire survey of this study. Active listening should be encouraged in the briefing exercise to allow a free and complete flow of communication.

Culture and Ethics

Culture and ethics may affect decision making in the briefing process. In managing the briefing team, the influence of cultural dimensions such as language, time orientation, use of space, religion, power distance, uncertainty avoidance, individualism-collectivism, and masculinity-femininity may be considered. An *ethical dilemma* is a situation in which a person must decide whether to do something that, although benefiting that person or that organization, or both, may be considered unethical (Schermerhorn et al. 2003). The briefing team may encounter ethical dilemmas that affect decision making in the briefing process.

These 13 variables were subsequently validated by a questionnaire survey (see the Appendix) and formed the basis of the theoretical framework for investigating construction project briefing in this study.

Research Findings

Profile of the Respondents

Of the 89 respondents, more than half of them were from Hong Kong (57%); the others were from the United Kingdom (20%) and the United States (23%) (see Fig. 1). Fig. 2 provides a break-

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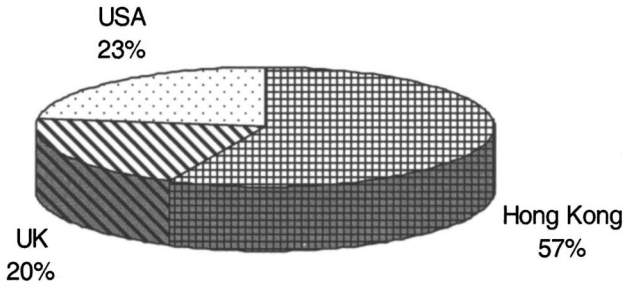

Fig. 1. Respondents by regions

down of the valid responses by professional groups. Most respondents were architects (62%); the remainder were project managers (26%), architectural programmers, mainly from the United States (6%), and others including surveyors, engineers, and contractors (6%). Regarding the respondents' experience in briefing in the past five years (measured by number of projects), 16% of the respondents have both coordinated (written) and contributed (not written); of this amount, 47% have coordinated and 37% have contributed only in the briefing process. In addition, 40% of the respondents have coordinated briefing and 21% of the respondents have contributed to briefing for more than six projects in the past five years.

Results

To investigate whether significant differences existed between perceptions in the United Kingdom and the perceptions in the United States on the variables of construction project briefing, a Mann-Whitney test was conducted. The results in Table 1 revealed no significant statistical difference between the United Kingdom and the United States except that American professionals strongly believed that consensus building is a vital component of the briefing process. Two similar tests were carried out for Hong Kong and the United Kingdom, as well as for Hong Kong and the United States. Significant statistical differences were found in both tests. Since no significant statistical difference existed between the United Kingdom and the United States these two regions were grouped as the Western group to examine the differences between perceptions in Hong Kong and Western perceptions on the variables of construction project briefing. In addition, for the sake of comparison, the United Kingdom and the United States are taken to represent the West in the discussion because the United Kingdom and the United States are in the same cultural cluster—Anglo—and have been classified as typical developed Western nations (Chen and Partington 2004; Gupta et al. 2002; Ronen and Shenkar 1985). Table 2 shows the means

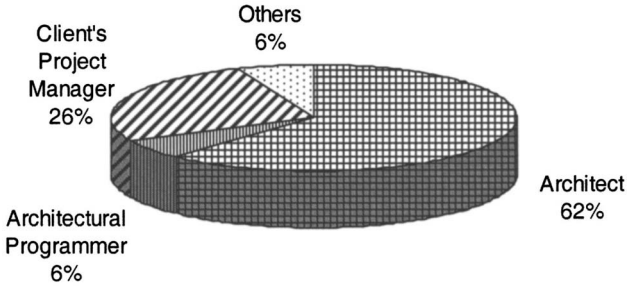

Fig. 2. Respondents by professional groups

of the three regions and the results of the Mann-Whitney test for Hong Kong and the Western group. The results revealed that the views of professionals in Hong Kong and the Western group were statistically significantly different. The major findings are summarized in Table 3.

Discussions

Perceptions on the Variables of Construction Project Briefing

Projects

According to Tables 2 and 3, the professionals in the United Kingdom, the United States, and Hong Kong agreed that the brief should act as a reference document that should be available to all project parties. The mean shows that respondents in the United States were as inclined towards "strongly agree." All three regions did not believe that the brief document is for use by the design team only. This response was in line with HM Treasury (1997), which states that the project brief should be included in the project execution plan and used by all parties for reference when requiring project information. The project execution plan is the key management document that encompasses all activities related to the project. The project manager ensures that the project is progressing according to the brief and focuses on areas that need direction and control. The brief can also be used at the postproject review stage to audit project success.

Stakeholder Management

The Western professionals considered that the individual stakeholder's commitment, interest, and power should be assessed before the briefing process. It coincides with Boddy (2002), in which the author proposes to carry out a stakeholder analysis during the early stages of the project and present it to the team. Important tasks for the project manager therefore include identifying stakeholders in a project assessing their commitment, assessing their power to help and hinder change, assessing their interests and how their interests will affect what they think and do about the change, managing relations with them to gain support, minimizing opposition, and generally creating favorable attitudes to the change.

Teams and Team Dynamics

Professionals in the three regions believed that an understanding of team dynamics is crucial to working effectively within the stakeholder group in the briefing process. The Western professionals agreed that the stakeholder group should be empowered by the client within precisely defined limits, whereas the professionals in Hong Kong had a neutral attitude. It was not surprising to discover that the three regions' professionals understand that team dynamics is important to work effectively in the briefing process. The Western professionals have more understanding that the client should empower the stakeholder group within precisely defined limits.

Client Representation

All three groups agreed that strict control by the brief writer is needed to prevent the brief from becoming a wish list. Kelly and Duerk (2002) indicated that the wish-list syndrome is one of the hazards commonly observed in the briefing process. User groups tend to maximize their wish lists in anticipation of being bar-

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Table 1. Results of Mann-Whitney Tests between Perceptions in the United Kingdom and the United States on Variables of Construction Project Briefing

	Variables	Mean		Z	*p*-value
		United Kingdom	United States		
1.	**Projects**				
	The brief should act as a reference document that should be available to all project parties.	4.39	4.65	–0.719	0.472
	The brief document is for use by the design team only.	2.33	2.20	–0.346	0.729
2.	**Stakeholder management**				
	The individual stakeholder's commitment, interest, and power should be assessed before the briefing process.	3.83	4.10	–1.345	0.179
3.	**Teams and team dynamics**				
	The stakeholder group should be empowered by the client within precisely defined limits.	3.94	4.05	–0.626	0.531
	Understanding team dynamics is crucial for working effectively within the stakeholder group in the briefing process.	4.17	4.45	–1.042	0.297
4.	**Client representation**				
	Strict control by the brief writer is needed to avoid the briefs becoming a wish list.	4.61	4.40	–0.859	0.390
	The client should determine the time at which the brief becomes fixed.	3.44	3.60	–0.527	0.598
	The brief should be fixed before sketch design commences.	2.89	3.20	–0.897	0.370
	The brief should be fixed before detail design commences.	4.33	4.40	–0.132	0.895
5.	**Change management**				
	The brief should be flexible enough to reflect changing client requirements.	4.17	4.35	–1.086	0.278
	The brief should describe the potential changes to the client organization resulting from the construction project.	3.61	3.85	–0.906	0.365
6.	**Knowledge management**				
	Successful briefing is dependent on understanding the client's strategic goals.	4.39	4.55	–0.980	0.327
	Briefing is the integration of the skills, knowledge, and experience of different stakeholders.	4.17	4.35	–0.919	0.358
7.	**Risk and conflict management**				
	Consensus building is a vital component of the briefing process.	3.94	4.40	–2.022	0.043[a]
8.	**Postoccupancy evaluation and postproject evaluation**				
	Consultation with facility managers and end users benefits the briefing process.	4.35	4.60	–0.491	0.624
9.	**Critical success factors and key performance indicators**				
	The construction brief should include the key performance indicators by which the success of the project will be measured.	4.00	4.15	–0.663	0.507
10.	**Type of business and organizational theory**				
	The briefing process must take into account that the stakeholder group may be formed of many different types of organizations with different success criteria.	4.00	4.21	–1.356	0.175
11	**Decision making**				
	Effective decision making can only occur if the client representatives are senior managers.	3.50	2.89	–1.524	0.128
12.	**Communications**				
	Communication among stakeholders is crucial to the success of the briefing process.	4.18	4.45	–1.307	0.191
	A structured or facilitated workshop will improve communication among stakeholders.	4.31	4.50	–0.533	0.594
13.	**Culture and ethics**				
	It is important that the stakeholder group consist of individuals of common cultural and ethical outlook.	2.61	2.25	–1.307	0.191

Note: A Likert scale was used (1 to 5 represented "strongly disagree," "disagree," "neutral," "agree," and "strongly agree," respectively).

[a]Represents a *p*-value is less than 0.05, which indicates significant statistical differences.

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Table 2. Results of Mann-Whitney Test between Perceptions in Hong Kong and the Western Perception on Variables of Construction Project Briefing

	Variables	Mean			Z	p-value
			Western			
		Hong Kong	United Kingdom	United States		
1.	**Projects**					
	The brief should act as a reference document that should be available to all project parties.	3.96	4.39	4.65	–3.392	0.001[b]
	The brief document is for use by the design team only.	2.76	2.33	2.20	–2.714	0.007
2.	**Stakeholder management**					
	The individual stakeholders commitment, interest, and power should be assessed before the briefing process.	3.49	3.83	4.10	–2.809	0.005[b]
3.	**Teams and team dynamics**					
	The stakeholder group should be empowered by the client within precisely defined limits.	3.50	3.94	4.05	–2.755	0.006[b]
	Understanding team dynamics is crucial for working effectively within the stakeholder group in the briefing process.	3.82	4.17	4.45	–3.198	0.001[b]
4.	**Client representation**					
	Strict control by the brief writer is needed to avoid the briefs becoming a wish list.	3.72	4.61	4.40	–4.221	0.000[b]
	The client should determine the time at which the brief becomes fixed.	3.55	3.44	3.60	–0.213	0.831
	The brief should be fixed before sketch design commences.	3.37	2.89	3.20	–1.348	0.178
	The brief should be fixed before detail design commences.	3.78	4.33	4.40	–3.294	0.001[b]
5.	**Change management**					
	The brief should be flexible enough to reflect changing client requirements.	3.51	4.17	4.35	–4.004	0.000[b]
	The brief should describe the potential changes to the client organization resulting from the construction project.	2.90	3.61	3.85	–4.222	0.007[b]
6.	**Knowledge management**					
	Successful briefing is dependent on understanding the client's strategic goals.	4.10	4.39	4.55	–2.503	0.012[b]
	Briefing is the integration of the skills, knowledge, and experience of different stakeholders.	3.69	4.17	4.35	-3.397	0.001[b]
7.	**Risk and conflict management**					
	Consensus building is a vital component of the briefing process.	3.52	3.94	4.40	–3.418	0.001[b]
8.	**Postoccupancy evaluation and postproject evaluation**					
	Consultation with facility managers and end users benefits the briefing process.	4.16	4.35	4.60	–2.816	0.005
9.	**Critical success factors and key performance indicators**					
	The construction brief should include the key performance indicators by which the success of the project will be measured.	3.55	4.00	4.15	–3.157	0.002[b]
10.	**Type of business and organizational theory**					
	The briefing process must take into account that the stakeholder group may be formed of many different types of organizations with different success criteria.	3.39	4.00	4.21	–4.974	0.000[b]
11.	**Decision making**					
	Effective decision making can only occur if the client representatives are senior managers.	3.84	3.50	2.89	–2.475	0.013[b]
12.	**Communications**					
	Communication among stakeholders is crucial to the success of the briefing process.	3.82	4.18	4.45	–2.947	0.003[b]
	A structured or facilitated workshop will improve communication among stakeholders.	3.76	4.31	4.50	–4.099	0.000[b]
13.	**Culture and ethics**					
	It is important that the stakeholder group consist of individuals of common cultural and ethical outlook.	2.82	2.61	2.25	–2.436	0.015[b]
	Culture and ethics affect decision making in the briefing process.	3.39	3.50	4.20	–2.930	0.003[b]

Note: A Likert scale was used (1 to 5 represented "strongly disagree," "disagree," "neutral," "agree," and "strongly agree," respectively).

[b]Represents a p-value is less than 0.05, which indicates significant statistical differences.

Table 3. Comparisons of the Perceptions between Hong Kong and Western's Professionals on Variables of Construction Project Briefing

	Western professionals	Hong Kong professionals
1.	**Projects**	
	The brief should act as a reference document that should be available to all project parties.	Agree with Western professionals
	Disagree that the brief document is for use by the design team only.	Agree with Western professionals
2.	**Stakeholder management**	
	The individual stakeholder's commitment, interest, and power should be assessed before to the briefing process.	Toward neutral to this statement
3.	**Teams and team dynamics**	
	Understanding team dynamics is crucial for working effectively within the stakeholder group in the briefing process.	Toward agree this statement
	The stakeholder group should be empowered by the client within precisely defined limits.	agree less on this statement
4.	**Client representation**	
	Strict control by the brief writer is needed to avoid the brief becoming a wish list.	Toward agree on this statement
	Neutral to the statement that the client should determine the time at which the brief becomes fixed. Prefer that the brief should be fixed before detail design then sketch design commences.	Same as Western professionals
5.	**Change management**	
	The brief should be flexible enough to reflect changing client requirements.	Agree less with this statement
	The brief should describe the potential changes to the client organization resulting from the construction project.	Toward neutral to this statement
6.	**Knowledge management**	
	Successful briefing is dependent on understanding the client's strategic goals.	Agree with Western professionals
	Briefing is the integration of the skills, knowledge, and experience of different stakeholders.	Agree less with to this statement
7.	**Risk and conflict management**	
	Consensus building is a vital component of the briefing process.	Agree less with this statement
8.	**POE And PPE**	
	Consultation with facility managers and end users benefits the briefing process.	Agree with Western professionals
9.	**CSFs and KPIs**	
	The construction brief should include the key performance indicators by which the success of the project will be measured.	Agree less with this statement
10.	**Type of business and organizational theory**	
	The briefing process must take into account that the stakeholder group may be formed of many different types of organizations with different success criteria.	Agree less with this statement
11.	**Decision making**	
	Professionals in the United Kingdom and the United States were less agreeable and disagree on this statement.	Toward agree on the statement that effective decision making can only occur if the client representatives are senior managers.
12.	**Communications**	
	Communication among stakeholders is crucial to the success of the briefing process.	Toward agree on this statement.
	A structured or facilitated workshop will improve communication amongst stakeholders.	Toward agree on this statement.
13.	**Culture and ethics**	
	Disagree that the stakeholder group should consist individuals of common cultural and ethical outlook	Same as Western professionals
	Professionals in the United Kingdom and the United States were agree and less agreeable with the statement that culture and ethics affect decision making in the briefing process.	Toward neutral on this statement

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gained down from it. The problem confronting the brief writer is then to understand the priorities of the user groups such that high-priority needs are not sacrificed for lower-priority wants. In this context, needs are the fundamental requirements that the project must possess to serve the client's basic intentions, and wants are the embellishments that would be nice to have but that are not necessarily needed.

Professionals in the United Kingdom, the United States and the Hong Kong were neutral about the idea that the client should determine the time at which the brief becomes fixed. If the brief is fixed, they prefer that it is fixed before detail design commences rather than before sketch design commences. The literature review indicates that two schools of thought relate to briefing. One considers the brief as an entity in itself, which should be frozen after a critical period, and briefing becomes a stage or stages in the design process (Hershberger 1999; RIBA 2000; Hyams 2001; Yu et al. 2006). The other regards the brief as a live and dynamic document that develops iteratively from an initial global brief in a series of stages; briefing is considered to be an ongoing activity that evolves during the design and construction process (Barrett and Stanley 1999; Blyth and Worthington 2001; Kamara et al. 2002; Othman, et al. 2004 and 2005). The writers support the former so that redesign and abortive works attributable to late change of client requirements in the brief can be avoided.

Change Management

The Western professionals agreed that the brief should be flexible enough to reflect changing client requirements. Problems occur in change management when change results from inaccuracies in design caused by incomplete, unclear, or ambiguous project information generated at any stage of the project process. This may result from, for example, the appropriate stakeholder's information not being incorporated at a particular stage in the development of the project (Kelly et al. 2004). Notwithstanding the type of change, management structures must be in place to deal with change. Ideally, changes to client requirements should bring benefits all parties engaged in the project.

The professionals in the United States and the United Kingdom perceived that the brief should describe the potential changes to the client organization resulting from the construction project. This topic is discussed in the following section.

Knowledge Management

Western professionals considered that briefing is the integration of the skills, knowledge, and experience of different stakeholders. The mapping of the contributions of individuals to organizational project knowledge and experience is used to determine membership of the project briefing team (Kelly and Duerk 2002). Furthermore, professionals in Hong Kong, the United Kingdom, and the United States agreed that successful briefing depends on understanding the client's strategic goals. The writers believe that a brief must capture the client's strategic goals and must detail changes to the way in which the client organization must do things to meet organizational needs and to reap the benefits of quality improvement, increased productivity, and enhanced competitiveness that are a necessary part of the project.

Risk and Conflict Management

Western professionals believed that consensus building is a vital component of the briefing process. Although this statement is true to an extent, briefing should remain focused on the needs of the client. The client representatives should actively participate in the process and should articulate their values and requirements. One of the benefits of using a workshop approach to briefing is that it enables the team to build consensus decisions while considering a number of views and constructing a solution that is better than that proposed by any individuals within the workshop (Dallas 2006). The first step in achieving consensus is to ensure that each participant's views have been fairly heard and taken into account. The second step is to achieve consensus through discussion among the project stakeholders in the workshop guided by facilitators.

POE and PPE

Professionals in the three regions agreed that consultation with facility managers and end users benefits the briefing process. Successes, failures, and previous experiences of what does and does not work well should be used to facilitate better decision making in the briefing process (Blyth and Worthington 2001). POE should ensure that client requirements are being met and that the project team is clear about what they are. The information should be documented in the project brief and communicated to the team. PPE should be implemented throughout the building's life cycle to ensure that no lessons are lost or forgotten. Previous experience and lessons learned from past PPEs should be reviewed in the briefing process to improve project performance.

Critical Success Factors and Key Performance Indicators

The Western professionals believed that the construction project brief should include the key performance indicators by which the success of the project will be measured. Ten KPIs are currently being used (CBPP 2003). They are client satisfaction—product, client satisfaction—service, defects, safety, predictability—cost, predictability—time, construction time, construction cost, productivity, and profitability. The success of a project can be measured, and feedback can be used to improve the performance of subsequent projects.

Type of Business and Organizational Theory

The Western professionals perceived that the briefing process must take into account that the stakeholder group may be formed of many different types of organizations with different success criteria. The briefing process should consider the composition of the team. Corporate clients make decisions to change their facilities to be cost effective and to enhance competitiveness and productivity, and these goals should be considered in the briefing process (AIA 2001). Government organizations or not-for-profit organizations seek to serve the societies or communities.

Decision Making

Professionals in Hong Kong were inclined toward "agree" on the statement that effective decision making can only occur if the client representatives are senior managers. Professionals in the United Kingdom were neutral but professionals in the United States disagreed with this statement. This statement seems to simplify briefing situations. The writers agreed with Blyth and Worthington (2001) that there are three layers of decision making: corporate, departmental, and individual. Corporate decision makers are more concerned with strategic decisions affecting the business, such as whether to build and where. Senior managers are normally involved in the strategic briefing stage. Departmental and individual managers operate at a more tactical level, while they look for the detailed project performance and technical requirements. Project managers or designers can manage the works

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in the project briefing stage. Senior managers are often prematurely faced with making decisions about detail at an early stage in the project when strategic decisions are required, and this problem should be avoided.

Communications

The Western professionals considered communication among stakeholders as crucial to the success of the briefing process and believed that a structured or facilitated workshop can improve communication among stakeholders. Professionals in Hong Kong were inclined toward "agree" on those two statements. This result coincides with the results of the open-ended questions in the questionnaire that indicate that open and effective communication is the most important critical success factor of the briefing process. Professionals in the United States considered holding workshops for stakeholders to be the second most important critical success factor. Yu et al. (2006) put forward facilitative briefing as a beneficial option for construction project briefing. In facilitative briefing, a facilitator independent of the client and the design team guides the whole team through the briefing process, largely by using the techniques of value, risk, and project management.

Culture and Ethics

The Western professionals believed that culture and ethics affect decision making in the briefing process. However, professionals in Hong Kong and the West disagreed about whether the stakeholder group should consist of individuals with a common cultural and ethical outlook. In managing the briefing team, especially for international construction projects, the influence of cultural dimensions such as language, time orientation, use of space, and religion must be considered. Ethical decision making comes from personal values, company organization, trade or professional organizations, government, and society (Hong Kong Ethics Development Centre). The briefing team would encounter ethical dilemmas in their relationships with superiors, subordinates, customers, competitors, suppliers, and regulators. Common issues underlying the dilemmas involve honesty in communications and contracts, gifts and entertainment, pricing practices, and employee terminations.

Implications for Industrial Practitioners in Briefing

The findings revealed in this paper may have implications for helping practicing industry professionals draft their own guidelines for the briefing process. The 13 briefing variables serve as a framework for considering factors that may affect the process. Professionals in the United Kingdom, the United States, and Hong Kong may refer to the perceptions of their own regions on the 13 briefing variables. The professionals in Hong Kong may even look at the more positive answers from the United Kingdom and the United States as a reference for briefing practices.

Individual commitment, interest, and power of the stakeholders should be assessed before the briefing process. The individual stakeholder contributions to organizational project knowledge and experience should be considered to determine the membership of the project briefing team. The briefing process should consider the stakeholder group may be formed of many different types of organizations with different success criteria. An understanding of team dynamics is also crucial for working effectively with the stakeholder group in the briefing process.

In the briefing process, decisions should be made by the right person at the right level and time. Culture and ethics affect decision making in briefing. In addition, consultation with facility managers and end users benefits the briefing process. Communication among stakeholders is also crucial to the success of the briefing process, and a structured or facilitated workshop will improve communication among stakeholders. In addition, consensus building is a vital component in briefing.

Finally, the brief, as a product of the briefing process, should act as a reference document that should be available to all project parties rather than to just the design team. The client should determine the time at which the brief becomes fixed, and the right timing may be before the detail design stage. The brief should be flexible enough to reflect changing client requirements, and it should describe the potential changes to the client organization resulting from the construction project. The construction project brief should include key performance indicators by which the success of the project will be measured.

Limitations of This Empirical Study

This empirical study has two limitations. First, the sample size of 89 respondents may not be entirely representative of the intended population in the United Kingdom or the Untied States. Nevertheless, every attempt was made to increase the responses within the time limit. A more extensive study with a much larger sample size could be conducted in the near future. Second, group sizes were not constant across the survey, and group size is a potential explanatory variable for the differences in the results. To facilitate and balance the comparisons between groups, the United Kingdom and the United States were compared first and then combined to form the Western group (38 responses) because no major statistical differences exist between these two groups. This group was next compared with the Hong Kong group (51 responses).

Conclusions

In this study, a questionnaire survey was conducted to make a comparative but exploratory study to understand the perceptions of project managers and architects on the 13 variables in construction project briefing in Hong Kong, the United Kingdom, and the United States. The findings revealed no significant difference between the United Kingdom and the United States. However, the results from professionals in Hong Kong deviated from these two countries. In general, the Western professionals were more positive toward the proposed statements of briefing practice, whereas professionals in Hong Kong were neutral to these suggestions. Although the study has limitations, the findings and implications are significant so that practicing industry professionals can produce their own guidelines for the briefing process, as well as for the writers to draft a common 'how-to' briefing guide for construction projects. It is anticipated that the variables could be categorized in a different way, for example, a factor or cluster analysis can be used to group the variables for further quantitative studies if the sample size can be extended to 100 or more.

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Appendix. Questionnaire on Construction Project Briefing/Architectural Programming

Construction Project Briefing/ Architectural Programming is the first and most important step in the construction cycle, where client requirements for a building project are defined. It is the procedure of gathering, analyzing, and synthesizing information needed to inform decision-making and decision implementation at the strategic and project planning stages of the development process. A brief/ program is a formal document which sets out a client's requirements in detail. In this questionnaire, the words "briefing" and "architectural programming" are synonymous.

This questionnaire forms part of an international research project, which studies briefing practice, variables of briefing and critical success factors for briefing in building projects.

With reference to your previous experience in the Briefing Process of one representative building project you have participated, please tick appropriate box(es) for the following questions:

Section A – Background Information

1. Project title:

_____

(e.g. Queensway Government Office Building, Hong Kong)

2. Your role in the project

☐ Architect ☐ Architectural Programmer ☐ Project Manager ☐ Surveyor
☐ Engineer ☐ Contractor/Supplier ☐ Others, please specify _____

3. Sector of the client of the project

☐ Public (proceed to Q4)
☐ Private (proceed to Q5)
☐ Quasi-Public or Regulated Private (proceed to Q6)

4. Public

☐ Local Government ☐ Central / Federal Government ☐ State Government,
☐ Others, please specify _____

5. Private

☐ Industrial (Manufacturing/Process Engineering etc.) ☐ Consultancy Practice
☐ Commercial (Retail, Construction) ☐ Financial (Banking)
☐ Not-For-Profit/Charity Company ☐ Property Developer
☐ Others, please specify _____

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6. Quasi-Public or Regulated Private

☐ Utility Company ☐ Transport Company ☐ Telecommunications Company
☐ Educational Institution ☐ Post Office ☐ Hospital Authority
☐ Others, please specify _____

7. Size of the client organisation

number of employees ☐ 1-5 ☐ 6-50 ☐ 51-200 ☐ 201+

8. Country / Region

☐ Hong Kong ☐ United Kingdom ☐ United States of America

9. Your experience of briefing in past 5 years (measured by number of projects)

☐ Co-ordinated / Written (proceed to Q10)
☐ Contributed only; did not write (proceed to Q11)

10. Co-ordinated / Written ☐ 0 ☐ 1 ☐ 2-5 ☐ 6+

11. Contributed only; did not write ☐ 0 ☐ 1 ☐ 2-5 ☐ 6+

Section B – Your opinion of the Briefing Process

12. Which of the following statements best describes the stages of briefing?

[The strategic brief is defined as the statement of the broad scope and purpose of the project and its key parameters including overall budget and programme (in USA read schedule), agreed at an early stage of the project; and project brief is defined as the full statement of the client's functional and operational requirements for the completed project.]

☐ The brief should recognize the distinction between the strategic brief as the mission of the project within the clients' core business and the project brief as the technical requirements of the project.

☐ It is not necessary to distinguish between the strategic brief and the project brief.

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13. In your experience, to what extent are the following used to convey the client's requirements to the design team?

	Always	Frequently	50% of cases	Infrequently	Never
Room data sheets	☐	☐	☐	☐	☐
Minutes of meetings	☐	☐	☐	☐	☐
Letters/concise written instructions	☐	☐	☐	☐	☐
Outline drawings	☐	☐	☐	☐	☐
Full functional specification	☐	☐	☐	☐	☐
Verbal instruction from client	☐	☐	☐	☐	☐
Others, please specify _____	☐	☐	☐	☐	☐

14. Which of the following statements best describes your briefing practice?

☐ I have an established procedure for briefing all projects

☐ I have several established procedures for briefing used with different projects

☐ I have no established procedure for briefing, in each project briefing is carried out as seems appropriate.

Section C – Variables of Construction Briefing

Those writing on the subject of briefing have made the following statements. Please indicate your level of agreement/disagreement for each statement.

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
15. Projects					
a) A brief should be compiled, completed and agreed before design commences on a project.	☐	☐	☐	☐	☐
b) Briefing is a process that continues until the completion of the sketch design.	☐	☐	☐	☐	☐
c) The construction project is an indication of change in the client's business.	☐	☐	☐	☐	☐
d) The brief should act as a reference document that should be available to all project parties.	☐	☐	☐	☐	☐
e) The brief should contain details of the procedures necessary to facilitate the absorption of the project into the client's core business following completion.	☐	☐	☐	☐	☐

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	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
16. Stakeholder Management					
A stakeholder is any person who is directly affected (i.e. client, government, neighbors, and general public) by or who has an influence on the proposed project.					
a) Briefing is an investigation of the individual requirements of stakeholders.	☐	☐	☐	☐	☐
b) Briefing is a facilitated meeting that inputs the requirements of stakeholders.	☐	☐	☐	☐	☐
c) The individual stakeholders commitment, interest, and power should be assessed prior to the briefing process.	☐	☐	☐	☐	☐
d) Briefing should consider and balance the interests of all stakeholders.	☐	☐	☐	☐	☐
e) Only the requirements of client's stakeholders should be reflected in the brief.	☐	☐	☐	☐	☐
17. Teams and Team Dynamics					
a) The stakeholder group is a temporary team formed for the project only.	☐	☐	☐	☐	☐
b) The client should define the composition of the stakeholder group.	☐	☐	☐	☐	☐
c) The stakeholder group should be empowered by the client within precisely defined limits.	☐	☐	☐	☐	☐
d) Understanding team dynamics is crucial for working effectively within the stakeholder group in the briefing process.	☐	☐	☐	☐	☐
18. Client Representation					
a) It is necessary to ensure adequate representation of client groups to address client needs and to prevent distortion of the brief.	☐	☐	☐	☐	☐
b) Strict control by the brief writer is needed to avoid the briefs becoming a wish list.	☐	☐	☐	☐	☐
c) The brief should be sufficiently flexible to reflect changing client requirements.	☐	☐	☐	☐	☐
d) The brief should describe the contribution of the project to the client's core business.	☐	☐	☐	☐	☐
e) The client should determine the time at which the brief becomes fixed.	☐	☐	☐	☐	☐
f) The brief should be fixed before sketch design commences.	☐	☐	☐	☐	☐
g) The brief should be fixed before detail design commences.	☐	☐	☐	☐	☐
19. Change Management					
a) A brief for a construction project implies change in the client organization.	☐	☐	☐	☐	☐
b) The brief writer must be able to understand the operation of the client's business.	☐	☐	☐	☐	☐
c) The brief should describe the potential changes to the client organization resulting from the construction project.	☐	☐	☐	☐	☐
d) The brief document is for use by the design team only.	☐	☐	☐	☐	☐

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	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
20. Knowledge Management					
a) The brief is the primary vehicle for knowledge sharing amongst the project team.	☐	☐	☐	☐	☐
b) Successful briefing is dependent on understanding the client's strategic goals.	☐	☐	☐	☐	☐
c) Briefing is the integration of the skills, knowledge and experience of different stakeholders.	☐	☐	☐	☐	☐
21. Risk and Conflict Management					
a) Anticipating and recording risks to the project is an important part of the briefing process.	☐	☐	☐	☐	☐
b) Consensus building is a vital component of the briefing process.	☐	☐	☐	☐	☐
22. Postoccupancy Evaluation and Postproject Evaluation					
a) The briefing process should review the findings of a POE of the client's last project of a similar type.	☐	☐	☐	☐	☐
b) Incorporating the results of a POE of another client's project is hazardous.	☐	☐	☐	☐	☐
c) Consultation with facility managers and end users benefits the briefing process.	☐	☐	☐	☐	☐
23. Critical Success Factors and Key Performance Indicators					
a) The construction brief should include the key performance indicators by which the success of the project will be measured.	☐	☐	☐	☐	☐
b) The success of the project as a business unit is the sole responsibility of the client.	☐	☐	☐	☐	☐
c) The design team is only responsible for the technical performance of the project.	☐	☐	☐	☐	☐
24. Type of Business and Organizational Theory					
a) Each stakeholder should have an equal input to the briefing process.	☐	☐	☐	☐	☐
b) Client input should be given a greater weighting than other project stakeholders.	☐	☐	☐	☐	☐
c) The briefing process must take into account that the stakeholder group may be formed of many different types of organizations with different success criteria.	☐	☐	☐	☐	☐
25. Decision Making					
a) Effective decision making can only occur if the client representatives are senior managers.	☐	☐	☐	☐	☐
b) The brief writer should determine the appropriate decision making method in the briefing process.	☐	☐	☐	☐	☐
c) The brief writer makes decisions based on information received from the stakeholders.	☐	☐	☐	☐	☐
d) The stakeholder group must be empowered to make decisions as a team in the briefing process.	☐	☐	☐	☐	☐

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26. Communications

a)	Effective briefing is only possible if the client understands the construction process.	☐	☐	☐	☐	☐
b)	Clients should appoint internal project managers to manage the briefing process.	☐	☐	☐	☐	☐
c)	The brief writer should operate within strict project constraints set by the client.	☐	☐	☐	☐	☐
d)	Communication among stakeholders is crucial to the success of the briefing process.	☐	☐	☐	☐	☐
e)	A structured or facilitated workshop will improve communication among stakeholders.	☐	☐	☐	☐	☐

27. Culture and Ethics

a)	The brief writer has to manage the different cultural and ethical characteristics of the individual stakeholders.	☐	☐	☐	☐	☐
b)	It is important that the stakeholder group consist of individuals of common cultural and ethical outlook.	☐	☐	☐	☐	☐
c)	Culture and ethics affect decision making in the briefing process.	☐	☐	☐	☐	☐

28. Others, please specify _____ ☐ ☐ ☐ ☐ ☐

_____

Section D – Critical Success Factors for Construction Project Briefing

29. In your opinion, what are the critical success factors for the briefing process?

Please provide the following details to ensure a copy of the final report is sent to you:

Name: _____ **Position:** _____

Organization: _____

Address: _____

Telephone No.: _____ **Fax No.:** _____ **E-mail address:** _____

**** End of Questionnaire ****

***** Thank you very much for your contribution *****

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