

# MEASURING ATTITUDE OF A CONTRACTOR COMPANY

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## Abstract

Attitude is very difficult to be measured directly; therefore it must be inferred from assumed relationship with observable indicators. In some aspects, behavior represents the attitude of a person about a thing, person or issue. In this paper a tool has been devised to measure the attitude of contractor in ongoing project. However, the tool has been tested in a completed technical school construction project in Nepal. The results show that the tool can reasonably measure the attitude of the contractors and can be helpful for the owners to control the projects.

**Key words: Contractor, Attitude, Construction project, Control**

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## 1. Introduction

Construction is becoming increasingly complex. Ever-growing demands from clients, competition, and regulatory agencies create added burdens that must be managed in a cost-effective manner (Prichard, 2000). In any construction project, three groups of participants: the client, the designer and the contractor are brought together for a temporary period during which they are expected to cooperate and work towards a mutual goal.

Contractors are now facing immense competition in construction industry, profits have been modest or even least (Levy, 3<sup>rd</sup> edition). Thus, for a contractor to be successful-a critical element for success on any construction project-the contractor must be able to properly manage its business as a business (Prichard, 2000). Though the clients invest money on the project, but after having legal contract with the contractor, now the major

responsibility to finish the work goes to the contractor. Now, performance of work will be dependent on will, manner and attitude of the contractor.

Attitude is an abstract thing and it is difficult to measure. So, we have assumed that the attitude of the contractors is the behavior demonstrated towards the completion of the assigned project to them. In this paper, we have tried to discuss about how the attitude of a contractor affect the progress in a construction project by applying 11 factors to measure the behavioral responses (attitude) of the contractors for a case study project implemented in Nepal during 1989~1997. The factors identified in this case study could be useful for new clients, who wants to control and monitor their construction projects effectively.

## 2. Factors Responsible for Change of Attitude of Contractors

According to Petty (cited in [www.soc.surrey.ac.uk](http://www.soc.surrey.ac.uk)) "Attitude is a general, enduring positive or negative feeling about some person, object or issue."

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Therefore, usually but not always assumed to influence and guide behavior. Attitude is very difficult to be measured directly; therefore it must be inferred from assumed relationship with observable indicators. In some aspects, behavior represents the attitude of a person about a thing, person or issue, however; long-standing controversy concerning the relationship between these is still existed ([www.soc.surrey.ac.uk](http://www.soc.surrey.ac.uk)).

In the construction field, a contractor's worst fear is the owner who changes his/her mind, because each change in plans has a ripple effect that can throw off the entire project ([www.light-house-design.com](http://www.light-house-design.com)). The better a contractor is, the more s/he plans ahead. Anything in the construction process that does not contribute to this goal and duty is a potential obstacle and adds unnecessary risk to the project (Prichard, 2000).

### 2.1. Factors Affecting Attitude (worries) of Contractor in an Ongoing Project

The contractor gets the information about the site from the tender documents. So, in the beginning due to the minimum information, the contractors could have worries about the following factors (Table 1):

**Table 1.** Worries of Contractor in Ongoing Projects

|   |  |
|---|--|
| 1. none payment and late payment              | 2. frequent interruption                       |
| 3. frequent design or scope change            | 4. negligence and late decision                |
| 5. excess quantities and extra works          | 6. new type of works                           |
| 7. shortage of materials and price hike       | 8. unavailability of specified materials       |
| 9. late handover of site                      | 10. construction material storage problem      |
| 11. ambiguities in drawings and specification | 12. changed site condition                     |
| 13. labor strikes/protests                    | 14. subcontractor inefficiency and passiveness |

Therefore, if above stated factors did not match with the intention of the contractor, his/her attitude

could be largely changed. In the broad sense, the contractors are businessperson; hence they have come to work for profit not for social works. If they see any hindrances in profit making, they may tend to show negative attitude resulting in claims and counterclaims through which a conflict could be injected in the project afterwards.

### 2.2 Factors Affecting Attitude of Contractor for Forthcoming Project

From the study of contractors' characters in different projects, following factors presented in Table 2 (also can be used to measure strength and weakness of contractors in other way, but this is the source of attitude changing) could be regarded as the sources for an owner to perceive the attitude or behavioral change of the contractor in forth coming projects and evaluate the progress of work.

### 2.3. Measuring Attitude of Contractor for Ongoing Projects

Attitude of the contractor in an ongoing project can be measured through the following factors (Table 3):

Before construction starts, the attitude of the contractor company could be analyzed from the factors given in Table 2. However, it is also necessary to evaluate the tendency of the contractor in an ongoing project in certain time intervals. The attitude can be measured after when one third construction time is finished.

**Table 2.** Change in Attitude Factors for Forthcoming Projects

|   |   |
|---|---|
| 1. tender rate                          | 2. relation with other project participants       |
| 3. works at hand                        | 4. types of work (ordinary or high technological) |
| 5. location of company's head office    | 6. working experience (years, specialization etc) |
| 7. size of the company or overhead cost |   |

**Table 3. Change in Attitude Factors for Ongoing Projects**

|  |   |
|--|---|
| 1.tendency towards quality of work (Quality)         | 2.tendency towards timely completion (Time) |
| 3. investment in the project (Invnt)                 | 4. site office management (SO)              |
| 5. hiring of technical personnel (Staff)             | 6. dealing with the owner (Owner)           |
| 7. dealing with A/E consultant (A/E)                 | 8. health and safety measures taken (H/S)   |
| 9. timely payment to Subcontractors /Suppliers (S/S) |   |
| 10. timely payment to workers (Pay)                  | 11.dealing with Workers' Union (Union)      |

### 3. Case Study: Technical School Project

#### 3.1 Project Background

Table 4 shows project information of 14 different construction packages executed for Technical Education and Vocational Training (TEVT) improvement Project in Nepal during 1989-1997. A major component of the project was to construct and establish 5 new technical schools (TS) viz. Seti (STS), Bheri (BTS), Dhaulagiri (DTS), Rapti (RTS), Pokhara (PTTC) and the Head Quarter (HQ) of the implementing organization; and substantial renovation and additional workshops for one school at Lahan (LTS).

**Table 4. TEVT Project Information**

| S.N. | Name of Project | Project cost (\$ M) |      | Completion time/delayed (Months) | Contractor status | Accessibility of construction site | Selection procedure | Tendered rate |
|------|-----------------|---------------------|------|----------------------------------|-------------------|------------------------------------|---------------------|---------------|
|      |                 | O                   | R    |                                  |                   |                                    |                     |               |
| 1    | HQ-I            | 0.57                | 0.56 | 30 /15                           | Local             | Easy access                        | Prequalify          | 10% high      |
| 2    | HQ-II           | 0.33                | 0.48 | 33 /18                           | Outsider          |                                    | Open                | 21% below     |
| 3    | RTS-I           | 1.11                | 1.17 | 27 /9                            | Outsider          | Accessible rural area              | Prequalify          | 8% high       |
| 4    | RTS-II          | 0.05                | 0.05 | 9 /0                             | Outsider          |                                    | Open                | 16% below     |
| 5    | LTS-I           | 0.24                | 0.24 | 18 /6                            | Outsider          | Easy access                        | Open                | 4% high       |
| 6    | LTS-II          | 0.16                | 0.15 | 12 /3                            | Local             |                                    | Open                | 18% below     |
| 7    | DTS             | 0.40                | 0.58 | 30 /12                           | Partly Local      | Remote mountain                    | Open                | 29.99% below  |
| 8    | PTTC            | 0.34                | 0.41 | 17 /5                            | Local             | Easy access                        | Open                | 14% below     |
| 9    | BTS-I           | 1.01                | 1.27 | 32 /14                           | Outsider          |                                    | Open                | 22% below     |
| 10   | BTS-II          | 0.19                | 0.21 | 12 /3                            | Outsider          |                                    | Open                | 12% below     |
| 11   | STS-Z1          | 0.36                | 0.43 | 24 /6                            | Outsider          | Accessible remote mountain area    | Prequalify          | 10% high      |
| 12   | STS-Z2          | 0.38                | 0.44 | 28 /14                           | Outsider          |                                    | Prequalify          | 9% high       |
| 13   | STS-Z3          | 0.22                | 0.25 | 28 /14                           | Outsider          |                                    | Prequalify          | 5% below      |
| 14   | STS-II          | 0.33                | 0.40 | 17 /5                            | Outsider          |                                    | Open                | 29% below     |

Notation: O = Original, R = Revised

### 3.2 Assumption

This survey was carried out after completion of the project to test the attitude of contractors in their concerned project. So, this result reflects about whether the contractors had possessed positive or negative attitude during working in that particular project. In this study, we have assumed that 11 different attitude affecting factors as presented in Table 3 are dependent on the factors given in Table 1 and Table 2. The result of survey has been analyzed through the subjective judgment of the authors.

### 3.3 Field Survey

A questionnaire contained of eleven different attitude factors given in Table 3 was developed to test the attitude shown by the contractor towards the successful completion of the construction work (Technical school project). The questionnaire contained the statements of attitude with the rating scale: Yes, Moderate, and No. The respondents were the technical staff worked on behalf of owner and A/E consultant in the concerned projects and the end users (school administrator and staff). 15 numbers of respondents participated in the survey

in each project. They were asked to rate the factors assigned to measure the contractor's attitude as per their experience while working with them and/or observed them.

### 3.4 Analysis and Discussion

Table 5 shows the averaged count of perceived attitude factors. The score of perceived attitude having total average count of yes (√) more than 5 has been considered as the contractor having positive attitude to complete the work as per client's satisfaction, total count of no (x) more than 5 is been considered as the contractor having negative attitude, and contractors having score between these counts have been considered as moderate (.) attitude.

From Table 5, we can see that 6 contractors worked in RTS-I and RTS-II, DTS, BTS-I, STS-Z1 and STS-II fall under the high attitude shown categories, 3 contractors worked in HQ-I, LTS-I and STS-Z3 fall under low attitude shown categories and 5 contractors HQ-II, LTS-II, PTTC, BTS-II and STS-Z2 fall under moderate attitude categories.

This project was suffered since the conception

phase due to the instability of political system in Nepal in 1990 (Acharya et al, 2003). Due to this, the project was revised keeping completion date as set previously. Revision of project time had created squeezing of time period for each technical school construction time period resulting in as an ambitious project.

The A/E consultant were give less time to study the construction site, hence frequent design change, excess quantities and extra works were commonly encountered in each site. Even though the contractors suffered from frequent design changes and had to do extra and excess work beyond the bill of quantities and also contract sum increases substantially than the original (see Table 4).

We assumed that the locational factors (accessibility and contractors' head office), contract award method, bidding rate, frequent change in design, extra and excess of work factors change the attitude of the contractors; however, this survey result does not support any of these notions. The contractors worked in difficult situation have performed the work successfully than the contractors worked in facilities available sites. As

**Table 5.** Average Count of Perceived Attitude Factors

| S.N. | Contractor worked At | Perceived attitude factors (Notation as per Table 3) |      |      |    |       |       |     |     |         |     |       | Total count |   |   |
|------|----------------------|--|------|------|----|-------|-------|-----|-----|---------|-----|-------|-------------|---|---|
|      |                      | Quality  | Time | Invt | SO | Staff | Owner | A/E | H/S | Payment | S/S | Union | Y           | M | N |
| 1    | HQ I                 | √  | X    | .    | X  | X     | X     | X   | X   | .       | .   | .     | 1           | 3 | 7 |
| 2    | HQ II                | .  | X    | X    | .  | .     | √     | √   | X   | .       | .   | .     | 2           | 6 | 3 |
| 3    | RTS I                | √  | √    | .    | √  | √     | √     | .   | .   | √       | √   | √     | 8           | 3 | 0 |
| 4    | RTS II               | √  | √    | X    | X  | X     | √     | √   | X   | √       | √   | √     | 7           | 0 | 4 |
| 5    | LTS I                | .  | X    | X    | X  | X     | .     | X   | X   | .       | .   | .     | 0           | 5 | 6 |
| 6    | LTS II               | .  | .    | X    | X  | X     | √     | √   | X   | √       | √   | .     | 4           | 3 | 4 |
| 7    | DTS                  | √  | √    | X    | √  | √     | √     | √   | √   | √       | √   | √     | 10          | 0 | 1 |
| 8    | PTTC                 | √  | X    | X    | .  | X     | √     | X   | .   | √       | √   | .     | 4           | 3 | 4 |
| 9    | BTS I                | .  | .    | .    | √  | √     | √     | √   | .   | √       | √   | .     | 6           | 5 | 0 |
| 10   | BTS II               | .  | .    | X    | X  | X     | √     | √   | X   | √       | √   | .     | 4           | 3 | 4 |
| 11   | STS-Z1               | √  | √    | .    | √  | √     | √     | √   | .   | √       | √   | √     | 9           | 2 | 0 |
| 12   | STS-Z2               | X  | X    | X    | .  | .     | Y     | Y   | .   | √       | √   | .     | 4           | 4 | 3 |
| 13   | STS-Z3               | X  | X    | X    | X  | X     | .     | .   | X   | .       | .   | X     | 0           | 4 | 7 |
| 14   | STS-II               | √  | √    | .    | √  | √     | √     | √   | X   | √       | √   | √     | 9           | 1 | 1 |

Response Notation: Yes= √, No = X; Moderate = .

the project (Project Document...1997) had duly paid the effort of contractor to do the extra work due to change in design and extra work as per prevailing market rate and also extended the working time accordingly, the highly attitude shown contractors utilized maximum these relaxed move of the project, whereas the low attitude showing contractors also entertained the facilities but could not materialize the move effectively. Therefore, there were no any rooms to complain by other contractors and no any reasons about changing of their attitudes.

Table A in Appendix shows that HQ-I and STS-Z3 contractors were appointed through prequalification bidding process, however, their working style was not like standard contractor. Though HQ-I project existed in capital city, where all resources and facilities were available even then, the contractor took enough time to complete the project. The project office extended the construction time for 3 times and also charged liquidity damages for 6 months in this project (Project Document...1997).

STS-Z3 contractor also embarrassed the owner and took considerable time to finish the work than STS-Zone1 contractor in the same situation. The contractor had adopted the 'stop and go' approach to complete the project. These activities show that the prequalification system of bidding does not guarantee the success of project. If a contractor plans and manage the construction work properly, he/she can finish the work successfully as shown by the DTS contractor. DTS contractor having 29.99% rate below than the estimate and working in difficult Himalaya mountain area, had successfully completed the work to the satisfaction of the client.

If a project encountered with a negative attitude contractor, then the project executors have to deal carefully with them. Termination of the contract

could not be the solution with these types of contractors. As we know that many legal hassles have to be faced during termination and also we have to hire a new contractor, which may also take some time to understand the works. Frequent meetings, maximum flexibility through understanding the desires of the contractor are only solution to mitigate the problems caused by negative contractors.

If we compare the survey results and the status of the contractors in the project, the factors devised to measure attitude seems reasonably represents the realism. This attitude measuring tools can be used to any construction site to check the contractors' way of doing work and if necessary we can guide them in desired way if found showing their move in other direction.

## 5. Conclusion

Attitude is an abstract thing, so cannot be measured easily. All these are dependent on the subjective judgment of the evaluator. In competitive business, attitude is everything. A positive attitude ensures a positive future. The goal of construction and duty of a contractor is to deliver a completed project that serves the intended function. The attitude (behavior shown) of the contractor very much affect the successful completion of the project.

Even the owners are safeguarded with various contract clauses; they did not get desired result unless the contractor did not focus himself in the project. The paper has discussed about the various factors which can affect the change of attitude of the contractor. If the owners could realize those factors before and during the construction works, then ill effects due to the change of attitudes of contractors could be eliminated in advance.

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