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Structural Equation Modelling of Climate Safety and Personal Competency against the Safe Behaviour and its Implications on the Performance of Construction Projects

Tiar Sugianto Irawadi

Student of Post Graduate of Civil Engineering Science Doctor Program of Tarumanagara University in INDONESIA

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ABSTRACT

Climate safety, personal competence and safety behaviour play an important role in improving the performance of the construction project. But research on safety climate and personal competency against the behaviour of secure and its implication against the performance of construction projects in high-rise buildings have not been much researched. This research was conducted on high-rise buildings by taking a representative sample of 297 population of 520 respondents conducted on 26 both private construction companies, State Owned Enterprises *(Badan Usaha Milik Negara),* foreign or joint venture in Indonesia. Methods used to analyse the data using SPSS Statistical Descriptive 20 while the model equations in analysis using Structural Equation Models (SEM) with AMOS 18 obtained equations: Sub-Structural Equation: Safety Behaviour = 0.183 Safety Climate + 0.268 Personal Competence + 0,864. Structural Equation: Project Performance = 0.172 Safety Climate + 0.142 Personal Competence + 0.496 Behavioural + 0.597Hypothesis research shows that: 1. The Safety Climate in partial effect directly against the Safety Behaviour. 2. Personal Competence in partial effect directly against the Safety Behaviour. 3. The Safety Climate and Personal Competence together to Safety Behaviour. 4. Safety Climate in partial effect directly against Performance of the project. 5. Personal Competence in partial effect directly against Performance of the project, 6. Safety Behaviour effect directly against the Performance of the project. 7. The Safety Climate, Personal Competence and Safety Behaviour together the positive effect against Performance of the project. To enhance performance of the project optimally, project management is the first Safety Behaviour increases as it has the most dominant effect or high (49.6%), second improving Personal Competencies (26.8%).

KEYWORDS: Safety Climate, Personal Competence, Safety Behavior, Project Performance

INTRODUCTION

In construction project management, the performance of a project beside must meet the above criteria should also meet the criteria can give satisfaction to the parties involved or stakeholders (employers, planners, Implementers, Project users). [1]. The characteristics of these characteristics-among other things working conditions dangerous and prone to fatal accidents compared to other industries. Indonesia ranks the highest meaning of the first accident, followed Philippines, Thailand, Malaysia and Singapore is the best, [2]. During this time provided the national contractor, the cost of safety only 1-2 of the value of the contract, [3]. Instead, in the cost of accident and injures to the construction industry (2012), the total cost of the safety of that ideal is 5-7% of the cost of the contract. [4]. A Number of 53% of the 4.5 million workers in the construction sector Indonesia only elementary school / junior even 1.5% of the workforce has no experience or knowledge in project constriction, the status of farmers, daily workers off, power employment contract that does not have a formal education. [5]. Quoted from the record results of research [6] conducted by the Institute [3]. The performance of Indonesian construction services industry compared to the construction industry of ASEAN countries are still weak. Moreover, in order to face the free market of the ASEAN economic community which will come into force in December 2015, the actors working in the field of construction of Indonesia should be upgraded or equivalent expertise, if not serving construction business taken by rivals from ASEAN countries.

Research on climate-related safety performance, efficiency and productivity of the products already started in many manufacturing industries or mass orders [7], but it is still very rare in the service industry construction or job order to determine the effect of climate on the behavior of labor safety in construction projects. However, these studies are limited to the direct influence of climate on the behavior of workers' safety and climatic influences not involve personal safety and competence of the behavior of workers and their implications for project performance. [8]. Moving on from the existing shortcomings in previous research. The study aims to create a structural equation model of climatic influences safety and personal competence to safe behavior and the implications for project performance construction high-rise buildings in Indonesia.

***Corresponding Author:** Tiar Sugianto Irawadi, Student of Postgraduate of Civil Engineering Science Doctor Program of Tarumanegara University in INDONESIA. Email: dipa_eng@yahoo.co.id

MATERIALS AND METHODS

Safety Climate

Safety climate as an overview of the situation or climate worker safety is an indicator of safety culture on a group or organization. Defines safety climate is the perception of policies, procedures, and practices related to the rules to direct the workers on proper behavior and changing the behavior of workers on duty. Definition of some figures above gives the sense that in outline safety climate is the perception or employee views on the climate or the state of safety in the company.

In a broader level, describe the safety climate perceptions of the value of the safety of workers in an organization. Climate salvation enabling a company's competitive advantage [9], because it has a positive impact on safety, help workers avoid the danger of accidents, saving considerable cost for the company, indicating to the workers that the company is very concerned about safety employment, further, enabling complete the work on time and building a strong company reputation.

Furthermore, factors of safety climate is a factor that can cause an error condition that can lead to increased active indirectly failure due to climatic factors work safety is a factor that indirectly affect the occurrence of accidents. [10].

Dimensions of Safety Climate

a. Top Commitment Management.

Commitment top management may include attention to the safety of workers, acts against the dangers that threaten the safety, proactive measures which are prevention or anticipation of danger as equip workers with protective equipment safety, provision of safety training, supervision of the safety of workers and action proactive done in case of work accidents, such as providing medicines, and drove to the hospital, [11][12][13][14].

b. Safety Regulations and Procedures.

Regulations and safety procedures is one factor that can minimize accidents caused by the actions and conditions and unsafe due to regulations and safety procedures, [14].

c. Training and Safety Program Costs

i. Training and safety costs is a very important aspect in the personnel system and possibly a method often used to guarantee an adequate level of safety in construction projects.

ii. Training is a major component in any safety program. The training is intended to improve the understanding of workers against hazards and risks. [15].

iii. Safety Cost Program)

- Prevention Cost, which consists of the costs of security equipment, signs, safety nets, health facilities and other costs associated with efforts to prevent the possibility of accidents.
- Inspection Cost, is the cost of inspectors, the costs associated with surveillance efforts such as cost control unsafe acts and unsafe conditions.
- Accident Cost, which relates to direct costs such as hospital costs of victims of accidents, the cost of the property damaged by injuries and other expenses –cost

d. Work Environment.

Comfortable Working Environment should make workers feel safe and not feel awkward in doing his job. suggested the construction project as far as possible to set up a conducive working environment.

d. Monitoring, Implementation of Sanctions and Awards.

Supervision as determiner of what has been implemented, that evaluate the performance and, if necessary, apply corrective measures so that the work in accordance with a predetermined plan, [16].

i. Sanctions (Punishment): Sanctions imposed on workers who violate safety rules and procedures, [17]. With the sanctions are expected to be more law-abiding workers who have been assigned. Sanctions are penalties imposed by the government to the contractor or subcontractor for violating the rules that have been specified in the law or violate the procedures that have been agreed, [18][19].

ii. Awards (Reward): Award at the construction project is something that is given to companies or individuals for having a safe working behavior resulting in a Zero Accident in the construction period. Or bonus award is usually given in the form of promotion, praise, recognition in public, medals, certificates, degrees, certificates, prizes in the form of money. In the USA has started giving awards Construction Industry Safety Excellent (CISE) Award.

Personal Competence

a Competence

Ability is one very important factor for a person in every task, job, or any activity, because without the ability although it can be solved results would not be better if done by a personal or individual who has the ability. [20].

b. Dimensions of Personal Competence.

Some research and theory of behavioral change some of the factors that could affect the competence of employees to behave safely are dimensions as follows [21]: (1). Attitude. Attitude is a reaction or response is still closed from a person to a stimulus or object. Manifestation of an attitude that can not be seen directly, but can only be interpreted in advance of behaviors covered. (2). The knowledge and capabilities. Education and knowledge are the result of the idea, occurred after the person doing the sensing of the object observed, [22]. The knowledge is the provision of evidence by a person through the process of recall or information and ideas that have been obtained previously, [23][24]. 3. Motivation. Safety Motivation, consisting of a willingness to avoid any potential source of danger (hazard danger) in the work process. That the knowledge and motivation to become a moderator of the relationship between climate K3L to K3L behavior, [21]. 4. Experience Worker. The experience of the workers can prevent workers from an accident at a potential hazard. This experience begins from the emergence of perceptions of occupational risks, knowledge of a hazard or danger in the workplace.

Safety Behavior

a. Definition of Behavior.

Behavior is an activity or activities of organisms (living things) are concerned. Therefore, from a biological standpoint all living things began to plants, animals to humans behave, because they have each activity, [22].

b . Dimensions Safe Behavior.

Safe Behavior workers who are often the dominant factor that characterizes the behavior of a person are the internal and external factors which consist of: [24]

i. predisposing factors (factors driving or originator).

Factors of yourself or internal factors i.e factors such as human error or negligence which is divided into three levels:

a. Skill-based error, error associated with skills and habits of workers,

b. Rule -based error, error in meeting the standards and procedures,

c. Knowledge-based errors, errors in decision making due to lack of knowledge.

A violation or offense as one of the common mistakes made by workers. [11].

ii. Enabling factors (contributing factors),

Is the ability of the resources are treated to shape behavior. Supporting factors are external factors consist of supporting facilities, regulation and resource capabilities.

iii. Reinforcing factors (factors amplifier)

Are external factors that determine whether safety measures gain support. Support to the work safety education programs, the support by coworkers, supervisors, managers, give reward and punishment [24].

iv. Involvement Worker.

In his research found that the involvement of workers in the safety program is very important as a form of workers' awareness of the safety program, [7].

Performance

a. Project Performance.

Which measures the performance of the project in addition to the cost, quality, time is also a factor does not damage the environment both during the project is implemented and after completed and to give satisfaction to the stakeholders involved (contractors, developers, users project), [1]

b. Dimension of Project Performance.

Of the several theories mentioned above, states that the size of the performance of the project are as follows:

1. Costs are the costs that are used to produce products or services in accordance with the prescribed budget.
2. The quality, the products or services produced meets the quality standards that have been determined and the quantity, namely the company's ability to produce goods and services within the stipulated time
3. Time used to produce the quantity and quality. The work shows the implementation of the performance.
4. Maintain Health and Mitigate work accident, do not damage the environment or ecosystems both during project implementation and after project completion.
5. Satisfaction is a function of the differences that exist between the results allowed the desired expectations, if the results of the work under the hope that someone will not be satisfied, but if the result is above expectations it will create a sense of satisfaction that have an impact on the sustainable process.. [1]

Framework thinking and hypothesis

a. Framework for Thinking.

This study is limited to the assessment of the time phase of the project which is managing the project management which includes factors Safety Climate, as external factors, Personal Competence as internal factors in Safety Behavior, and its implications on the Performance of the project, due to Safety behavior, the

number of accidents that occur can be mitigated and the increasing Personal Competence expected project has the height performance, so that the project can be completed on time, quality, and cost effective, and no negative effect on the environment, give satisfaction to the parties involved. (owner, planning consultant, contractor, and the users of the project's work).

b. Research Hypothesis

The hypothesis of this research as an answer of problem identification so based on theory and framework of thought above hypothesis.

7. Research Methods

a. Research methods are used.

Respondents are requested to provide the level of approval at the early stage with the circumstances of each statement on a project they work using a LIKERT scale of 1 (strongly disagree) to 5 (strongly agree).

The questionnaire was distributed to the stakeholders of the 26 Contracting companies high rise buildings in Indonesia covering the respondent's contractors, planners, construction management, developers, surveyor, quantity and the foreman. The description is Table 1 Descriptions as follows

Table 1 Descriptions

Variables	Variables
a. Safety Climate (X 1): X 1.1: The Commitment of Top Management. X 1.2: Work Safety Rules and Procedures. X 1.3: Training Programs and The Cost of Safety. X 1.4: Working Environment. X 1.5: Supervision, Sanctions and Rewards .	b. Personal Competencies (X 2): X 2.1: Attitude. X 2.2: Knowledge and Ability. X 2.3: Motivation X 2.4 : Experience.
c. Secure Behaviour (Y1): Y 1.1: The Originator. Y 1.2: Supporters. Y 1.3: Amplifier. Y 1.4: Engagement Work.	d. Project Performance (Y2): Y 2.1: The Cost of the Work. Y 2.2: Time Implementation Y 2.3: The Quality of the Work. Y 2.4: The HSE and the Environment. Y 2.5: Satisfaction.

b. Methods of analysis.

Methods of analysis used structural equation model, which consists of several stages of analysis, namely data validity test, a test of the hypothesis model, improvements to the model, reliability model test and analysis of direct and indirect influence. Analysis was performed with the help of software AMOS 18.

c. The Results of the analysis.

As the sample size guidelines for testing the influence of climate safety and personal competencies on safe behaviour and its implications on the performance of the project that is 5-10 times the number of indicators [25]. In this study there are 60 indicators and indicators that are not valid in the drop or issued, total valid indicators amounted to 57 the number of indicators and indicator and 297 samples.

d. Testing Hypothesis

Testing of the entire proposed hypothesis in this study was done by analysing the value of CR and P values of the results obtained for the processing of data are then compared with the statistical limitations, namely hinted above 1.96 to CR and values under 0.05 for the value P.

e. Estimation Model.

The estimation is done through two stages, namely the estimated measurement model and the structural equation model, the second estimation can be explained as follows:

General SEM analysis in this study had two phase so second order which analyzes of the measurement model) and analysis of the structural measurement. To test the unit-dimensional constructs of exogenous and endogenous used technique-confirmatory factor analysis (CFA).

RESULTS AND DISCUSSION

Measurement of Full Structural Equation Modeling

Once the model is analyzed through Analysis Confirmatory Factor, then each indicator in the model that is fit can be used to define latent constructs, so the full-SEM models can be analyzed. Full results of the processing of SEM have two stages or iterations. The initial measurement of structural equation models is formed from a combination of exogenous and endogenous models combined have fit. Full test results measurement Model Fit Structural Equation summarized in Table 2 Results of Testing the Full Fit Model

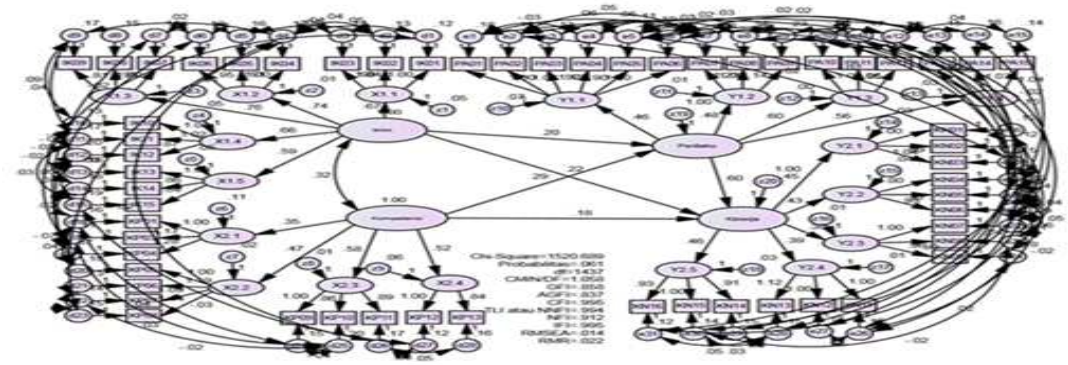

Figure 1 Full Fit Models

Table 2 Results of Testing the Full Fit Model
(The combined Model fit the measurement of Endogenous and Exogenous Variables)

Goodness of fit Index	Cut off Value	Result	Conclusion
X^2 Chi Square (df = 1437, p = 0.05	< 1526.302	1520.689	Fit
Significant Probability	≥ 0.05	0.061	Fit
df	> 0	1437	Fit
CMN/DF	≤ 2.00	1.058	Fit
GFI	≥ 0.90	0.858	Marginal Fit
AGFI	≥ 0.95	0.837	Marginal Fit
CFI	≥ 0.95	0.995	Fit
TLI NNFI	≥ 0.95	0.994	Fit
NFI	≥ 0.90	0.912	Fit
IFI	≥ 0.90	0.995	Fit
RMSEA	≤ 0.08	0.014	Fit
RMR	≤ 0.05	0.022	Fit

Source: AMOS 18

From the test results it can be concluded that the Full Fit Structural Equation Model has a fit model. Thus the model can be accepted as an analytical tool in this study and the structural equation model can be used to explain the effect or the relationship between the latent variables and dimensions and indicators constituent. To form two equations (sub-structural and structural), or regression coefficient values can be referenced from table 3 (Standardized Regression Weights: Group number 1 - Default model). While the residual value or coefficient (error of estimates) can be referenced from Table 7 Squared Multiple Correlations.

Table 3 Standard Regression Weight (Group Number 1 – Default Model).

	Estimate
Behavior - ← Climate	0.183
Behavior - ← Competence	0.268
Performance ← Behavior	0.496
Performance ← Climate	0.172
Performance ← Competence	0.142

Source: AMOS 18

Table 4 Standard Regression Weight (Group Number 1 – Default Model)

	Estimate
Behavior - ← Climate	0.183
Behavior - ← Competence	0.268
Performance ← Behavior	0.496
Performance ← Climate	0.172
Performance ← Competence	0.142

Source: AMOS 18

Table 5 Standard Regression Weight (Group Number1 1 – Default Model)

	Estimate	SE	CR	P	Label
Behavior - ← Climate	0.197	0.066	2.965	0.003	Par-127
Behavior - ← Competence	0.288	0.069	4.164	***	Par-128
Performance ← Behavior	0.597	0.074	0.8017	***	Par-129
Performance ← Climate	0.222	0.069	3.207	0.001	Par-130
Performance ← Competence	0.184	0.072	2.551	0.011	Par-131

Source: AMOS 18

Table 6 Correlations (Group Number1 – Default Model)

	Estimate
Climate - ↔ Competence	0.315

Source: AMOS 18

Table 7 Squared Multiple Correlations (Group Number 1 – Default Model)

	Estimate
Behavior	0.136
Performance	0.403

Source: AMOS 18

Structural and Sub structural equation

Sub-Structural equation: Safety Behavior = 0.183 Safety Climate + 0.268 Personal Competence + 0.864 Structural equation: Project Performance = 0.172 Safety Climate + 0.142 Personal Competencies + 0.496 Safety Behavioral + 0,597.

Meaning: Safety Behaviour will increase or decrease strongly influenced by ability or competence of the workers (0.268) Further by increasing the Personal Competencies (0.268) and Safety Climate (0.183) together will form a Safety Behaviour (0.496) and Safety Behaviour will significantly improve the performance of the project.

Evaluation of structural model aims to find out the magnitude of the percentage variance of endogenous variables in each model is explained by exogenous variables by looking at R^2. [26] The recommended value for R^2 is 0.25 (structural model of strong), 0.45 (moderate structural model) and 0.65 (structural model is low). The value of R^2 0.85 indicates that there is multi co-linearity problem (the existence of a correlation variable or variables exogenous free) regression models that should not happen good correlation among variables exogenous. Therefore the R^2 in the structural model have rated R^2 it's under 0.65 constitute a structural equation model that is strong.

Testing the hypothesis

Tests conducted on two hypotheses simultaneously and 5 partial hypotheses. Simultaneous testing is done using criteria Goodness of Fit Index of Model fit Full test results as listed in Table 5 Partial test using the value Critical Ratio (CR) of 1.96 with a significance level of 0.05 on Regression Weights: (Group number 1 - Default model) from the processing by AMOS 18 as contained in the following table: Criteria testing H0 is rejected if the value of CR ≥ 1.96 or P ≤ 0.05.

Hypothesis 1-7

1. H1: There is a positive and significant effect on the Safety Climate of Safety Behavior in high-rise building construction projects in Indonesia. Conclusions: Because the value of CR. by 2.965 > 1.96 or P value of 0.003 < 0.05 (Figure 3) then Ho is rejected, and accept H1, means there is a positive and significant impact on the Safety Climate of Safety Behavior in high-rise building construction projects in Indonesia.
2. H1: There is a positive and significant effect on Personal Competence of Safety Behavior in high-rise building construction projects in Indonesia. Conclusions: Because the value of CR. by 4164 > 1.96 or P are marked *** (Figure 3) then Ho is rejected, and accept H1, means there is a positive and significant effect on the Personal Competence of Safety Behavior in high-rise building construction projects in Indonesia.
3. H1: There is a positive and significant effect on Safety Climate and Personal Competence together towards Safety Behavior in high-rise building construction projects in Indonesia. Conclusions: Because the test results against Full Fit Model 5 (Figure 3) meets the criteria for a cut of value or limit value (Table 5) then Ho is rejected, and accept H1, means there is a positive and significant effect of Safety Climate and Personal Competence together towards Safety Behavior in high-rise building construction projects in Indonesia.
4. H1: There is a positive and significant effect on the Performance of Safety Climate projects in high-rise building construction projects in Indonesia Conclusions: Because the value of CR. amounted to 3.207 > 1.96 or P value of 0.001 < 0.05 (Figure 3), then Ho is rejected, and accept H1, which means there is positive and

significant Safety Climate on the Performance of the project on construction of high-rise building project in Indonesia.

5. H1: There is a positive and significant effect on the Performance of Personal Competence projects in high-rise building project in Indonesia. Conclusions: Because the value of CR. amounted to 2.551 > 1.96 or P value of 0.011 < 0.05 (Table 3), then Ho is rejected, and accept H1, meaning there is positive and significant Personal Competence to the Performance of the project on construction of high-rise building project in Indonesia.
6. H1: There is a positive and significant effect on the performance of the project safe behavior in high-rise building construction projects in Indonesia. Conclusions: Because the value of CR. by 8.017 > 1.96 or P values are marked *** (Table 3), then Ho is rejected, and accept H1, means there is a positive and significant effect on the Performance of the project Safety Behavior in high-rise building construction projects in Indonesia.
7. H0: There is a positive and significant effect of Safety Climate, Personal Competence and Safety Behavior together against the Performance of the project at a high-rise building project in Indonesia.
   H1: There is a significant positive effect and Safety Climate, Personal Competence and Safety Behavior together affect the Performance of the project at a high-rise building project in Indonesia. Conclusions: Because the test results against Full Fit Model 5 (Figure 5) meets the criteria for a cut of value or limit value (Figure 4) then H0 is rejected, and accept H1, means there is a positive and significant effect on Safety Climate, Personal Competence and Safety Behavior together the Performance of the project at a high-rise building construction projects in Indonesia.

Effect of Direct, Indirect and Total

a. Effect of Direct and Indirect

Analysis of direct influence aimed to see how strong the effect of a variable with other variables either directly, or indirectly. Interpretation of these results will have an important meaning to get a clear election strategy. The indirect effect of these variables is to first pass through safe behavior, which in turn effect the performance of the project. Analysis by Structural Equation Modeling allows researchers to analyze the influence of direct, indirect effect and also influences the total is the sum of direct and indirect influence. There are two indirect effect in this study, which is the indirect effect of Climate Safety for Project Performance via Safety Behavior Safe and the second is the indirect effect Personal Competence to the Project Performance through Safety Behavior. To see how powerful the influence of a variable with other variables either directly, or indirectly is usable analysis of the effect, by looking at the output of *Standardized Direct Effects, Standardized Indirect Effects and Standardized Total Effect*. Results of calculation influence direct, indirect and total influence by AMOS 18 is as follows

Table 8 *Standardized Direct Effects.*

	Competence	Climate	Behaviour	Performance
Behaviour	0.268	0.183	0.000	0.000
Performance	0.142	0.091	0.496	0.000

Source: AMOS 18.

Table 9 *Standardized Indirect Effects*

	Competence	Climate	Behaviour	Performance
Behaviour	0.000	0.000	0.000	0.000
Performance	0.133	0.091	0.000	0.000

Source: AMOS 18.

Based on the calculation results in Table 4 and Figure 5 a direct influence on Safety Climate (0.172) is greater than the indirect effect of Safety Climate (0091) on the Performance of the project (0.172 > 0.091) as well as the direct influence of Personal Competence (0.142) is greater than the indirect effect of Personal Competence (0.133) on the Performance of the project.

Due to the direct influence of Safety Climate on the Performance of the project (0.172) is greater than the indirect effect of Safety Climate (0.091) on the Performance of the project through Safety Behavior and the direct influence of Personal Competence to the Performance of the project (0.142) is also greater than the indirect effect of Personal Competence the Performance of the project (0.133).

b. Effect of Total. The net effect is the influence of the various relationships that is the sum of the effects of direct and indirect influence. The net effect in this study is shown in Table 10. Effect of Total (Standardized Total Effects is below.

Table 10 Effect of Total (Standardized Total Effects)

	Competence	Climate	Behaviour	Performance
Behaviour	0.268	0.183	0.000	0.000
Performance	.0.275	.0.263	0.496	0.000

Source : AMOS 18.

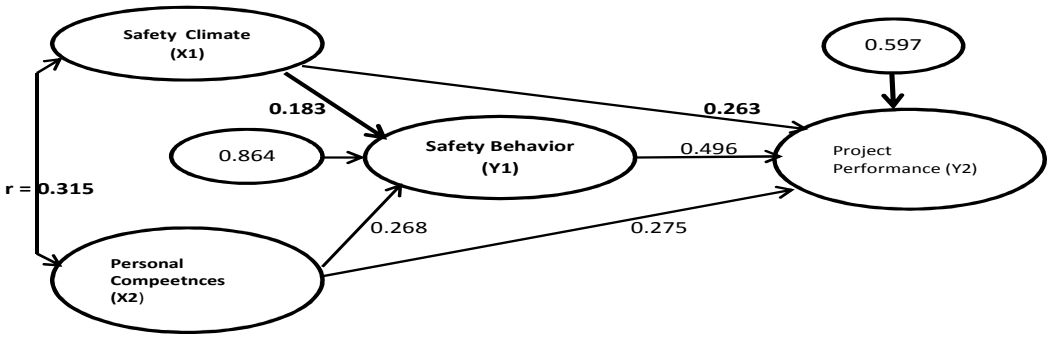

Figure 2.InfluenceCoefficientsTotal

According to the Table 10 and Figure 2 above the total effect on the sub-structural equation is the influence of Safety Climate and Personal Competence on the Performance of the project can be seen that the Personal Competence has the largest total effect on the Safety Behavior than the total effect of Safety Climate for Safety Behavior. Effect of total Personal Competence of the Safety Behavior of 0.268 while the Safety Climate has an influence on the Safety Behavior is of a total of 0.183.

While the results of the calculation of the total effect on the structural similarities that influence Safety Climate (0.263), Personal Competence (0.275) and Safety Behaviors (0.496) on the Performance of the project can be seen that Safety Behavior (0.496) has the largest total effect on the Performance of the project compared to the total effect of Safety Climate (0263) and Personal Competence (0.275) on the Performance of the project.

It means that the performance of a project will be increased if the project has workers who behave safely at work, have workers with high competence and work on Safety Climate conditions is conduce safety.

Research Findings

From the analysis of the calculation of the effect of direct, indirect and total effects of the exogenous variables on endogenous variables in this study can be summarized as follows:

a. To improve project performance is optimal should be done by an organization is the first increase Safety Behavior for Safety Behavior has a total effect that most large or dominant (0.496) on the Performance of the project, the increase of Personal Competence (0.275) and further improve workplace Safety Climate (0.268).
b. By employing workers with qualified competence high safety and creating a comfortable climate, then the second, the variables can be directly formed behaves workers safe ultimately Safety Behavior variable is very dominant role for improve project performance.

Performance is the result of work that can be achieved by any individual, group or organization, in accordance with the authority and responsibilities of each in order to achieve the goals of the organization in question legally, do not break the law and in accordance with moral and ethical or in accordance with the criteria of project performance, namely a project is said to have good performance if the project after a team audit meet the criteria of appropriate cost, right quality, timely, environmentally friendly and give satisfaction to the stakeholders who bound , as well as improve the image and reputation of the company.

The influence variables of Safety Climate, Personal Competence and Safe Behavior together to variable project performance is 40.3%, while the remaining 59.7% is influenced by other factors, see Figure 2.

Thus the project's performance positively and significantly influenced by the Safety Climate, Personal Competence and Safety Behavior, it can be seen from the results of testing of the Full Fit GOF Model 5 meet the criteria (Table 5), then H0 is rejected, so the H1 accepted means higher Safety Climate and Personal Competence and Safety Behavior, the higher the level of performance of the project.

CONCLUSION

Managerial Policy Implications.

Based on the model of theoretical research that is proposed in this study and have been tested for compliance model (Fit Model) by means of SEM analysis so as to reinforce the theoretical concepts and provide

empirical support in several important things that the results of this study can be used as a reference in providing recommendations policy implementation managerial, particularly in order to improve safe behavior and performance of the project on construction of high-rise building project in Indonesia. Recommendations of policy implications that can be done on the performance of the project at a high-rise building construction projects in Indonesia are as follows:

a. Climate Safety.

The estimated coefficients of Safety Climate that most dominant are Safety Regulations and Procedures, estimate of 0.991 and Training and Safety estimate of 0.990. Of the findings that can be applied to maximize the performance of the project through the Climate Safety is to improve the rules and procedures followed by increasing training programs and the cost of safety so that then the policy implications that can researcher inputs to improve the performance of construction projects in high-rise buildings are implementing regulations and consistently working procedures and improve training scheduled as well as increase the cost of safety in order to create a comfortable working environment

b. Competence personal

The estimated coefficients of Personal Competence that is the most dominant are Motivation estimate of 0.985, then knowledge estimate of 0.954. From the findings that can be applied to maximize the performance of the project through Personal Competence is to increase the motivation of workers continued to increase the knowledge of the workers so that then the policy implications that can be input researchers to improve project performance construction on high-rise buildings is increasing motivation through clear goals, a sense of responsibility, career advancement etc. and increasing knowledge workers continuously by improving education and skills.

c. Safety Behavior

The estimated coefficient Safety Behavior that is the most dominant are Amplifier estimate of 0.996, then Support estimate of 0.981. From these findings that can be applied to maximize project performance through Safety Behavior is increasing the reinforcing factors continued to improve the supporting factors that then the policy implications that can be input researchers to improve the performance of construction projects in high-rise buildings is improving factor of the amplifier or reduce the multiplying factor negligence with personal protective equipment and safety signs are clearly visible.

d. Project Performance

The estimated coefficients of Project Performance that is the most dominant are Quality of Work estimate of 0.980 and Environmental Impact Assessment, estimate of 0.981. From these findings that can be applied to maximize the performance of the project on building high-rise building project is to improve the quality factor and factor environmental impacts both during construction or once the project is completed by applying the ISO 9000 quality standard and ISO 14000 the maintenance of the environment consistently.

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