

A study of construction mediator tactics—Part I: Taxonomies of dispute sources, mediator tactics and mediation outcomes

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Abstract

Constructed facilities are a major component of the built environment. Nevertheless, construction is of long-duration, high value and dispute-prone. As such, dispute is a regular feature in construction and consumes resources that would otherwise be used in a more productive manner. The use of mediation has been regarded as a flexible, cost-effective, and non-threatening way to dispute resolution. Reported studies on construction mediation have been instrumental in bringing out key success factors and the advantages over other adversarial resolution processes. Moreover, mediation is a form of assisted negotiation; hence the skill of a mediator shall have pivotal effect on the mediation outcome. In fact, the appropriate use of tactics by a mediator shall have deciding effect on the chance of success. Notwithstanding, the implication on tactics in relation to the nature of dispute cannot be discarded. In these contexts, a study that examines the inter-relationships among dispute sources, mediator tactics and mediation outcome was conducted in Hong Kong. The study is broadly divided into two parts. Part (I) deals with the development of taxonomies of construction dispute sources, mediator tactics and outcomes, employing the technique of Principal Component of Factor Analysis (PCFA). A total of eight, nine and four taxonomies for dispute sources, mediator tactics and outcomes were identified, respectively. Based on these results, Part (II) of the study examined the contingent use of mediator tactics in the contexts of dispute sources and mediation outcomes.

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1. Introduction

Adversarial attitude has been identified as one of the major challenges for the built environment sector. Dispute is a regular feature in construction and consumes resources that would otherwise be used in a more productive manner. Resolving dispute thus has been part of the routine of every construction manager. Among other dispute resolution methods, mediation is now a well-accepted option in lieu of costly arbitration and litigation. The use of alternative dispute resolution methods has thus gained acceptance since its introduction in the 1980s in Hong Kong. Among different forms of ADR, mediation has been most widely used and has been regarded as a flexible, cost-effective, and non-threatening dispute resolution method [1,2]. It is also identified as a suitable way to resolve construction dispute

because mediated settlements are made privately, a characteristic favored by disputants who do not wish their dispute publicized [3–5]. The use of mediation is largely voluntary; the disputants are very likely to have the desire to reach a settlement and keeping the business relationships and reputations intact [6,7]. It is reported that about 80 percent of mediation cases resulted in binding agreements [1,2]. In Hong Kong, mediation is now an integral part of the dispute settlement provisions in many standard forms of building and construction contract. It is also widely regarded as an effective means to resolve dispute [5,8,9].

The increase in use of mediation attracted a surge of studies focusing on the comparison between mediation and other adversarial processes; identification of successful factors; process design and cultural issues [6,10–15]. The results obtained from these studies deepen the understanding of construction mediation. Nonetheless, these are mainly anecdotal in nature. Empirical research to support these studies therefore will be useful. Such a view is shared

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by Henderson [16] who suggests that thorough and empirically based researches in this area are beneficial to the furtherance of construction mediation. As mediation is a form of assisted negotiation, the mediator plays a pivotal role in facilitating a settlement. The tactics used by them therefore shall have immense impact on the mediation outcome. In this regard, study on mediation tactics shall further our understanding of the mediation process. A number of researches have been conducted to identify the kind of tactics commonly used by mediators in labor and divorce disputes [17–21]. Moreover, not all tactics is of equal strength or derives similar effect. Thus, different tactics should be employed in accordance with the situation. This is often described as the contingent use of tactics. The contingent approach advocates that mediators' tactics should be adaptive to the contexts such as nature of the dispute and the attitude of the disputants [18,21–25]. For example, in the study conducted by Carnevale et al. (1985) [18], a total of 32 labor mediators were invited to rate 24 sources of dispute and 37 tactics employed in their recently mediated case prior to the study. Correlation analyses were used to identify the linkage between dispute source and tactics. Similar researches were also conducted on divorce [21] and publication union mediations [19]. There is no doubt that, a mediator would use the most appropriate tactic to achieve the desired outcome. However, this task is not that straightforward and requires considerable experience [21]. Mediators tend to rely on their cognitive schemas to map out the interrelationship among the three dimensions of mediation; dispute sources, tactics and outcomes [26]. It is reported that mediators typically adopt a goal-oriented and/or strategic approach to align their tactics with the desired outcomes [27–32]. The schema will be more complex but comprehensive if dispute sources are added to the analyses [19,21,33]. The primary objective of this study therefore is to analyze the interrelationships among dispute sources, mediator tactics and mediation outcomes.

2. The conceptual framework

The overall framework for the study of mediator tactics is given in Fig. 1.

Identification of dispute sources, mediator tactics and mediation outcomes are first completed through a literature review. In view of the relatively large number of item within each of the three dimensions, it is necessary to categorize the items into factor groups described as taxonomies. With the factor group scores, further analyses by moderated regression analysis were employed to examine the contingent use of tactics.

The study can broadly be divided into two parts; Part (I) deals with the development of taxonomies for dispute sources, mediator tactics and outcomes and Part (II) is the study of the contingent use of tactics. In view of the scope of the research, details of the study are reported in two companion papers. These two parts shall be reported in

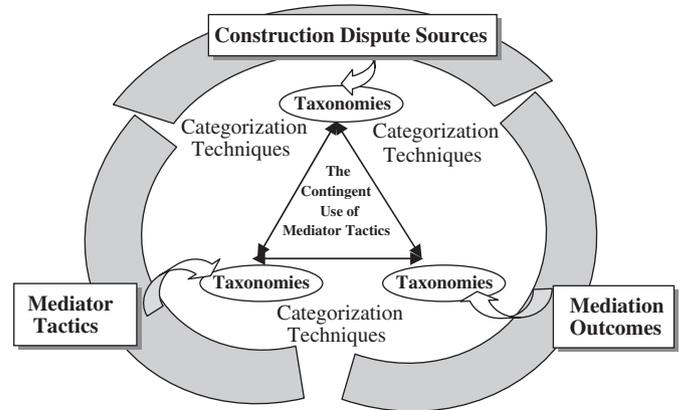


Fig. 1. A conceptual model for the study of mediator tactics.

two companion papers; this paper is the first and describes the development of the taxonomies. The contingent use of tactics is reported in the second paper. In essence this part of the study seeks to answer the following three questions:

- (i) What are the basic dispute sources in the construction industry?
- (ii) What are the generic types of tactics commonly used by construction mediators?
- (iii) What are the typical outcomes of construction mediation?

3. The survey

A questionnaire survey was used to collect data for the completion of the research objectives as stated above. Three mediation dimensions: (1) construction dispute sources; (2) mediator tactics and (3) mediation outcomes were addressed. Literatures were first reviewed to provide descriptive outline answers for the research objectives. It was found that for dispute sources and mediator tactics, subgroups can be identified (refer Fig. 2).

As shown in Fig. 2, dispute source can have a project (construction related) or behavior (human behavior related) origin. Construction-related dispute sources are fairly self-explanatory. The impact of behavior-based disputes should not be overlooked as disputes may manifest solely because of the human factors [34, 35]. Mediator tactics were generically grouped into (1) disputants' perception related; (2) mediation procedure related and (3) settlement related. These groups are similar to the study of Karim and Peggnetter [36] described as an overview of institutional and behavioral studies of mediation. A total of 33 dispute sources were identified and fitted into these two groups. Twenty four of them relate to the subject matter of the dispute whilst the other nine relate to human behavior. Likewise, 32 mediator tactics, among which, eight related to disputant's

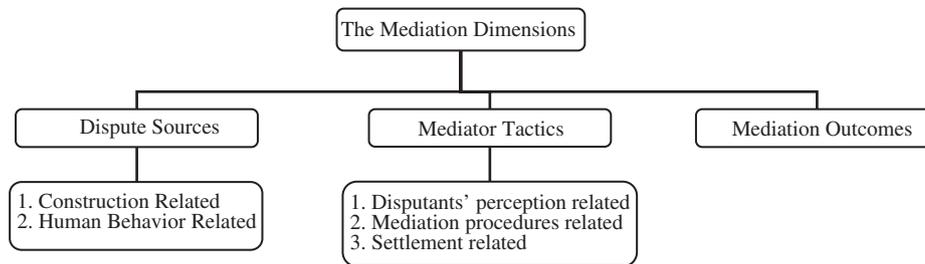


Fig. 2. The mediation dimensions.

perception, 13 related to mediation procedure and 11 related to settlement, were identified. As for the third mediation dimension, a total of 16 mediation outcomes were also identified accordingly. The lists of dispute sources, mediator tactics and mediation outcomes were showed in Tables 1, 2 and 3, respectively.

4. Data collection

The data needs to be case specific, thus respondents were asked to select one of the most recently completed mediation cases as the reference ease for the completion of the questionnaires. The questionnaire has four sections. The first section requires the respondents to provide their background information and the particulars of the mediated cases such as the project nature, contract sum and parties involved. The next three sections were designed to address the three mediation dimensions. The respondents were asked to rate the degree of significance of the dispute source in relation to the mediated case in a Likert scale of 1 (least significant) to 5 (most significant). They were also asked to rate their degree of usefulness against the tactics used on a Likert scale of 1 (least useful) to 5 (most useful). The degree of achievement of mediation outcomes were assessed on a Likert scale of 1 (not achieved) to 5 (highly achieved) by the respondents. The lists of items for the three mediation dimensions included in the questionnaire are shown in Tables 1–3.

Before sending out the data collection questionnaire, a list of prospective respondents was first compiled. The accredited mediators maintained by the Hong Kong International Arbitration Center (HKIAC) were targeted. The HKIAC is the leading organization for the provision of arbitration and mediation services in Hong Kong. Furthermore, to ensure relevancy of the responses, only those mediators with construction background were sent the questionnaire. A total of 85 construction mediators were contacted first to solicit their agreement to participate in the study. A total of 32 construction mediators agreed to participate.

5. Input data

The 32 accredited mediators agreed to participate all returned the questionnaires. The respondents are all

Table 1
List of construction dispute sources

Dispute sources^a

Construction related:

1. Argument on acceleration costs
2. The assessment of liquidated and ascertained damages against main contractor
3. Clients fails to pay for variation claims
4. Late giving of possession from client
5. Client takes over the site and denies assess to main contractor
6. Errors/substantial changes in bills of quantities
7. Argument on the prolongations costs
8. Architect/Engineer dissatisfies the work progress of main contractor
9. Argument on the measurement and valuation of contracted work
10. Late instructions from architect or engineer
11. Main contractor fails to proceed in a competent manner
12. Delay interim payment from client
13. Late release of retention monies to main contractor
14. Argument on the time extension costs claimed by sub-contractor
15. Changes of scope due to extra work
16. Inadequate site and/or soil investigation report
17. Delay works due to utility services organization
18. Non-payment to sub-contractor by main contractor
19. Main contractor ceases work on site
20. Argument on the time extension costs claimed by main contractor
21. Main contractor denies assess of the site for the sub-contractor
22. Sub-contractor works delay due to main contractor
23. Consequences on opening for inspection
24. Sub-contractor ceases work on site

Human behavior related:

1. Negotiators lacked experience
2. Too many issues brought to table
3. Both parties not prepared for negotiations
4. Both parties want to control over proceedings
5. Both parties are not interested to settle
6. Parties have unrealistic expectations
7. No leadership within the project teams
8. No trust between the parties
9. Felt no trust on mediator

^aDispute sources were rated on a scale from (1) least significant to (5) most significant.

holding senior positions, well respected by the industry and having a minimum of 5 years experience in construction mediation. The project nature of the mediated disputes are civil (50%) and building (35%), while the remaining 15% are building services and maintenance.

Table 2
List of mediator tactics

Mediator tactics ^a
<i>Disputants' perception related:</i>
1. Educate the parties about the bargaining or impasse process
2. Encourage the parties themselves to verbalize their willingness to respectfully listen to each other's grievances
3. Encourage the parties to meet each other's needs
4. Help the parties to "save face"
5. Remind the parties that their position was unrealistic
6. Suggest particular settlement for parties to consider
7. Try to change the expectation of parties
8. Encourage the parties to apologize, and regret for harm suffered by another in the past
<i>Mediation procedure related:</i>
1. Use humor to lighten the atmosphere
2. Keep in rapport with the parties
3. Argue one party's case to the other
4. Reduce the feeling of hostility towards each party
5. Focus on the impasses issues during caucuses session
6. Attempt to speak their language
7. Control the bargaining structure and timing
8. Formulate clear goals before or during the process
9. Call for frequent caucuses during mediation
10. Avoid taking sides on important issues in joint sessions
11. Assure each party that the other was being honest
12. Keep the negotiations focused on the issues only
13. Express pleasure or displeasure at negotiation progress
<i>Settlement related:</i>
1. Settle simple issue first
2. Help the parties to devise a framework for negotiations
3. Make compromise suggestions to the parties
4. Suggest the parties to review their needs
5. Mention the costs of disagreement
6. Simplify the agenda by eliminating or combining issues
7. Discuss other settlements in comparable cases
8. Help the parties to establish priorities among the issues
9. Suggest some tradeoffs among issues
10. Press the parties to make concessions
11. Make the parties to aware the destructiveness of the conflict

^aMediator tactics were rated on a scale from (1) least useful to (5) most useful.

6. The taxonomies

Taxonomy is a system by which categories are related to one another by means of class inclusion [37]. Principal Component Factor Analysis (PCFA) explores the structure on inter-relationships of the data to define a set of common underlying constructs, known as factors. Separate dimensions of the structure can firstly be identified. Interpretation of variables can be accomplished by summarizing the data according to the constructs [38]. The data obtained for dispute sources (2 groups), mediator tactics (3 groups) and mediation outcomes (1 group) were each subjected to a PCFA to develop their respective taxonomies. As such, six PCFA were performed.

Before performing a PCFA, the suitability of the data was first evaluated by examining the Kaiser–Meyer–Olkin

Table 3
List of mediation outcomes

Mediation outcomes ^a
1. Agreement perceived to be devised from the parties
2. The parties gained satisfaction on the mediation as a tool of dispute resolution
3. Overall success
4. I felt the parties trust the mediator
5. The underlying core conflict of the dispute was resolved
6. A mutually beneficial settlement was reached
7. The needs and goals of mediator satisfied
8. The number of issues was reduced
9. Nothing ambiguously stated
10. The settlement was reached in reasonable time
11. The inter-party relations improved
12. I acquired a reputation for the effectiveness in setting the dispute
13. Both parties felt no future problems expected
14. Both parties learned to communicate
15. I improved self-esteem after the settlement of the dispute
16. I improved my cultural sensitivity

^aMediation outcomes were rated on a scale from (1) not achieved to (5) highly achieved.

(KMO) measure of sampling adequacy. The KMO values for the six PCFAs fall within the range of 0.577–0.739 and are all above the threshold requirement of 0.5 [14,39,40]. In addition, the low significances of the Bartlett test of sphericity suggest the adequacy of the data set to perform PCFA. To shortlist factors, the commonly used criterion of eigenvalue-greater-than-1 principle was applied. As such, factors having an eigenvalue greater than 1 were considered significant, and those with eigenvalue below 1 were discarded. In order to simplify the factor structures and obtain more meaningful factor solution, rotation of the factor matrices was performed to reduce the ambiguities that often accompany initial unrotated factor solutions. Varimax rotation was employed in the present study. Furthermore, as the rule of thumb suggested by Comrey et al. [41], a factor loading value of 0.71 is considered a good demarcation for variable selection within factors. Accordingly, variables with loading less than 0.71 were discarded. The final factor matrices are given in Tables 4–9.

7. Interpretation of the factors and developing taxonomies

Dispute sources are arranged in two categories; construction related and human behavior related. The factor matrix for construction-related dispute source after Varimax rotation is shown in Table 4.

7.1. Taxonomies of construction related dispute sources

7.1.1. Construction related

Eight factors were extracted for construction-related dispute sources. The three dispute sources extracted for

Table 4
Factor matrix for the dispute sources (construction related) after VARIMAX rotation

Dispute sources (construction related)	Factor						h^2
	1	2	3	4	5	6	
<i>Factor 1: Variation</i>							
Client fails to pay for variation claims	.944	.014	-.009	.027	-.147	.025	.914
Argument on the measurement and valuation of contracted work	.872	.131	.019	-.068	-.062	.114	.799
Errors/substantial changes in bills of quantities	.813	.134	-.228	.140	.072	.147	.776
<i>Factor 2: Incompetence of works</i>							
Changes of scope due to extra work	.173	.838	.130	-.085	.009	.292	.842
Late instructions from architect or engineer	.093	.754	.250	.093	.142	-.027	.670
<i>Factor 3: Cost of delay</i>							
Argument on the time extension costs claimed by main contractor	.133	.270	.861	-.151	-.102	-.026	.865
Argument on prolongations costs	.002	.320	.797	.247	-.194	.066	.841
<i>Factor 4: Sub-contractor related</i>							
Sub-contractor work delay due to main contractor	.123	.010	.094	.873	.143	.178	.839
Argument on the time extension costs claimed by sub-contractor	-.040	.091	.325	.831	-.578	-.092	.819
Non-payment to sub-contractor by main contractor	.238	.299	-.305	.756	.063	.065	.818
<i>Factor 5: Cease of works</i>							
Main contractor ceases work on the site	.029	.134	-.070	.038	.886	-.046	.831
Sub-contractor ceases work on the site	.008	.263	-.049	.015	.836	.245	.813
<i>Factor 6 Site availability</i>							
Late giving of possession from client	.310	.048	.145	.227	.180	.769	.795
% of variance	30.228	16.493	11.082	9.752	5.844	5.438	
Eigenvalue	5.743	3.134	2.106	1.853	1.110	1.033	

Table 5
Factor matrix for the dispute sources (human behavior related) after VARIMAX rotation

Dispute source (human behavior related)	Factor		h^2
	1	2	
<i>Factor 1: Parties internal problems</i>			
Negotiators lacked experience	.825	.156	.704
Both parties not prepared for negotiations	.789	-.177	.654
Felt no trust on mediator	.788	.094	.630
No trust between the parties	.718	.289	.598
No leadership within the project teams	.715	.265	.581
<i>Factor 2: Process overload</i>			
Too many issues brought to table	.161	.793	.655
% of variance	43.265	14.283	
Eigenvalue	3.894	1.285	

Factor 1 are “client fails to pay for variation claims”, “argument on the measurement and valuation of contracted work” and “errors/substantial changes in bills of quantities”. These are the most common sources of dispute and somehow related to variation, hence this factor is described as Variation. Variation claim is administered by the variation clause in the contract; argument arising from variation is common in the industry [42]. From a statistical point of view, this factor explained about 30% of variance,

which is the most significant source of dispute being mediated. Factor 2 consists of the dispute sources: “changes of scope due to extra work” and “late instructions from architect or engineer”. These are collectively described as incompetence of works. It may be the employer changes of mind or omissions of the design team that causes the extra work [43]. Factor 3 includes “argument on the time extension costs claimed by main contractor” and “argument on prolongations costs”. It is apparent that these disputes are related to delay of the project. In fact, the cost of delay is central in most construction disputes [36,42,44,45]. “Sub-contractor work delay due to main contractor”, “argument on the time extension costs claimed by sub-contractor” and “non-payment to sub-contractor by main contractor” are the disputes extracted for Factor 4. Sub-contracting of construction works is a long-established practice in the industry. The multi-layered subcontracting generally increases contractual complexity and thus has become one of the main sources of dispute in the construction industry. Factor 5 consists of the disputes: “main contractor ceases work on site” and “sub-contractor ceases work on site”. Both disputes are related to the cease of contract works during the construction processes. Factor 6 is composed of a single dispute source, “late giving of possession from client”, which obviously addresses the disputes over site availability. In sum, the six factors extracted can be described as follows:

Table 6
Factor matrix for the disputants' perceptions related mediator tactics after VARIMAX rotation

Disputants' perceptions related mediator tactics	Factor		h^2
	1	2	
<i>Factor 1: Encourage for self-improve</i>			
Encourage the parties to meet each other's needs	.860	.040	.742
Encourage the parties to apologize, and regret for harm suffered by another in the past	.760	-.260	.646
Encourage the parties themselves to verbalize their willingness to respectfully listen to each other's grievances	.750	.217	.610
Help the parties to "save face"	.739	.301	.637
Educate the parties about the bargaining or impasse process	.732	.195	.574
<i>Factor 2: Reality test</i>			
Try to change the expectation of parties	-.220	.794	.679
% of variance	41.186	16.690	
Eigenvalue	3.295	1.335	

Table 7
Factor matrix for the mediation procedures related mediator tactics after VARIMAX rotation

Mediation procedures related mediator tactics	Factor				h^2
	1	2	3	4	
<i>Factor 1: Process control</i>					
Control the bargaining structure and timing	.839	.207	-.033	-.047	.750
Express pleasure or displeasure at negotiation progress	.798	-.105	-.336	-.127	.776
Use humor to lighten the atmosphere	.720	-.047	.041	.396	.680
<i>Factor 2: Caucuses</i>					
Call for frequent caucuses during mediation	-.103	.851	.086	.122	.758
<i>Factor 3: Trust building</i>					
Avoid taking sides on important issues in joint sessions	.064	-.016	.926	.051	.865
Keep in rapport with the parties	.028	.249	.840	-.184	.802
<i>Factor 4: Analyzing</i>					
Argue one party's case to the other	.099	.062	-.091	.928	.883
% of variance	35.37	16.21	9.698	8.421	
Eigenvalue	4.599	2.108	12.61	1.095	

Factor 1: Variation

Factor 2: Incompetence of works

Factor 3: Cost of delay

Factor 4: Sub-contractor related

Factor 5: Cease of works

Factor 6: Site availability

7.2. Taxonomies of human behavior related dispute sources

Human behavior is another major contributor of construction dispute. Some behavioral based problems include the role ambiguity of the architect, lack of interpersonal skill of the parties and lack of responsiveness to changes [46]. The result obtained in this factor analysis showed that Factor 1 consists of the dispute sources; "negotiators lacked experience", "both parties not pre-

pared for negotiations", "felt no trust on mediator", "no trust between the parties" and "no leadership within the project teams". These address the inter-group conflicts within the project teams that generally prohibit them to solve problems themselves. Factor 2 consists of "too many issues brought to table" and is described as process overload. In the light of the above, the two factors for human behavior-related dispute sources extracted can be described as follows:

Factor 1: Parties' internal problems

Factor 2: Process overload

The factor matrix after VARIMAX rotation is presented in Table 5.

Table 8
Factor matrix for the settlement related mediator tactics after VARIMAX rotation

Settlement related mediator tactics	Factor			h^2
	1	2	3	
<i>Factor 1: Ice breaking</i>				
Settle simple issue first	.755	-.195	-.110	.62
Help the parties to establish priorities among issues	.748	.250	.091	.63
<i>Factor 2: Seeking progress</i>				
Make compromise suggestions to the parties	-.144	.875	.234	.841
Suggest some tradeoffs among issues	.342	.815	.032	.782
Press the parties to make concessions	-.148	.716	.181	.567
<i>Factor 3: Pressing settlement</i>				
Mention the costs of disagreement	.010	.224	.742	.601
Make the parties to aware the destructiveness of the conflict	.064	.137	.737	.566
% of variance	29.042	19.764	10.563	
Eigenvalue	3.195	2.174	1.162	

Table 9
Factor matrix for the mediation outcomes after VARIMAX rotation

Mediation outcomes	Factor				h^2
	1	2	3	4	
<i>Factor 1: Win-win settlement</i>					
A mutually beneficial settlement was reached	.800	.043	-.018	.488	.880
Agreement perceived to be devised from the parties	.752	.075	.197	.147	.631
The parties felt satisfaction on the mediation as a tool of dispute resolution	.711	.386	.141	.186	.709
<i>Factor 2: Progress</i>					
I felt the parties trust the mediator	.043	.863	.320	.078	.850
The underlying core conflict of the dispute was resolved	.480	.760	.035	.082	.816
The number of issues was reduced	-.037	.737	.093	.285	.634
<i>Factor 3: Improvement</i>					
I improved my cultural sensitivity	.300	.171	.831	.070	.814
Both parties learned to communicate	.197	.063	.806	.302	.784
I improved self-esteem after the settlement of the dispute	-.047	.249	.804	.225	.762
<i>Factor 4: Time advantage</i>					
The settlement was reached in reasonable time	.308	.255	.073	.713	.674
% of variance	43.77	11.775	10.283	6.806	
Eigenvalue	7.003	1.884	1.645	1.089	

7.3. Taxonomies of mediator tactics

The full list of tactics is given in Table 1. Factor analyses were conducted on each of the tactic groups to develop the taxonomies.

7.3.1. Disputants' perceptions-related mediator tactics

The factor matrix after VARIMAX rotation is presented in Table 6. Five tactics are extracted for Factor 1. These are “encourage the parties to meet each other's needs”, “encourage the parties to apologize, and regret for harm suffered by another in the past”, “encourage the parties themselves to verbalize their willingness to respectfully

listen to each other's grievances”, “help the parties to save face”, and “educate the parties about the bargaining or impasse process”. These tactics concern the encouragement of the parties to self-improvement. A single tactic, “try to change the expectation of parties”, is extracted for Factor 2. This tactic is commonly described as reality testing which means helping the disputants to examine whether their expectations are realistic. The two factors extracted can be described as follows:

Factor 1: Encourage for self-improve
Factor 2: Reality test

7.3.2. Mediation procedures related mediator tactics

The factor matrix after VARIMAX rotation is shown in Table 7. Factor 1 consists of three tactics; “control the bargaining structure and timing”, “express pleasure or displeasure at negotiation progress” and “use humor to lighten the atmosphere”. These tactics seek to control the process during mediation and are collectively described as process control. “Call for frequent caucuses during mediation”, is the tactics extracted for Factor 2. Factor 3 is composed of the tactics; “avoid taking sides on important issues in joint sessions” and “keep in rapport with the parties”. These tactics are used by mediators to build trust. The tactic, “argue one party’s case to the other”, is extracted for Factor 4. This tactic is often used by mediators to analyze the dispute for the disputants during the mediation processes. The four factors extracted can therefore be summarized as follows:

- Factor 1: Process control
- Factor 2: Caucuses
- Factor 3: Trust building
- Factor 4: Analyzing

7.3.3. Settlement related mediator tactics

As indicated in Table 8, the two tactics extracted for Factor 1 are “settle simple issue first” and “help the parties to establish priorities among issues”. Both tactics are aimed to assist disputants to break the inertia; hence “ice breaking” is used to describe this taxonomy. Factor 2 consists of three tactics; “make compromise suggestions to the parties”, “suggest some tradeoffs among issues” and “press the parties to make concessions”. These address the ways through which mediators seek progress during the mediation processes. Finally, “mention the costs of disagreement” and “make the parties to aware the

destructiveness of the conflict” are the tactics extracted for Factor 3. Mediators use these tactics to press for a settlement. The four factors extracted are described as follows:

- Factor 1: Ice breaking
- Factor 2: Seeking progress
- Factor 3: Pressing settlement

7.4. Taxonomies of mediation outcomes

As indicated in Table 3, 16 outcomes were used in the data collection process. The factor matrix for these outcomes is presented in Table 9. Factor 1 consists of the outcomes; “a mutually beneficial settlement was reached”, “agreement perceived to be devised from the parties” and “the parties gained satisfaction on the mediation as a tool of dispute resolution”. It can be said that these are win–win settlements. Factor 2 consists of three outcomes; “I felt the parties trust the mediator”, “the underlying core conflict of the dispute was resolved” and “the number of issues was reduced”. These outcomes suggest progress towards settlement has been achieved. “I improved my cultural sensitivity”, “both parties learned to communicate” and “I improved self-esteem after the settlement of the dispute” are the outcomes extracted for Factor 3. These outcomes suggest some form of improvement has been attained through the mediation. Factor 5 consists of the outcome; “the settlement was reached in reasonable time”. It is obvious that this outcome describes the time advantage offered by mediation processes in such a way that mediation outcome can be effectively reached. The four factors extracted can be described as follows; the factor matrix after VARIMAX rotation is presented in Table 9.

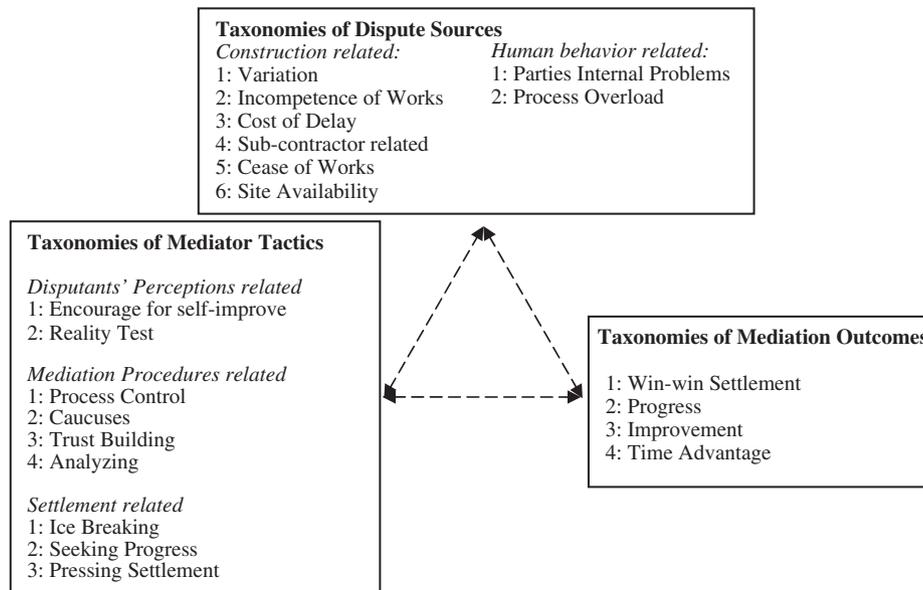


Fig. 3. The overall development of taxonomies.

- Factor 1: Win–win settlement
- Factor 2: Progress
- Factor 3: Improvement
- Factor 4: Time advantage

8. Discussion

The overall development of taxonomies is summarized in Fig. 3. This figure is in fact the enhanced version of the conceptual model for this study (refer Fig. 1). This paper describes the development of taxonomies for construction dispute sources, mediator tactics and mediation outcomes.

The taxonomies developed in this part of the study reduce the number of variables into more manageable numbers for Part (II) of the study: investigating the inter-relationship among these three dimensions (presented as dotted narrows) is to be reported in the second of the companion papers.

9. Conclusion

In construction mediation, the mediator plays a pivotal role in facilitating settlement. Whilst previous researches on construction mediation have focused on process design and critical success factors, a study of tactics used by mediators extends our understanding on how mediation works and therefore is of both academic and practical value. A study of construction mediator tactics was conducted in Hong Kong. The study is broadly divided in two parts described in two companion papers. This part focuses on the development of taxonomies of construction dispute sources, mediator tactics and mediation outcomes. Principal component factor analyses were employed for this purpose. As a result, 8, 9 and 4 taxonomies were identified for dispute sources, mediator tactics and outcomes, respectively. The results obtained facilitated the investigation of the inter-relationship among the three dimensions; dispute sources, mediation tactics and mediation outcomes. That interrelationship is described as contingent use of mediator tactics and is described in the second of the companion papers.

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