

A Pilot Study on Eligibility of the Regulatory Safety Management System

6.1 Introduction to the Stage One Data Analysis

Stage one of this study is a pilot study that looks at the relationship between regulatory safety management system and key factors to company safety performance. All together, there are four safety practitioners of Hong Kong were interviewed. An interview protocol (Appendix B) was formulated to guide the pilot interviews. Both dichotomous and open ended questions are asked to resolve around three main themes:

- To identify which elements within those 14 are considered as critical by the interviewees. If the interviewees think the perusal element is critical (Yes), there is no need to explain why its necessities. Since, this means the interviewee's opinion is with the government view. If not, interviewees have to explain why they have seen another way. This is the way to tentatively differentiate how many elements our safety professional percept as importance. Are they having the same opinion with the government? If not, why?
- What level the regulatory system can assess to the company of all nature in Hong Kong. The question asked openly is focused on taking the information on the contract sum and business nature of the company. The questioning about the quality of 14 elements system that can level all companies' safety in Hong Kong. What kinds of performance indicator are keys to direct revelation company safety performance? The open questions are also focus on discovering the potential problems undermined that may obscure the actual performance.
- Measuring about the importance and possibility that there have safety cultural factor within safety management system.

In summary, the samples in the stage one of tentative study exhibit the safety practitioners of variety contextual demographics, covering local and international company, large and small. The accounts of each interviewed safety personnel are described below.

Safety Officer A:

He is a safety officer employed by the university. The projects nature is mainly estate management (maintenance). However, the project sums are unknown. Most of his handling projects are supposed to be under 100 millions. His department does not employ any direct workers for projects. His department would invite outside construction firms to undergo maintenance projects. His department is only act as a consultant function that making sure the employed contractors are fulfilling the university rules and safety requirement. His opinion is a solid safety management system (SMS) needs 14 elements or maybe more, but he doubt if the SMS could enhance any safety performance of the companies. In our actual audit, the safety audit system cannot improve our safety performance because Hong Kong companies adopt the regulatory safety management system is just for complying the law. There is not doing any good to safety performance. On the other hand, there are many kinds of auditing system in the market, such as OHSAS18001, ISAS and etc. They have their own contents and different assessing aspects.

The Regulatory SMS is just can only enforce the construction and logistic natured company to formulate a more comprehensive system but not companies of other nature. He further said the most crucial elements of SMS are Safety Organization Committee and Job Hazard Evaluation. There is no need to include the cultural element into the SMS.

Safety Officer B:

She is the safety officer responsible for a HD Housing Maintenance Project of 18 millions. The workforce is under 20 workers per day. There is 4 supervisory staff in this project. She thinks that there is no need to have so much of elements for small project as follows:

Elements of Not-necessities

1. Safety Policy
2. Safety Organization
3. Emergency Preparedness
4. Evaluation, Selection and Control of Subcontractors
5. Safety Committees
6. Safety Promotion
7. Health Programme

Elements of Necessities

1. Safety Training
2. In-House Safety Rules
3. Inspection Programme
4. Hazard Identification Programme
5. Accident or Incident Investigation
6. Job Hazards Evaluation
7. Process Control Programme

A company of such simple as just four supervisory staff needs no safety policy. All they need is close supervision and frequent inspections. With such simple organization, the senior management can instantly make decision and supervise their staff in case of emergency. There is only one subcontractor responsible for the project; it is believed to be too small to formulate a safety committee, especially two workers are employed on site each day right now. Beyond that the Health programme is not ready for the society to have such mechanism, for the employees to have such benefits. Her other opinions are the regulatory audit cannot reflect the actual safety performance. There is low commitment from the contractors to improve safety standard. Accident rate cannot be evaluated as crucial safety performance indicator just one factor only. She is suspecting if there is any relationship between regulatory SMS and safety performance. And, SMS 14 elements cannot suit all kind of job nature and company size. She is questioning why we use 14 elements SMS but not others? Her thinking of the utmost crucial elements is Hazard Identification Programme, Safety Training and In-house Safety Rules. Furthermore, there should be an individual audit for safety culture.

Safety Manager C:

He is both the safety manager and auditor responsible for handling several over 100 millions projects. 14 elements SMS is needed but he do not think the audit score can represent the actual safety performance. On the other hand, the SMS cannot assess whether organizational safety strategy is on the right trend or not. There is no tool within SMS to assess the co-coordinating function of the organization. There is no element to check the safety factors at design stage. People conducting SMS is just for fulfilling the regulation nothing more. He further has questioned about the necessities of missing cultural and leadership factors of not including into the SMS. The SMS cannot fully cover the assessing the system of such giant company as CLP. He further said that the most crucial element is Job Hazard Evaluation (element 11). The whole

SMS nature is a kind of reactive auditing system. It can only check the hardware of the company. It cannot evaluate the ability of the organization on safety issue. The safety cultural factor must be adopted into the SMS.

Safety Officer D:

He is the safety officer responsible for fire service and water pump engineering (maintenance) project. Project sum is over 100 millions. Routine audits will be conducted twice each year. The SMS itself can exclude as follows:

1. Evaluation, Selection and Control of Sub-contractors
2. Safety Promotion
3. Process Control Programme
4. Health Programme

There is no need to evaluate the performance of the subcontractor because this is based on how much the resource the main contractor put into the safety system to control the subcontractors' safety performance. Safety promotion is not a major element that governed the performance. The project nature is simple that there is no need differentiate into each smaller process, need not develop separate safe working procedure. Health programme has no direct relationship with safety. He also has the same opinion the SMS cannot reflect the actual performance just remains in document level. Overall, most of the organizations do not have enough resource to support an integrity safety system. The senior intention is just fulfilling the regulation nothing more. Controversy to others, he argues that there lies strong relationship of performance and SMS. He also think that there needs to have Job Hazard Analysis (element 11) no matter what size of the project itself. Another two elements that crucial are Safety Policy and Safety Organization. Finally, he has viewed the regulation has provided more job opportunities (auditor) for safety personnel in the market. Companies are just fulfilling the regulation and conducting routine audits nothing more. Safety culture should be deemed as additional element in the SMS.

The Problems and Finding through Initial Discussion with Safety Practitioners (Table B):

There is common viewpoint that the Safety Management Regulation cannot help the organizations to improve their safety performance. In fact, the regulatory safety audit itself cannot truly exhibit the effectiveness of the organizations' safety system. The accepted reason by most the interviewees are the organizations conducted just for fulfilling government requirement. Interviewees also generally admit the importance of organizational safety culture, excluded in the SMS regulation, governed a company safety standard. There is also majority acceptance that the Job Hazard Evaluation (element 11) is the most critical SMS element. However, this element is not a compulsory to go through during the routine safety audits.

There is no trace of what project size, with which amount manpower, should go through audit of how many elements. There is also a wide variety of how many basic elements that need in SMS for all organizations.

Summed up the pilot interviews, the findings can be consolidated as follows:

1. Regulatory safety audit cannot truly assess the organizations safety performance.
2. Controvsal to government viewpoint, the pilot interview exhibit the practitioners generally admit the importance of element 11, Job Hazard Evaluation.
3. Safety Culture should be crucial element in SMS.
4. Wide variety on how many elements of SMS is the basic requirement.

With those captioned findings and problems above, the propositions to be further studied in stage two.

The Table B of Integrated Information of Interviewees:

Interviewees	Project Sum	Workforce	Job Nature	Elements Tentative	Critical Elements	Reflect Actual Performance	Remarks
Safety Officer A	<100 mil	Not specify	Consultant	More than 14 elements	Job Hazard Analysis	No	1. Interviewees not an auditor. 2. Conduct audit only for regulatory requirement.
Safety Officer B	>100mil	20 workers per day	Direct supervision	7 elements	1. Job Hazard Evaluation 2. Training 3. In-house Rules	No	1. Low commitment of contractors. 2. Accident rate cannot deem as performance indicator. 3. 14 elements cannot suit all job nature. 4. Safety culture should be an element.
Safety Manager C	>100mil	100 workers for altogether	Direct Control and Supervision	14 elements	Job Hazard Evaluation	No	1. Cannot assess the suitability of safety strategy. 2. Cannot assess co-coordinating function within the organization. 3. Conduct audit only for regulatory requirement. 4. Safety culture should be an element.

									5. SMS is the reactive auditing system. 6. Can only check hardware of the company.
Safety Officer D	>100mil	Not specify	Direct Control and Supervision	10 elements	1. Safety Policy 2. Safety Organization 3. Job Hazard Evaluation	No	1. Health programme has no relationship with safety. 2. Organizations insufficiency resource on safety. 3. Conduct audit only for regulatory requirement. 4. Safety Culture should be an additional element.		

Remarks of Study

This pilot study examines the safety relative to the elements; break down from the countries' legislative system. Therefore, this study has only differentiated the basic common safety elements a general company need, under normal working environment, satisfying the law. The results may not eligible for companies of performing special activities, such as nuclear power plant. Certain segments of the study have adopted secondary data, extracted from governmental agencies. The research conduct to safety professional mainly works for the construction field. Therefore, the research is relying on the accuracy of their information and reporting. However, it is unavoidable as limiting time and cost to be considered as practicable.

Safety Management announcement of 10: www.legislation.gov.hk/eng/home.htm

Appendix 2-Bibliography

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Appendix 3

Data Controlling Log-
Variables Merging for Insight and Reference

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SORT CASES BY Group1.
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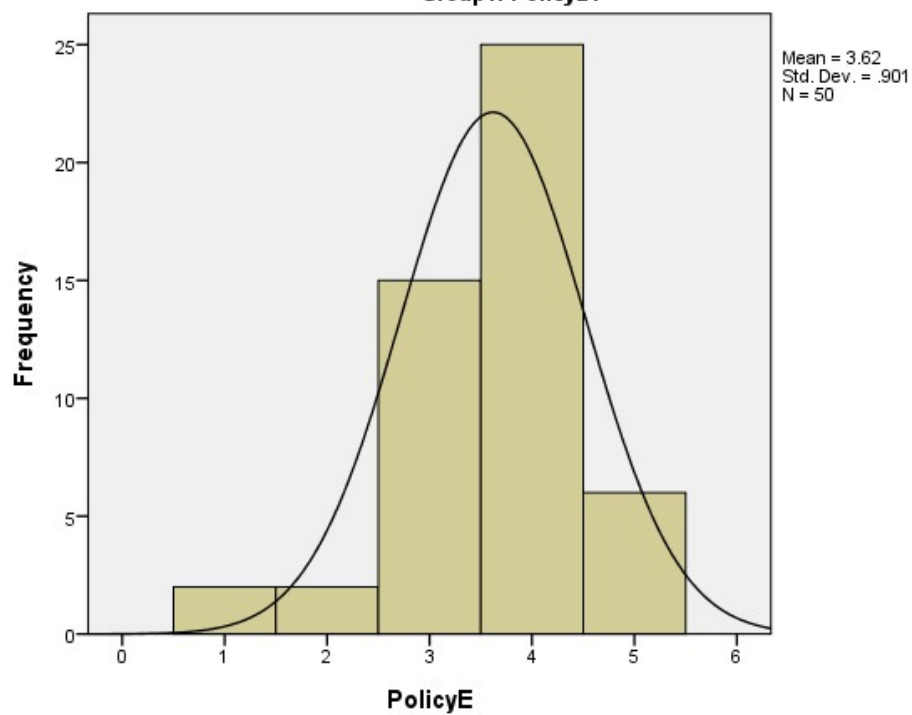
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Variance		.812

PolicyE^a

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	2	4.0	4.0	4.0
	2	2	4.0	4.0	8.0
	3	15	30.0	30.0	38.0
	4	25	50.0	50.0	88.0
	Strongly agree	6	12.0	12.0	100.0
	Total	50	100.0	100.0	

Histogram

Group1: PolicyE1



Group1 = PolicyE2**Statistics^a**

PolicyE

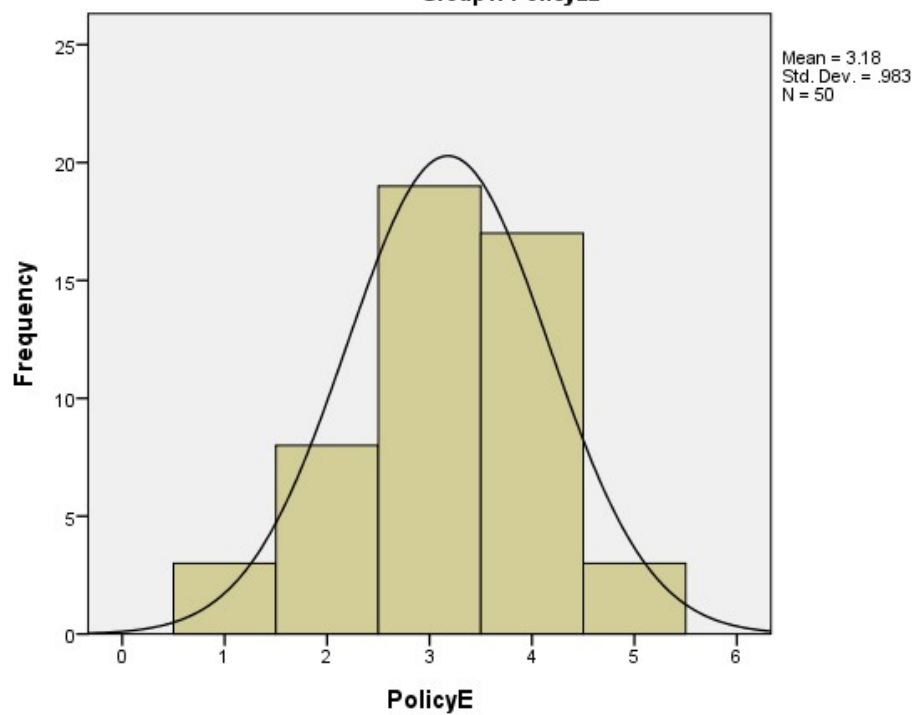
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Variance		.967

PolicyE^a

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Valid	Strongly disagree	3	6.0	6.0	6.0
	2	8	16.0	16.0	22.0
	3	19	38.0	38.0	60.0
	4	17	34.0	34.0	94.0
	Strongly agree	3	6.0	6.0	100.0
	Total	50	100.0	100.0	

Histogram

Group1: PolicyE2



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Group Statistics

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	2	10	1.80	.422	.133

Independent Samples Test

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		Variances								
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Group 1	Equal variances assumed	1.778	.205	-.787	13	.446	-.200	.254	-.749	.349
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PolicyC

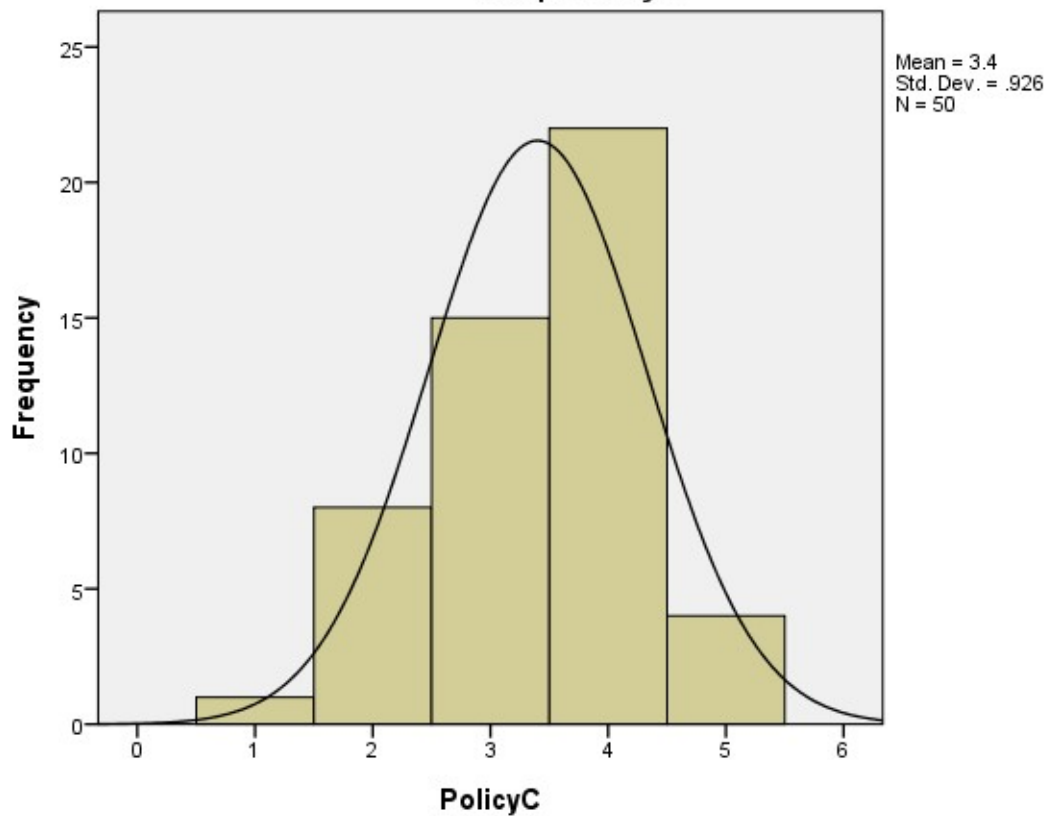
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Variance		.857

a. Group2 = PolicyC1

PolicyC^a

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	1	2.0	2.0	2.0
	2	8	16.0	16.0	18.0
	3	15	30.0	30.0	48.0
	4	22	44.0	44.0	92.0
	Strongly agree	4	8.0	8.0	100.0
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a. Group2 = PolicyC1

Histogram**Group2: PolicyC1**

Group2 = PolicyC2**Statistics^a**

PolicyC

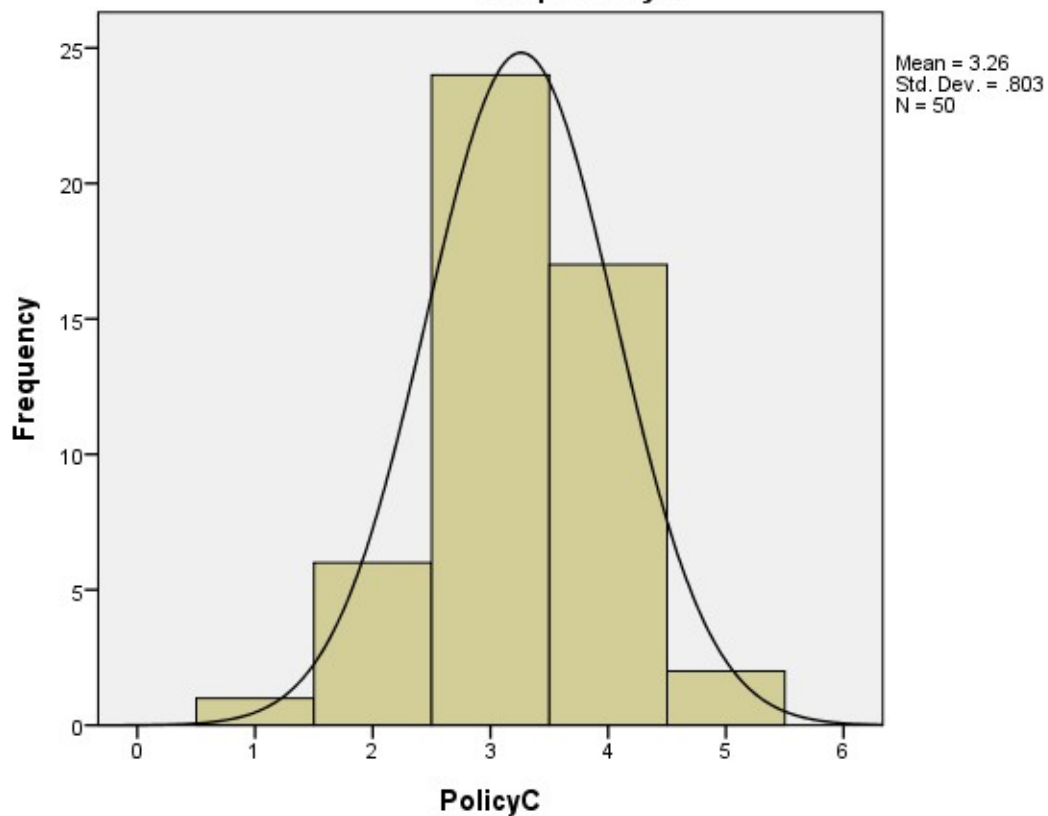
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a. Group2 = PolicyC2

PolicyC^a

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	1	2.0	2.0	2.0
	2	6	12.0	12.0	14.0
	3	24	48.0	48.0	62.0
	4	17	34.0	34.0	96.0
	Strongly agree	2	4.0	4.0	100.0
	Total	50	100.0	100.0	

a. Group2 = PolicyC2

Histogram**Group2: PolicyC2**

T-Test

Group Statistics

Group2		N	Mean	Std. Deviation	Std. Error Mean
PolicyC	PolicyC1	50	3.40	.926	.131
	PolicyC2	50	3.26	.803	.114

Independent Samples Test

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Group3 = OrgE2**Statistics^a**

OrgE

N	Valid	50
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Variance		.653

a. Group3 = OrgE2

OrgE^a

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	4	8.0	8.0	8.0
	3	18	36.0	36.0	44.0
	4	22	44.0	44.0	88.0
	Strongly agree	6	12.0	12.0	100.0
	Total	50	100.0	100.0	

a. Group3 = OrgE2

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	Variances								
								95% Confidence Interval of	
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								Lower	Upper
OrgE Equal variances assumed	2.201	.141	1.909	98	.059	.300	.157	-.012	.612
Equal variances not assumed			1.909	97.673	.059	.300	.157	-.012	.612

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Group Statistics

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OrgC	OrgC1	50	3.52	.863	.122
	OrgC2	50	3.22	.840	.119

Independent Samples Test									
	Levene's Test for Equality of								
	Variances		t-test for Equality of Means						
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								Lower	Upper
OrgC Equal variances assumed	.176	.676	1.762	98	.081	.300	.170	-.038	.638
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Group Statistics

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	AccidE2	50	3.88	.718	.102

Independent Samples Test

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		Variances								
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									Lower	Upper
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E	assumed									
	Equal variances not assumed			1.066	97.312	.289	.160	.150	-.138	.458

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Frequencies

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	Elapsed Time	00 00:00:00.361

[DataSet1] C:\Users\user\Documents\Variances analysis.sav

T-Test

Notes

Output Created	13 11月2015日 上午06時18分20秒	
Comments		
Input	Data	C:\Users\user\Documents\Variancies analysis.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data	100
	File	
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax	T-TEST GROUPS=Group6(1 2) /MISSING=ANALYSIS /VARIABLES=AccidC /CRITERIA=CI(.95).	
Resources	Processor Time	00 00:00:00.000
	Elapsed Time	00 00:00:00.014

[DataSet1] C:\Users\user\Documents\Variancies analysis.sav

Group Statistics

Group6		N	Mean	Std. Deviation	Std. Error Mean
AccidC	AccidC1	50	3.40	.756	.107
	AccidC2	50	3.42	.950	.134

Independent Samples Test									
		Levene's Test for Equality of		t-test for Equality of Means					
		Variances							
								95% Confidence Interval of	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	the Difference
									Lower Upper
Accid C	Equal variances assumed	3.118	.081	-.117	98	.907	-.020	.172	-.361 .321
	Equal variances not assumed			-.117	93.311	.907	-.020	.172	-.361 .321

```

SORT CASES BY Group7.
SPLIT FILE SEPARATE BY Group7.
FREQUENCIES VARIABLES=InspE
  /STATISTICS=VARIANCE MEAN
  /HISTOGRAM NORMAL
  /ORDER=ANALYSIS.

```

Frequencies

Notes		
Output Created		13 11月2015日 上午06時21分57秒
Comments		
Input	Data	C:\Users\user\Documents\Variances analysis.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	Group7
	N of Rows in Working Data	100
	File	
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data.
Syntax		FREQUENCIES VARIABLES=InspE /STATISTICS=VARIANCE MEAN /HISTOGRAM NORMAL /ORDER=ANALYSIS.
Resources	Processor Time	00 00:00:00.343
	Elapsed Time	00 00:00:00.328

[DataSet1] C:\Users\user\Documents\Variances analysis.sav

Statistics^a

InspE

N	Valid	50
	Missing	0
Mean		3.72
Variance		.900

a. Group7 = InspE2

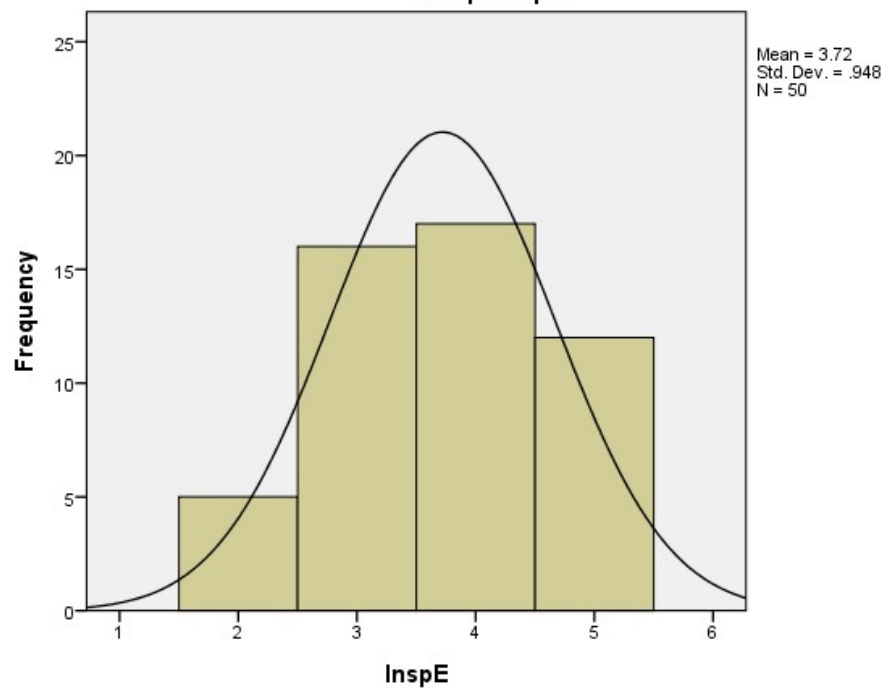
InspE^a

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	5	10.0	10.0	10.0
	3	16	32.0	32.0	42.0
	4	17	34.0	34.0	76.0
	Strongly agree	12	24.0	24.0	100.0
	Total	50	100.0	100.0	

a. Group7 = InspE2

Histogram

Group7: InspE2



```

SPLIT FILE OFF.
T-TEST GROUPS=Group7(1 2)
  /MISSING=ANALYSIS
  /VARIABLES=InspE
  /CRITERIA=CI(.95) .

```

T-Test

Notes		
Output Created		13 11月2015日 上午06時23分16秒
Comments		
Input	Data	C:\Users\user\Documents\Variances analysis.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data	100
	File	
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Group7(1 2) /MISSING=ANALYSIS /VARIABLES=InspE /CRITERIA=CI(.95).
Resources	Processor Time	00 00:00:00.000
	Elapsed Time	00 00:00:00.015

[DataSet1] C:\Users\user\Documents\Variances analysis.sav

