

DETERMINING THE SIGNIFICANCE OF SAFETY AND COMPLIANCE FOR
THE TIMELY COMPLETION OF CONSTRUCTION PROJECTS IN
PAKISTAN

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Title

“Determining the significance of Safety and compliance for the timely completion of Construction Projects in Pakistan.”

ABSTRACT

Over the years many accidents have plagued the construction industry proving it to be one of the most hazardous natures of job. Due to accidents, delay is caused which in turn causes the project schedule to increase manifolds. Thus, the need for a new insight on safety and compliance arose to deal with timely completion of construction projects. This research was carried out in order to find out the delays caused to task completion due to non-compliance of safety rules and usage of safety equipment, its lack of awareness and accidents and how much it affects the project schedule.

For current research, A mixed method was used for the quantitative data collection and 200 E Questionnaires of stratified random sample were floated amongst five registered construction companies currently involved in projects all over Pakistan. For the qualitative data analysis face to face interviews were conducted with stratified random sample of 10 individuals. The Independent variable (safety and compliance) and its dimensions (accidents and awareness) were proved to have a positive effect on the dependent variable (timely completion of tasks) and were highly significant.

Research objectives

The objectives of this research are as following

- * To determine the significance of safety and compliance for the timely completion of construction projects
- * To identify the relationship between the significance of safety and compliance and timely completion of construction projects in Islamabad and Rawalpindi.
- * To identify the delays caused by site accidents and its impact on timely completion of tasks in construction projects in Islamabad and Rawalpindi.
- * To identify how awareness of safety and compliance can have an effect on timely completion of tasks.

Research Questions

The research questions of this study are as follows:

- * What is the relationship between safety and compliance and timely completion of tasks in construction companies of the Islamabad and Rawalpindi?
- * How can timely completion of tasks be effected by the site accidents in construction projects of Islamabad and Rawalpindi?
- * How can awareness of safety and compliance enhance the timely completion of tasks in the construction projects of Islamabad and Rawalpindi.

Significance of the study

- * This research is important because in project management theories project schedule is one of the most vital aspect for the successful completion of a construction project as there are many factors related to it. A lot of research has been conducted on safety and compliance at construction projects but no research is done solely to identify the importance of safety and compliance and its significance on timely completion of tasks which would help the construction company to follow its project schedule without delays therefore this research will highlight the safety and compliance and its dimensions (accidents and awareness) and see their effect on timely completion of tasks in construction projects in Pakistan, this research would help the organizations to identify this critical aspect and would benefit both the organization and its workers and would play a significant role on the project success and would have a positive social impact as

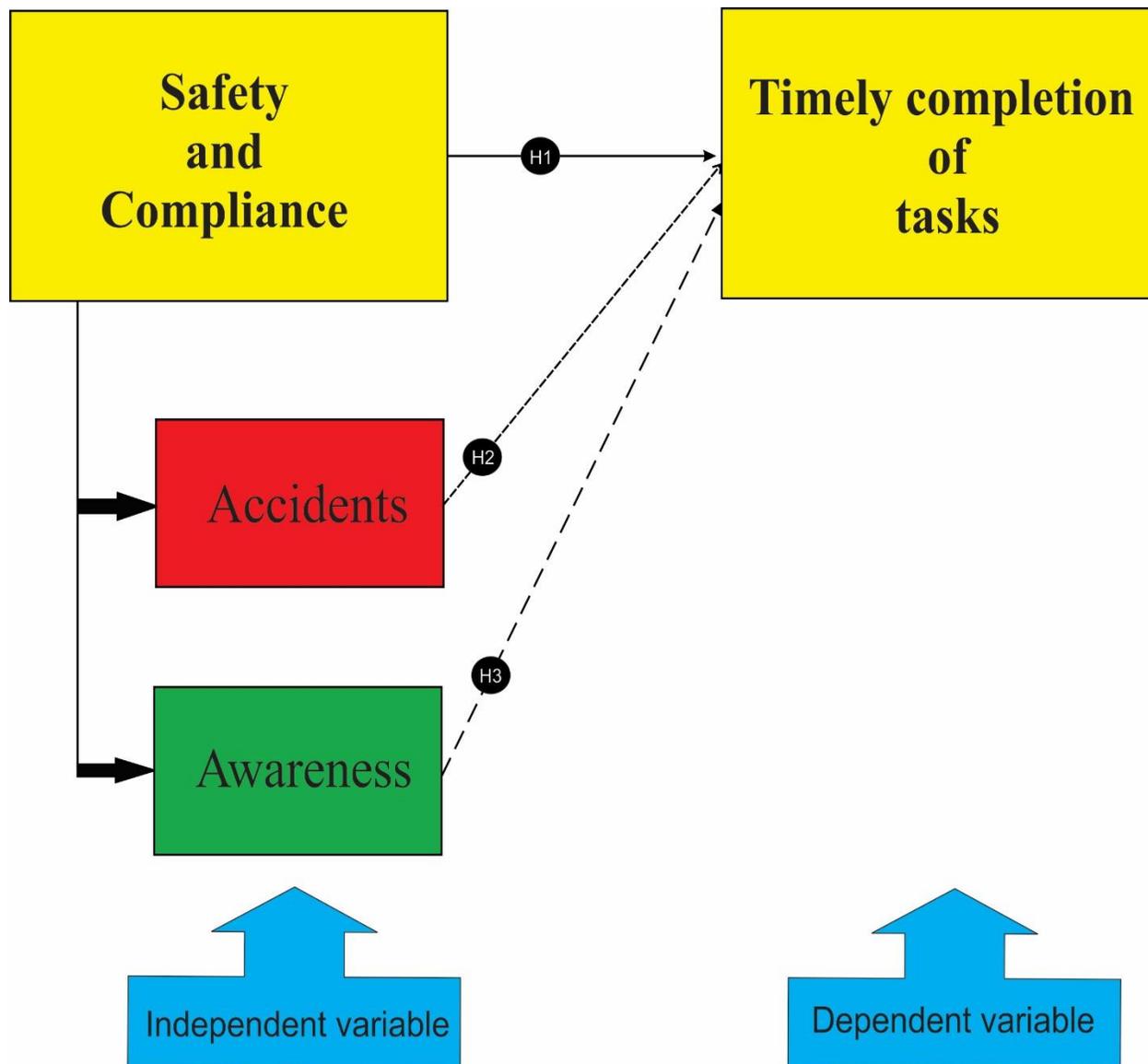
the construction organizations would care for their workers through safety and compliance.

* **Limitations**

- * There were quite a few problems faced during the initial stage of the study. Higher level management would not give their organization's reputation by accepting their lack of interest in safety and compliance as their tasks would be completed by one way or the other. Project management guidelines are not followed by most of the organizations hence they would not care much for accidents at construction sites as they perceive it just as an accident, their lack of social responsibility. Data collected from our sources could have a biased attitude and some might not take it serious so being time bound is a hindrance.

* **Research Hypothesis**

- * Following are the proposed hypothesis of the study:
- * **H1:** Safety and compliance has a positive effect on the timely completion of tasks in construction projects.
- * **H2:** Accidents (during construction) has an effect on the timely completion of tasks
- * **H3:** Awareness has a positive effect on timely completion of tasks.



Research Purpose

A research study is to develop either explanatory, exploratory or a descriptive natured document, as all the above mentioned categories cannot be applied in a single research therefore this research study is explanatory in nature as it explains the relationship between the dependent and independent variable along with its dimensions moreover, hypothesis testing would also depict the influence of all the variables under study.

Research strategy

Semi structured Interviews for qualitative data collection and survey for quantitative data collection is considered most suited for this research study as these are considered as the most reliable to be able to acquire accurate and precise responses from the respondents by using questionnaires for surveys and semi structured interviews. Quantitative data analysis allows the researchers to pull out the required interpretations and the kind of relationship between the independent variable and the dependent variable as well as the relationship of the dimensions of the independent variable with the dependent variable whereas the qualitative data analysis would interpret the data collected through interviews and a trend analysis could be derived between the independent variable and dependent variable as well as the dimensions of the independent variable with the dependent variable.

8 Sample and Sampling techniques

The units of analysis for this research study are project managers, supervisors, foreman and labor of five C2 and above ranked construction companies such as Xplor enterprise, ZKB, SMC, BNP and Descon all these are located in Islamabad and Rawalpindi, as their head offices are located here and their main projects are under progress in Islamabad and Rawalpindi hence these companies are selected due to the availability of their senior staff and on site labor, as construction industry is growing fast at the time being. Data collection was done from nearly 200 respondents through self-administrated questionnaires and online forms. Whereas the self-administrated questions were used for the interviews as part of the qualitative data analysis were taken from project managers and foreman on site, two from each company which sums up to 10 interviews in total.

Results

Correlations

		SAFETYC
SAFETYC	Pearson Correlation	
ACCIDENTS	Pearson Correlation	.617**
AWARENESS	Pearson Correlation	.478**
TIMELYC	Pearson Correlation	.608**

****.** Correlation is significant at the 0.01 level (2-tailed).

Sig. (2-tailed) =.000

N=200

Regression statistics coefficient

Model	Unstandardized Coefficients		Standardized Coefficients
	B	Standard Error	Beta
SC- TC	.679	.063	.0608
AC-TC	.725	.063	.631
AW-TC	.286	.072	.271

Anova

Model	Sum of Squares	Df	Mean Square
SC-TC	22.536	1	22.536
AC-TC	24.299	1	24.299
AW-TC	4.473	1	4.473

Word Frequency

Word	Total
Safety And Compliance	93

(timely completion of tasks) according to this theoretical framework this research study developed its hypothesis;

H1: safety and compliance has a positive effect on the timely completion of tasks in construction projects.

H2: Accidents (during construction) has an effect on the timely completion of tasks.

H3: Awareness has a positive effect on timely completion of tasks.

Through these three hypothesis this research study aimed to prove the significance of safety and compliance for the timely completion of tasks according to these variables and data collection and analysis was conducted by using a mixed method of research using quantitative research was conducted using semi structured E-questionnaires for a stratified random sample of 200 from a five C2 and above ranked construction companies registered in Pakistan engineering council (Xplor enterprise, ZKB, SMC, BNP and DESCON) and later assessed through SPSS-21 to find out the correlation and regression of the variables and qualitative research was conducted through semi structured interviews from a stratified random sample of 10 people from the five C2 ranked and above construction companies mentioned above. The interview data was analyzed through Nvivo10 in order to derive a trend analysis from the interview data; in the form of word frequency and text search query with these showing a pattern of the words frequently used by the interviewees making a pattern for analysis and signifying the importance and determining the significance of this research's variables. The mixed method was used to get a deeper understanding of the research study and data was collected from both qualitative and quantitative research methods to determine the results of the study.

According to the results of this research study using a mixed method of research methodology, the research has been able to derive the conclusion from the results of both quantitative and qualitative data which proves all the three hypothesis of this research study which are:

H1: safety and compliance has a positive effect on the timely completion of tasks in construction projects. According to the results of both quantitative and qualitative data results the independent variable (safety and compliance) has a positive effect and it is highly significant on the dependent variable (timely completion of task).

H2: Accidents (during construction) has an effect on the timely completion of tasks. According to the results of both quantitative and qualitative data results the dimension of the independent variable (accidents) has a positive effect and it is highly significant on the dependent variable (timely completion of task).

H3: Awareness has a positive effect on timely completion of tasks. According to the results of both quantitative and qualitative data results the dimension of the independent variable (awareness) has a positive effect and it is highly significant on the dependent variable (timely completion of task).

Hence this research study was able to determine the significance of safety and compliance for the timely completion of tasks in the construction companies of Pakistan by proving the hypothesis positive and significant and this research study was able to achieved what it aimed for with a deeper insight with the help of a mixed method research style and the researcher was able to accomplish his motive of proving that safety and compliance can be seen from a different perspective.

6.4 Practical implications

This research study aims to prove that safety and compliance can be looked at from a different perspective and increase the level of importance that is given to it currently which does not include the point that safety and compliance can help assist construction companies of Pakistan to successfully complete their projects on time ignoring all other influential factors other than onsite safety and compliance issues. The practical implications of this study are that the construction companies are provided with a new insight against safety and compliance hence they can imply this new insight to their construction processes in order to reap the best results out of this research study and help them achieve their goals on time which would help the graph of the company rise and can have a good record of construction processes, on sight safety and can renowned throughout the globe for their safety and compliance practices and others can also learn from these companies which would help set up a new trend and a new breakthrough in the construction industry.

6.5 Academic implications:

As a new perspective of Safety and compliance which helps the construction companies in their timely completion of tasks which helps them in on time completion of their projects and proper follow up of their project schedule as planned. Hence this should new insight should be taught as a new addition to project management theories. It would help spread awareness from a basic level which in future can be applied by all the students and it would help them understand the importance of safety and compliance and its effect on the timely completion of tasks and it would open up the gateway to new research and new implications of this concept by each in their own field of expertise leading towards positive utilization of this research study.

6.6 Limitations

This research study faced some limitations; the qualitative analysis suffered from the software used for its data analysis as Nvivo10 is a MAC based software and can be utilized to the fullest in a MAC whereas Nvivo10 is not much windows friendly and cannot be utilized to the fullest in a Windows operating system. The qualitative data was effected by the busy unavailability, their lack of interest and their busy schedule hence their responses had to be interpreted by the researcher according to research study's requirement. The data collected from the sample size could be influenced by a personnel bias because the respondents might have felt their jobs could be in danger or it might hurt the image of their organization.

During the phase of data collection there were quite a few hindrances. One of them was the difficulty in getting appointments from the company executives for data collection. Conducting interviews was a tedious task and managers were not easily opening up. Interviews were also conducted from the foremen that involved irrelevant conversation thus taking up more time.

The purpose of the study was not to give one time recommendations that would not be looked upon in the future. This is an iterative study that has to be worked upon again at regular interval at each stage of the construction process.

There is a need to be proactive in the approach rather than waiting for a catastrophe to occur and then acting upon it. Better safe than sorry is what rightly fits the condition.