CHAPTER 4

Empirical Results

The study "Public Decision Making on Nuclear Power Plant Policy in Thailand Under Asymmetric Information" intends to study the influence of the substance (Knowledge about nuclear power plant sheet) to induce on the decision to accept the nuclear power plant, both before and after reading the nuclear power plant sheet.

4.1 Basic Characteristics of the sample.

This study sample was collected by accidental sampling and simple random sample. Survey methodology is an online questionnaire on the Internet. Data were obtained from self-administered questionnaires completed by 400 samples. Male responses are 50.25% (201), and females responses are 49.75% (199). The age section has 6 groups: 1) The respondents were less than or equal to 20 years are 26.25% (105). 2) The respondents were in the 21-30 years are 58.5% (234). 3) The respondents were in the 31-40 years are 4.8% (34). 4) The respondents were in the 41-50 years are 2.25% (9). 5) The respondents were in the 51-60 years are 4.25% (17). 6) The respondents were more than 60 years are 0.25% (1). By education section has 3 groups: 1) The respondents were lower than bachelor degree are 23.25% (93), 2) The respondents were bachelor degree are 66% (264) and 3) The respondents were master degree or a above are 10.75% (43).

Table 4.1: General information about respondents

Variable	General Information	Total Respondents	Percentage
Gender	Male	201	50.25
	Female	199	49.75
	Total	400	100
Age	Less than or equal to 20 years	105	26.25
	Between21 – 30 years	234	58.5
	Between 31 – 40 years	34	8.5
	Between 41 – 50 years	9	2.25
	Between 51 – 60 years	17	4.25
	More than 60 years	1	0.25
	Total	400	100
Education	Less than bachelor's degree	93	23.25
	Bachelor's degree	264	66
	Masters or above	43	10.75
	Total	400	100

Sources: Created by author

4.2 Average score of opinions and attitudes about nuclear power plants, both before and after obtaining the knowledge sheet.

The score of opinions and attitudes about the nuclear power plant were analyzed by using descriptive statistics as follows: the average using rating scale from 0-10 (where 0 is the lowest and 10 is the highest). The results were as follows:

Table4.2: Average score of opinions and attitudes about the nuclear power plant, both before and after obtaining knowledge sheet

Questions	Average before obtaining knowledge	Average after obtaining knowledge	Average Difference
Do you think Thailand has sufficient sources to produce of electricity over the next 30 years?	4.3175	5.0075	0.69
Do you willing to construction of nuclear power plants near your community?	3.2325	5.15	1.9175
Do you think that nuclear power plants to make more employment?	5.0275	6.5125	1.485
Do you think Thailand ready to construct nuclear power plants?	3.6675	5.5025	1.835
Do you agree to construct nuclear power plants in Thailand?	4.565	7.0075	2.4425
Total Average	4.162	5.836	1.674

Sources: Created by author

The study reveals opinions and attitudes about the nuclear power, both before and after obtaining the knowledge sheet. Most of the respondents agreed with construction of a nuclear power plant in the country, while the difference average is 2.4425. Second, the respondents were willing to accept construction of a nuclear power plant near their community, while the difference average is 1.9175.And third, the respondents thought Thailand is ready to construct nuclear power plants, while the difference average is 1.835 (Table4.2).

4 . 3 Analysis of change in knowledge and understanding about nuclear power plants, both before and after obtaining knowledge by Chi-Square Tests.

4.3.1 Overview

This section analyzes the knowledge and understanding about nuclear power plants, both before and after obtaining knowledge. This section consists of 15 questions which represents knowledge and understanding about nuclear power plants.

1) Nuclear power plant has the slightest emissions pollution.

Table 4.3: Details about the amount of data collected

			Before obtaining knowledge			Total
			Yes	No	Uncertain	
After obtaining knowledge	Yes	Count	111	90	93	294
		% within Before	81.6%	67.2%	71.5%	73.5%
	No	Count	16	30	17	63
		% within Before	11.8%	22.4%	13.1%	15.8%
	Uncertain	Count	9	14	20	43
		% within Before	6.6%	10.4%	15.4%	10.8%
Total		Count	136	134	130	400
		% within Before	100%	100%	100%	100%

Sources: Calculation using SPSS

After obtaining knowledge, respondents who looked on “nuclear power plants as having the slightest emissions pollution” was at 294 responses (73.5%). To be separated; 1) Both before and after obtaining knowledge, respondents who looked on nuclear power plants as having the slightest emissions pollution was at 111 responses (81.6%), 2) After obtaining knowledge, respondents who looked on nuclear power plants as having the slightest emissions pollution was at 90 responses (67.2%), and 3)After obtaining knowledge, respondents who changed from ‘uncertain’ to ‘agree’ with the nuclear power plant as having the slightest emissions pollution was at 93 responses (71.5%).

Table 4.4: The relationship of data from Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	12.499[a]	4	0.014
Likelihood Ratio	12.248	4	0.016
Linear-by-Linear Association	5.323	1	0.021
N of Valid Cases	400		

Sources: Calculation using SPSS

Note:a.0 cells (0.0%) have expected count less than 5. The minimum expected count is 13.98.

In this study, the Chi-Squared is 12.499 and Asymp. Sig. (2-tailed) is 0.014.In this case, the *significance* level is 0.05. In conclusion, the changing of knowledge and understanding about nuclear power plants from respondents both before and after obtaining information have a relationship at a level of statistical significance, 0.05.

2) Nuclear power plant does not result with acid rain.

Table 4.5: Details about the amount of data collected

			Before obtaining knowledge			Total
			Yes	No	Uncertain	
After obtaining knowledge	Yes	Count	84	82	87	253
		% within Before	67.2%	63.1%	60.0%	63.2%
	No	Count	23	29	30	82
		% within Before	18.4%	22.3%	20.70%	20.5%
	Uncertain	Count	18	19	28	65
		% within Before	14.4%	14.6%	19.3%	16.2%
Total		Count	125	130	145	400
		% within Before	100%	100%	100%	100%

Sources: Calculation using SPSS

After obtaining knowledge, respondents who looked on “nuclear power plant does not result with acid rain” was at 253 responses are (63.2%). To be separated; 1) Both before and after obtaining knowledge, respondents who looked on nuclear power plant does not result with acid rain was at 84 responses are (67.2%), 2) After obtaining knowledge, respondents who looked on nuclear power plant does not result with acid rain was at 82 responses (63.1%), and 3) After obtaining knowledge, respondents changed from ‘uncertain’ to ‘agree’ with nuclear power plant does not result with acid rain was at 87 responses (60.0%).

Table 4.6: The relationship of data from Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.343[a]	4	0.673
Likelihood Ratio	2.315	4	0.678
Linear-by-Linear Association	1.737	1	0.187
N of Valid Cases	400		

Sources: Calculation using SPSS

Note: a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 20.31.

In this study, the Chi-Squared is 2.343and Asymp. Sig. (2-tailed) is 0.673. In this case, the significance level is 0.05. In conclusion, the changing of knowledge and understanding about nuclear power plants from respondents both before and after obtaining information have a relationship at a level of statistical significance, 0.05.

3) Nuclear power plants use a chain reaction to produce electricity by splitting atom to heating it in steam from boiling water.

Table 4.7: Details about the amount of data collected

			Before obtaining knowledge			Total
			Yes	No	Uncertain	
After obtaining knowledge	Yes	Count	117	32	114	263
		% within Before	69.2%	51.6%	67.5%	65.8%
	No	Count	19	15	11	45
		% within Before	11.2%	24.2%	6.5%	11.2%
	Uncertain	Count	33	15	44	92
		% within Before	19.50%	24.2%	26.0%	23.0%
Total		Count	169	62	169	400
		% within Before	100%	100%	100%	100%

Sources: Calculation using SPSS

After obtaining knowledge, respondents who looked on "nuclear power plants use a chain reaction to produce electricity by splitting atom to heating it in steam from boiling water" was at 263 responses (65.8%). To be separated; 1) Both before and after obtaining knowledge, respondents who looked on nuclear power plants use a chain reaction to produce electricity by splitting atom to heating it in steam from boiling water was at117 responses (69.2%), 2) After obtaining knowledge, respondents who looked on nuclear power plants use a chain reaction to produce electricity by splitting atom to

heating it in steam from boiling water was at32 responses (51.6%) and 3) After obtaining knowledge, respondents who changed from ‘uncertain’ to ‘agree’ with nuclear power plants use a chain reaction to produce electricity by splitting atom to heating it in steam from boiling water was at 114 responses (67.5%).

Table 4.8: The relationship of data from Chi-Square Tests

	Value	**df**	**Asymp. Sig. (2-sided)**
Pearson Chi-Square	16.483[a]	4	0.002
Likelihood Ratio	14.946	4	0.005
Linear-by-Linear Association	0.821	1	0.365
N of Valid Cases	400		

Sources: Calculation using SPSS

Note: a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 6.98.

In this study, the Chi-Squared is 16.483and Asymp. Sig. (2-tailed) is 0.002.In this case, the *significance* level is 0.05. In conclusion, the changing of knowledge and understanding about nuclear power plants from respondents both before and after obtaining information have a relationship at a level of statistical significance, 0.05.

4) Accidents from nuclear power plants do not cause an atomic explosion.

Table 4.9: Details about the amount of data collected

			Before obtaining knowledge			**Total**
			Yes	**No**	**Uncertain**	
After obtaining knowledge	**Yes**	**Count**	44	113	71	228
		% within Before	54.3%	59.8%	54.6%	57.0%
	No	**Count**	17	46	31	94
		% within Before	21.0%	24.3%	23.8%	23.5%
	Uncertain	**Count**	20	30	28	78
		% within Before	24.7%	15.9%	21.5%	19.5%
Total		**Count**	81	189	130	400
		% within Before	100%	100%	100%	100%

Sources: Calculation using SPSS

After obtaining knowledge, respondents who looked on "accidents from nuclear power plants do not cause an atomic explosion" was at 228 responses (57.0%). To be separated; 1) Both before and after obtaining knowledge, respondents who looked on accidents from nuclear power plants do not cause an atomic explosion was at 44 responses (54.3%), 2) After obtaining knowledge, respondents who looked on accidents from nuclear power plants do not cause an atomic explosion was at 113 responses (59.8%), 3) After obtaining knowledge, respondents who changed from 'uncertain' to 'agree' with accidents from nuclear power plants do not cause an atomic explosion was at 71 responses (54.6%).

Table 4.10: The relationship of data from Chi-Square Tests

	Value	**df**	**Asymp. Sig. (2-sided)**
Pearson Chi-Square	3.442[a]	4	0.487
Likelihood Ratio	3.439	4	0.487
Linear-by-Linear Association	0.003	1	0.956
N of Valid Cases	400		

Sources: Calculation using SPSS

Note: 0 cells (0.0%) have expected count less than 5. The minimum expected count is 15.80.

In this study, the Chi-Squared is 3.442and Asymp. Sig. (2-tailed) is 0.487. In this case, the significance level is 0.05. In conclusion, the changing of knowledge and understanding about nuclear power plants from respondents both before and after obtaining information have a relationship at a level of statistical significance, 0.05.

5) The white smoke that comes out from nuclear power plants is not dangerous to smell.

Table 4.11: Details about the amount of data collected

			Before obtaining knowledge			Total
			Yes	No	Uncertain	
After obtaining knowledge	Yes	Count	53	104	78	235
		% within Before	60.9%	55.0%	62.9%	58.8%
	No	Count	12	49	22	83
		% within Before	13.8%	25.9%	17.7%	20.8%
	Uncertain	Count	22	36	24	82
		% within Before	25.3%	19.0%	19.4%	20.5%
Total		Count	81	189	124	400
		% within Before	100%	100%	100%	100%

Sources: Calculation using SPSS

After obtaining knowledge, respondents who looked on "the white smoke that comes out from nuclear power plants is not dangerous to smell" was at 235 responses are 58.8%. To be separated; 1) Both before and after obtaining knowledge, respondents who looked on the white smoke that comes out from nuclear power plants is not dangerous to smell was at 53 responses (60.9%), 2) After obtaining knowledge, respondents who looked on the white smoke that comes out from nuclear power plants is not dangerous to smell was at 104 responses (55.0%), and 3) After obtaining knowledge, respondents who changed from 'uncertain' to 'agree' with the white smoke that comes out from nuclear power plants is not dangerous to smell was at 78 responses (62.9%).

Table 4.12: The relationship of data from Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.136[a]	4	0.129
Likelihood Ratio	7.197	4	0.126
Linear-by-Linear Association	0.582	1	0.445
N of Valid Cases	400		

Sources: Calculation using SPSS

Note: 0 cells (0.0%) have expected count less than 5. The minimum expected count is 17.84.

In this study, the Chi-Squared is 7.136and Asymp. Sig. (2-tailed) is 0.129. In this case, the *significance* level is 0.05. In conclusion, the changing of knowledge and understanding about nuclear power plants from respondents both before and after obtaining information have a relationship at a level of statistical significance, 0.05.

6) The nuclear power plant is a solution to solve the problems of global warming.

Table 4.13: Details about the amount of data collected

			Before obtaining knowledge			Total
			Yes	No	Uncertain	
After obtaining knowledge	Yes	Count	80	94	70	244
		% within Before	68.4%	61.0%	54.3%	61.0%
	No	Count	17	23	16	56
		% within Before	14.5%	14.9%	12.4%	14.0%
	Uncertain	Count	20	37	43	100
		% within Before	17.1%	24.0%	33.3%	25.0%
Total		Count	117	154	129	400
		% within Before	100%	100%	100%	100%

Sources: Calculation using SPSS

After obtaining knowledge, respondents who looked on “nuclear power plant is a solution to solve the problems of global warming” was at 244 responses (61.0%). To be separated; 1) Both before and after obtaining knowledge, respondents who looked on nuclear power plant is a solution to solve the problems of global warming was at

80 responses (68.4%), 2) After obtaining knowledge, respondents who looked on nuclear power plant is a solution to solve the problems of global warming was at 94 responses (61.0%), and 3) After obtaining knowledge, respondents who changed from 'uncertain' to 'agree' with nuclear power plant is a solution to solve the problems of global warming was at 70 responses (54.3%).

Table 4.14: The relationship of data from Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	8.925[a]	4	0.063
Likelihood Ratio	8.957	4	0.062
Linear-by-Linear Association	7.743	1	0.005
N of Valid Cases	400		

Sources: Calculation using SPSS

Note: a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 16.38.

In this study, the Chi-Squared is 8.925and Asymp. Sig. (2-tailed) is 0.063. In this case, the significance level is 0.05. In conclusion, the changing of knowledge and understanding about nuclear power plants from respondents both before and after obtaining information have a relationship at a level of statistical significance, 0.05.

7) Nuclear power plant has a more beneficial than disadvantage effect.

Table 4.15: Details about the amount of data collected

			Before obtaining knowledge			Total
			Yes	No	Uncertain	
After obtaining knowledge	Yes	Count	113	72	86	271
		% within Before	70.6%	68.6%	63.7%	67.8%
	No	Count	14	11	15	40
		% within Before	8.8%	10.5%	11.1%	10.0%
	Uncertain	Count	33	22	34	89
		% within Before	20.6%	21.0%	25.2%	22.2%
Total		Count	160	105	135	400
		% within Before	100%	100%	100%	100%

Sources: Calculation using SPSS

After obtaining knowledge, respondents who looked on “nuclear power plant has a more beneficial than disadvantage effect” was at 271 responses (67.8%). To be separated; 1) Both before and after obtaining knowledge, respondents who looked on nuclear power plant has a more beneficial than disadvantage effect was at 113 responses (70.6%), 2) After obtaining knowledge, respondents who looked on nuclear power plant has a more beneficial than disadvantage effect was at 72 responses (68.6%), and 3) After obtaining knowledge, respondents who changed from ‘uncertain’ to ‘agree’ with nuclear power plant has a more beneficial than disadvantage effect was at 86 responses (63.7%).

Table 4.16: The relationship of data from Chi-Square Tests

	Value	**df**	**Asymp. Sig. (2-sided)**
Pearson Chi-Square	1.764[a]	4	0.779
Likelihood Ratio	1.758	4	0.78
Linear-by-Linear Association	1.356	1	0.244
N of Valid Cases	400		

Sources: Calculation using SPSS

Note: a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 10.50.

In this study, the Chi-Squared is 1.764and Asymp. Sig. (2-tailed) is 0.779. In this case, the significance level is 0.05. In conclusion, the changing of knowledge and understanding about nuclear power plants from respondents both before and after obtaining information have a relationship at a level of statistical significance, 0.05.

8) People who have lived near a nuclear power plant for 1 year will get less radiation than those receiving an X-ray 80 times per session.

Table 4.17: Details about the amount of data collected

			Before obtaining knowledge			Total
			Yes	No	Uncertain	
After obtaining knowledge	Yes	Count	51	52	118	221
		% within Before	68.0%	55.9%	50.9%	55.2%
	No	Count	3	14	23	40
		% within Before	4.0%	15.1%	9.9%	10.0%
	Uncertain Count	Count	21	27	91	139
		% within Before	28.0%	29.0%	39.2%	34.8%
		Count	75	93	232	400
Total		% within Before	100%	100%	100%	100%

Sources: Calculation using SPSS

After obtaining knowledge, respondents who looked on "people who have lived near a nuclear power plant for 1 year will get less radiation than those receiving an X-ray 80 times per session" was at 221 responses (55.2%). To be separated; 1) Both before and after obtaining knowledge, respondents who looked on people who have lived near a nuclear power plant for 1 year will get less radiation than those receiving an X-ray 80 times per session was at51 responses (68.0%), 2) After obtaining knowledge, respondents who looked on people who have lived near a nuclear power plant for 1 year will get less radiation than those receiving an X-ray 80 times per session" was at 52 responses (55.9%), and 3) After obtaining knowledge, respondents who changed from 'uncertain' to 'agree' with people who have lived near a nuclear power plant for 1 year will get less radiation than those receiving an X-ray 80 times per session was at 118 responses (50.9%).

Table 4.18: The relationship of data from Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	11.294[a]	4	0.023
Likelihood Ratio	11.713	4	0.02
Linear-by-Linear Association	5.866	1	0.015
N of Valid Cases	400		

Sources: Calculation using SPSS

Note: a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 7.50.

In this study, the Chi-Squared is 11.294and Asymp. Sig. (2-tailed) is 0.023. In this case, the significance level is 0.05. In conclusion, the changing of knowledge and understanding about nuclear power plants from respondents both before and after obtaining information have a relationship at a level of statistical significance, 0.05.

9) Nuclear power plants have been certified as safe to construct and from the IAEA.

Table 4.19: Details about the amount of data collected

			Before obtaining knowledge			Total
			Yes	No	Uncertain	
After obtaining knowledge	Yes	Count	174	27	93	294
		% within Before	75.7%	75.0%	69.4%	73.5%
	No	Count	12	2	7	21
		% within Before	5.2%	5.6%	5.2%	5.2%
	Uncertain	Count	44	7	34	85
		% within Before	19.1%	19.4%	25.4%	21.2%
Total		Count	230	36	134	400
		% within Before	100%	100%	100%	100%

Sources: Calculation using SPSS

After obtaining knowledge, respondents who looked on “nuclear power plants have been certified as safe to construct and from the IAEA” was at 294 responses (73.5%). To be separated; 1) Both before and after obtaining knowledge, respondents looked on nuclear power plants have been certified as safe to construct and from the IAEA was at 174 responses (75.7%), 2) After obtaining knowledge, respondents looked on “nuclear power plants have been certified as safe to construct and from the IAEA” was at 27 responses (75.0%), and 3) After obtaining knowledge, respondents who changed from ‘uncertain’ to ‘agree’ with nuclear power plants have been certified as safe to construct and from the IAEA was at 93 responses (69.4%).

Table 4.20: The relationship of data from Chi-Square Tests

	Value	**df**	**Asymp. Sig. (2-sided)**
Pearson Chi-Square	2.083[a]	4	0.721
Likelihood Ratio	2.042	4	0.728
Linear-by-Linear Association	1.884	1	0.17
N of Valid Cases	400		

Sources: Calculation using SPSS

Note: a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 1.89.

In this study, the Chi-Squared is 2.083and Asymp. Sig. (2-tailed) is 0.721. In this case, the significance level is 0.05. In conclusion, the changing of knowledge and understanding about nuclear power plants from respondents both before and after obtaining information have a relationship at a level of statistical significance, 0.05.

10) Nuclear fuel can be recycled to produce nuclear energy.

Table 4.21: Details about the amount of data collected

			Before obtaining knowledge			Total
			Yes	No	Uncertain	
After obtaining knowledge	Yes	Count	58	63	106	227
		% within Before	63.0%	60.6%	52.0%	56.8%
	No	Count	12	13	25	50
		% within Before	13.0%	12.5%	12.3%	12.5%
	Uncertain	Count	22	28	73	123
		% within Before	23.9%	26.9%	35.8%	30.8%
Total		Count	92	104	204	400
		% within Before	100%	100%	100%	100%

Sources: Calculation using SPSS

After obtaining knowledge, respondents who looked on "nuclear fuel can be recycled to produce nuclear energy" was at 227 responses (63.0%). To be separated; 1) Both before and after obtaining knowledge, respondents who looked on nuclear fuel can be recycled to produce nuclear energy was at58 responses (60.3%), 2) After obtaining knowledge, respondents who looked on nuclear fuel can be recycled to produce nuclear energy was at 63 responses (60.6%), and 3) After obtaining knowledge, respondents who changed from 'uncertain' to 'agree' with nuclear fuel can be recycled to produce nuclear energy was at 106 responses (52.0%).

Table 4.22: The relationship of data from Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5.342[a]	4	0.254
Likelihood Ratio	5.391	4	0.249
Linear-by-Linear Association	4.816	1	0.028
N of Valid Cases	400		

Sources: Calculation using SPSS

Note: a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 11.50.

In this study, the Chi-Squared is 5.342and Asymp. Sig. (2-tailed) is 0.254. In this case, the *significance* level is 0.05. In conclusion, the changing of knowledge and understanding about nuclear power plants from respondents both before and after obtaining information have a relationship at a level of statistical significance, 0.05.

1 1) Nuclear power plants can produce the cheapest price of electricity than other power plants.

Table 4.23: Details about the amount of data collected

			Before obtaining knowledge			Total
			Yes	No	Uncertain	
After obtaining knowledge	Yes	Count	125	48	89	262
		% within Before	67.6%	67.6%	61.8%	65.5%
	No	Count	21	7	18	46
		% within Before	11.4%	9.9%	12.5%	11.5%
	Uncertain	Count	39	16	37	92
		% within Before	21.1%	22.5%	25.7%	23.0%
Total		Count	185	71	144	400
		% within Before	100%	100%	100%	100%

Sources: Calculation using SPSS

After obtaining knowledge, respondents who looked on "nuclear power plants can produce the cheapest price of electricity than other power plants" was at 262 responses (65.5%). To be separated; 1) Both before and after obtaining knowledge, respondents looked on nuclear power plants can produce the cheapest price of electricity than other power plants was at 125 responses (67.6%), 2) After obtaining knowledge, respondents looked on nuclear power plants can produce the cheapest price of electricity than other power plants was at 48 responses (67.6%), and 3) After obtaining knowledge, respondents who changed from 'uncertain' to 'agree' with nuclear power plants can produce the cheapest price of electricity than other power plants was at 89 responses (61.8%).

Table 4.24: The relationship of data from Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.521[a]	4	.823
Likelihood Ratio	1.522	4	.823
Linear-by-Linear Association	1.198	1	.274
N of Valid Cases	400		

Sources: Calculation using SPSS

Note: a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 8.17.

In this study, the Chi-Squared is 1.521and Asymp. Sig. (2-tailed) is 0.823. In this case, the significance level is 0.05. In conclusion, the changing of knowledge and understanding about nuclear power plants from respondents both before and after obtaining information have a relationship at a level of statistical significance, 0.05.

12) Nowadays, generally nuclear power plants have safety standards better than the Chernobyl power plant.

Table 4.25: Details about the amount of data collected

			Before obtaining knowledge			Total
			Yes	No	Uncertain	
After obtaining knowledge	Yes	Count	60	25	107	192
		% within Before	53.1%	37.9%	48.4%	48.0%
	No	Count	19	15	28	62
		% within Before	16.8%	22.7%	12.7%	15.5%
	Uncertain	Count	34	26	86	146
		% within Before	30.1%	39.4%	38.9%	36.5%
Total		Count	113	66	221	400
		% within Before	100%	100%	100%	100%

Sources: Calculation using SPSS

After obtaining knowledge, respondents who looked on "nowadays, generally nuclear power plants have safety standards better than the Chernobyl power plant" was at 192 responses are 48.0%. To be separated; 1) Both before and after obtaining knowledge, respondents looked on nowadays, generally nuclear power plants have

safety standards better than the Chernobyl power plant was at 60 responses (53.1%), 2) After obtaining knowledge, respondents looked on nowadays, generally nuclear power plants have safety standards better than the Chernobyl power plant was at 25 responses (37.9%), and 3) After obtaining knowledge, respondents who changed from 'uncertain' to 'agree' with nowadays, generally nuclear power plants have safety standards better than the Chernobyl power plant was at 107 responses (48.4%).

Table 4.26: Showed the relationship of data from Chi-Square Tests.

	Value	**df**	**Asymp. Sig. (2-sided)**
Pearson Chi-Square	7.297[a]	4	.121
Likelihood Ratio	7.249	4	.123
Linear-by-Linear Association	1.194	1	.275
N of Valid Cases	400		

Sources: Calculation using SPSS

Note: a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 10.23.

In this study, the Chi-Squared is 7.297and Asymp. Sig. (2-tailed) is 0.121. In this case, the significance level is 0.05. In conclusion, the changing of knowledge and understanding about nuclear power plants from respondents both before and after obtaining information have a relationship at a level of statistical significance, 0.05.

13) Accidents do not come from the nuclear reactor, causing minor impact.

Table 4.27: Details about the amount of data collected

			Before obtaining knowledge			Total
			Yes	No	Uncertain	
After obtaining knowledge	Yes	Count	124	35	80	239
		% within Before	66.0%	59.3%	52.3%	59.8%
	No	Count	18	7	22	47
		% within Before	9.6%	11.9%	14.4%	11.8%
	Uncertain	Count	46	17	51	114
		% within Before	24.5%	28.8%	33.3%	28.5%
Total		Count	188	59	153	400
		% within Before	100%	100%	100%	100%

Sources: Calculation using SPSS

After obtaining knowledge, respondents who looked on "accidents do not come from the nuclear reactor, causing minor impact" was at 239 responses (59.8%). To be separated; 1) Both before and after obtaining knowledge, respondents looked on accidents do not come from the nuclear reactor, causing minor impact was at 124 responses (66.0%), 2) After obtaining knowledge, looked on accidents do not come from the nuclear reactor, causing minor impact was at 35 responses (59.3%), and 3) After obtaining knowledge, respondents who changed from 'uncertain' to 'agree' with accidents do not come from the nuclear reactor, causing minor impact was at 80 responses (52.3%).

Table 4.28: The relationship of data from Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.627[a]	4	.157
Likelihood Ratio	6.630	4	.157
Linear-by-Linear Association	5.449	1	.020
N of Valid Cases	400		

Sources: Calculation using SPSS

Note: a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 6.93.

In this study, the Chi-Squared is 6.627and Asymp. Sig. (2-tailed) is 0.157. In this case, the significance level is 0.05. In conclusion, the changing of knowledge and understanding about nuclear power plants from respondents both before and after obtaining information have a relationship at a level of statistical significance, 0.05.

14) The amount of radiation from nuclear power plant is not harmful to the health of people living near a nuclear power plant.

Table 4.29: Details about the amount of data collected

			Before obtaining knowledge			Total
			Yes	No	Uncertain	
After obtaining knowledge	Yes	Count	61	82	84	227
		% within Before	61.6%	55.0%	55.3%	56.8%
	No	Count	17	38	31	86
		% within Before	17.2%	25.5%	20.4%	21.5%
	Uncertain	Count	21	29	37	87
		% within Before	21.2%	19.5%	24.3%	21.8%
Total		Count	99	149	152	400
		% within Before	100%	100%	100%	100%

Sources: Calculation using SPSS

After obtaining knowledge, respondents who looked on "the amount of radiation from nuclear power plant" is not harmful to the health of people living near a nuclear power plant is 227 responses (56.8%). To be separated; 1) Both before and after obtaining knowledge, respondents who looked on the amount of radiation from nuclear power plant was at 61 responses (61.6%), 2) After obtaining knowledge, respondents who looked on the amount of radiation from nuclear power plant was at 82 responses (55.0%), and 3) After obtaining knowledge, respondents who changed from 'uncertain' to 'agree' with the amount of radiation from nuclear power plant was at 84 responses (55.3%).

Table 4.30: The relationship of data from Chi-Square Tests

	Value	**df**	**Asymp. Sig. (2-sided)**
Pearson Chi-Square	3.450[a]	4	.485
Likelihood Ratio	3.439	4	.487
Linear-by-Linear Association	.823	1	.364
N of Valid Cases	400		

Sources: Calculation using SPSS

Note: a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 21.29.

In this study, the Chi-Squared is 3.450and Asymp. Sig. (2-tailed) is 0.485. In this case, the significance level is 0.05. In conclusion, the changing of knowledge and understanding about nuclear power plants from respondents both before and after obtaining information have a relationship at a level of statistical significance, 0.05.

15) In an emergency case, the nuclear reactor can stop working without the system administrator.

Table 4.31: Details about the amount of data collected

			Before obtaining knowledge			Total
			Yes	No	Uncertain	
After obtaining knowledge	Yes	Count	130	38	116	284
		% within Before	76.5%	63.3%	68.2%	71.0%
	No	Count	9	12	6	27
		% within Before	5.3%	20.0%	3.5%	6.8%
	Uncertain	Count	31	10	48	89
		% within Before	18.2%	16.7%	28.2%	22.2%
Total		Count	170	60	170	400
		% within Before	100%	100%	100%	100%

Sources: Calculation using SPSS

After obtaining knowledge, respondents who looked on "in an emergency case, the nuclear reactor can stop working without the system administrator" was at 284 responses (71.0%). To be separated; 1) Both before and after obtaining knowledge, respondents who looked on in an emergency case, the nuclear reactor can stop working without the system administrator was at 130 responses (76.5%), 2) After obtaining knowledge, respondents who looked on in an emergency case, the nuclear reactor can stop working without the system administrator was at 38 responses (63.3%), and 3) After obtaining knowledge, respondents who changed from 'uncertain' to 'agree' within an emergency case, the nuclear reactor can stop working without the system administrator was at 116 responses (68.2%).

Table 4.32: The relationship of data from Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	24.957[a]	4	.000
Likelihood Ratio	20.069	4	.000
Linear-by-Linear Association	4.058	1	.044
N of Valid Cases	400		

Sources: Calculation using SPSS

Note: a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 4.05.

In this study, the Chi-Squared is 24.957and Asymp. Sig. (2-tailed) is 0.000. In this case, the significance level is 0.05. In conclusion, the changing of knowledge and understanding about nuclear power plants from respondents both before and after obtaining information have a relationship at a level of statistical significance, 0.05.

4.4 Analysis of the average scores about nuclear power plants, both before and after obtaining knowledge by T-Tests.

4.4.1 Overview

This section analyzes the average scores about nuclear power plants, both before and after obtaining knowledge. Consisting of 5 questions which the opinions and attitudes about nuclear power plant as follows; 1) Thailand has sufficient sources to produce electricity over the next 30 years, 2) The respondents willing to accept construction of a nuclear power plants near their community, 3) Nuclear power plants make more employment, 4) Thailand is ready to construct nuclear power plants, and 5) The respondents agree to construct nuclear power plants in Thailand.

Then the Sig. (P-value) equal to 0.000 and less than 0.05, shows the average score is not equal to 0 at the significance level 0.05.All data are show in table 4.33 as follows:

Table 4.33: Analysis result of the average scores about nuclear power plants, both before and after obtaining knowledge by T-Tests

Questions	Degree of Freedom	T-Test	Sig. (2-tailed)	Mean Difference
Do you think Thailand has sufficient sources to produce electricity over the next 30 years?	399	4.247	.000	0.690
Are you willing to accept construction of a nuclear power plants near your community?	399	9.988	.000	1.918
Do you think that nuclear power plants make more employment?	399	8.946	.000	1.485
Do you think Thailand is ready to construct nuclear power plants?	399	11.406	.000	1.835
Do you agree to construct nuclear power plants in Thailand?	399	13.607	.000	2.443

Note: Level of Significant is 0.05%

Sources: Created by author

4.5 Analysis of the knowledge and understanding scores about nuclear power plants, both before and after obtaining knowledge by Logit Model.

4.5.1 Overview

According to the study, knowledge and understanding about the nuclear power plants by Logit Model was analyzed by Maximum Likelihood Estimate: MLE. Knowledge and understanding about nuclear power plants are factors affecting respondents to choose solar energy (S) and nuclear power plants (Y) as a way to help generate electricity in the next 30 years after obtaining knowledge. Respondents chose other alternatives to help generate electricity in the next 30 years before obtaining knowledge, but after receiving the knowledge the respondents chose nuclear power plants as a way to help generate electricity in the next 30 years (Z).

The difference scores of opinion between before and after receiving knowledge in the topic "Thailand has sufficient sources to produce of electricity over the next 30 years" is DeltaX_{16}.The difference scores of opinion between before and after receiving knowledge in the topic "the respondents are willing to accept construction of nuclear power plants near their community is DeltaX_{17}. The difference scores of opinion between before and after receiving knowledge in the topic "nuclear power plants make more employment" is DeltaX_{18}. The difference scores of opinion between before and after receiving knowledge in the topic "Thailand is ready to construct nuclear power plants" is DeltaX_{19}. The difference scores of opinion between before and after receiving knowledge in the topic the respondents agree to construct nuclear power plants in Thailand is DeltaX_{20}.

Due to the factors of knowledge and understanding about nuclear power plants, 15 questions are divided into two series: 1)before obtaining knowledge, respondents were not sure or did not have knowledge and understanding about nuclear power plants. But after obtaining knowledge, the respondents have more knowledge and understanding about nuclear power plants ($P_1 – P_{15}$). And 2) respondents had knowledge and understanding about nuclear power plants, both before and after obtaining knowledge ($A_1 – A_{15}$). The 15 questions are as follows.

Table 4.34: The questions about knowledge and understanding about nuclear power plants

P*	Knowledge and understanding about nuclear power plant.	A**
P_1	1) Nuclear power plant has the slightest emissions pollution.	A_1
P_2	2) Nuclear power plant does not result with acid rain.	A_2
P_3	3) Nuclear power plants use a chain reaction to produce electricity by splitting atom to heating it in steam from boiling water.	A_3
P_4	4) Accidents from nuclear power plants do not cause an atomic explosion.	A_4
P_5	5) The white smoke that comes out from nuclear power plants is not dangerous to smell.	A_5
P_6	6) The nuclear power plant is a solution to solve the problems of global warming**.**	A_6
P_7	7) Nuclear power plant has a more beneficial than disadvantage effect.	A_7
P_8	8) People who have lived near a nuclear power plant for 1 year will get less radiation than those receiving an X-ray 80 times per session.	A_8
P_9	9) Nuclear power plants have been certified as safe to construct and from the IAEA.	A_9
P_{10}	10) Nuclear fuel can be recycled to produce nuclear energy.	A_{10}
P_{11}	1 1) Nuclear power plants can produce the cheapest price of electricity than other power plants.	A_{11}
P_{12}	1 2) Nowadays, generally nuclear power plants have safety standards better than the Chernobyl power plant.	A_{12}
P_{13}	1 3) Accidents do not come from the nuclear reactor, causing minor impact.	A_{13}
P_{14}	14) The amount of radiation from nuclear power plant is not harmful to the health of people living near a nuclear power plant.	A_{14}
P_{15}	1 5) In an emergency case, the nuclear reactor can stop working without the system administrator.	A_{15}

* = Before obtaining knowledge, respondents were not sure or did not have knowledge and understanding about nuclear power plants. But after obtaining knowledge, the respondents had more knowledge and understanding about nuclear power plants.

**** =** Respondents had knowledge and understanding in nuclear power plants, both before and after obtaining knowledge.

Sources: Created by author

1) The factors of whether respondents have knowledge about nuclear power plants after obtaining knowledge ($P_1 – P_{15}$) and what affected to the respondents to choose solar energy as a way to help generate electricity in the next 30 years(S).

Table 4.35: The factors for respondents to choose solar energy

Variables	Maximum Likelihood Estimate			
	Coefficient	**Standard Error**	**T-stat**	**Prob**
Constant	-0.26619	0.273612	-0.97	0.331
Later, the respondents perceived accidents from nuclear power plants do not cause an atomic explosion.	-0.97033	0.46596	-2.08	0.037
Later, the respondents perceived nuclear fuel can be recycled to produce nuclear energy.	-0.93221	0.343637	-2.71	0.007
Later, the respondents perceived accidents do not come from the nuclear reactor, causing minor impact.	-0.7313	0.388597	-1.88	0.06
Later, the respondents perceived radiation from nuclear power plant is not harmful to the health of people living near a nuclear power plant.	-0.59112	0.342987	-1.72	0.085

Sources: Created by author

Table 4.35 reveals that after obtaining knowledge the knowledge and understanding about nuclear power plant as follows: Accidents from nuclear power plants do not cause an atomic explosion (P_4), Nuclear fuel can be recycled to produce nuclear energy (P_{10}), Accidents do not come from the nuclear reactor, causing minor impact (P_{13}), and The amount of radiation from nuclear power plant is not harmful to the health of people living near a nuclear power plant (P_{14}) are affected to the respondents to choose solar energy as a way to help generate electricity in the next 30 years(S).

2) The factors that the respondents have knowledge about nuclear power plants, both before and after obtaining knowledge ($A_1 - A_{15}$) and what affected to the respondents choose solar energy as a way to help generate electricity in the next 30 years(S).

Table 4.36: The factors for respondents to choose solar energy

Variables	Maximum Likelihood Estimate			
	Coefficient	**Standard Error**	**T-stat**	**Prob**
Constant	-1.09069	0.213034	-5.12	0
Both before and after, the respondents perceived nuclear power plants can produce the cheapest price of electricity than other power plants.	-0.71184	0.378384	-1.88	0.06
Both before and after, the respondents perceived radiation from nuclear power plant is not harmful to the health of people living near a nuclear power plant.	-1.25151	0.634711	-1.97	0.049

Sources: Created by author

Table 4.36 reveals that after obtaining knowledge the knowledge and understanding about nuclear power plant as follows: Nuclear power plants can produce the cheapest price of electricity than other power plants (A_{11}), and The amount of radiation from nuclear power plant is not harmful to the health of people living near a nuclear power plant (A_{14}) are affected to the respondents to choose solar energy as a way to help generate electricity in the next 30 years(S).

3) The factors of whether respondents have knowledge about nuclear power plants after obtaining knowledge ($P_1 – P_{15}$) and what affected to the respondents to choose nuclear power plant as a way to help generate electricity in the next 3 0 years(Y).

Table 4.37: The factors for respondents to choose nuclear power plant

Variables	Maximum Likelihood Estimate			
	Coefficient	**Standard Error**	**T-stat**	**Prob**
Constant	-0.43678	0.258631	-1.69	0.091
Later, the respondents perceived nuclear power plant does not result with acid rain.	0.518328	0.302831	1.71	0.087
Later, the respondents perceived nuclear fuel can be recycled to produce nuclear energy**.**	1.022858	0.298473	3.43	0.001
Later, the respondents perceived nuclear power plants can produce the cheapest price of electricity than other power plants.	0.730429	0.330705	2.21	0.027
Later, the respondents perceived accidents do not come from the nuclear reactor, causing minor impact.	0.906792	0.344353	2.63	0.008
Later, the respondents perceived radiation from nuclear power plant is not harmful to the health of people living near a nuclear power plant.	0.75829	0.303587	2.5	0.012

Sources: Created by author

Table 4.37 reveals that after obtaining knowledge the knowledge and understanding about nuclear power plant as follows: Nuclear power plant does not result with acid rain (P_2), Nuclear fuel can be recycled to produce nuclear energy (P_{10}), Nuclear power plants can produce the cheapest price of electricity than other power plants (P_{11}), Accidents do not come from the nuclear reactor, causing minor impact (P_{13}), and The amount of radiation from nuclear power plant is not harmful to the health of people living near a nuclear power plant (P_{14}) are affected to the respondents to choose nuclear power plant as a way to help generate electricity in the next 30 years (Y).

4) The factors that the respondents have knowledge about nuclear power plants, both before and after obtaining knowledge ($A_1 - A_{15}$) and what affected to the respondents choose nuclear power plant as a way to help generate electricity in the next 30 years(Y).

Table 4.38: The factors for respondents to choose nuclear power plant

Variables	Maximum Likelihood Estimate			
	Coefficient	**Standard Error**	**T-stat**	**Prob**
Constant	0.586974	0.18395	3.19	0.001
Both before and after, the respondents perceived use a chain reaction to produce electricity by splitting atom to heating it in steam from boiling water.	0.541428	0.311458	1.74	0.082
Both before and after, the respondents perceived nuclear power plants can produce the cheapest price of electricity than other power plants.	0.623156	0.307746	2.02	0.043

Sources: Created by author

Table 4.38 reveals that after obtaining knowledge the knowledge and understanding about nuclear power plant as follows: Nuclear power plants use a chain reaction to produce electricity by splitting atom to heating it in steam from boiling water (A_3), and Nuclear power plants can produce the cheapest price of electricity than other power plants (A_{11}) are affected to the respondents to choose nuclear power plant as a way to help generate electricity in the next 30 years (Y).

5) The factors of whether respondents have knowledge about nuclear power plants after obtaining knowledge ($P_1 – P_{15}$) and what affected to the respondents to choose other alternatives as a way to help generate electricity in the next 3 0 years(Z).

Table 4.39: The factors for respondents to choose other alternatives

Variables	Maximum Likelihood Estimate			
	Coefficient	**Standard Error**	**T-stat**	**Prob**
Constant	-1.48308	0.279333	-5.31	0
Later, the respondents perceived nuclear power plant has the slightest emissions pollution.	0.433943	0.238431	1.82	0.069
Later, the respondents perceived nuclear power plant has a more beneficial than disadvantage effect.	0.665799	0.238908	2.79	0.005
Later, the respondents perceived nuclear fuel can be recycled to produce nuclear energy**.**	0.539696	0.235115	2.3	0.022
Later, the respondents perceived nuclear power plants can produce the cheapest price of electricity than other power plants.	0.46384	0.253174	1.83	0.067
Later, the respondents perceived radiation from nuclear power plant is not harmful to the health of people living near a nuclear power plant.	0.545424	0.248112	2.2	0.028

Sources: Created by author

Table 4.35 reveals that after obtaining knowledge the knowledge and understanding about nuclear power plant as follows: Nuclear power plant has the slightest emissions pollution (A_1), Nuclear power plant has a more beneficial than disadvantage effect (A_7), Nuclear fuel can be recycled to produce nuclear energy (A_{10}), Nuclear power plants can produce the cheapest price of electricity than other power plants (A_{11}), and The amount of radiation from nuclear power plant is not harmful to the health of people living near a nuclear power plant (A_{14}) are affected to the respondents to choose alternatives as a way to help generate electricity in the next 30 years (Z).

6) The factors that the respondents have knowledge about nuclear power plants, both before and after obtaining knowledge ($A_1 - A_{15}$) and what affected to the respondents choose other alternatives as a way to help generate electricity in the next 30 years (Z).

Table 4.40: The factors for respondents to choose other alternatives

Variables	Maximum Likelihood Estimate			
	Coefficient	**Standard Error**	**T-stat**	**Prob**
Constant	0.162903	0.16432	0.99	0.322
Both before and after, the respondents perceived nuclear power plant is a solution to solve the problems of global warming**.**	-0.62068	0.308317	-2.01	0.044
Both before and after, the respondents perceived nuclear power plant has a more beneficial than disadvantage effect.	-0.72404	0.258392	-2.8	0.005
Both before and after, the respondents perceived nuclear power plants can produce the cheapest price of electricity than other power plants.	0.492116	0.251594	1.96	0.05

Sources: Created by author

Table 4.40 reveals that after obtaining knowledge the knowledge and understanding about nuclear power plant as follows: The nuclear power plant is a solution to solve the problems of global warming (A_6), Nuclear power plant has a more beneficial than disadvantage effect (A_7), and Nuclear power plants can produce the cheapest price of electricity than other power plants (A_{11}) are affected to the respondents to choose alternatives as a way to help generate electricity in the next 30 years (Z).

7) The factors of whether respondents have knowledge about nuclear power plants after obtaining knowledge ($P_1 – P_{15}$) and what affected to difference scores of opinion in topic Thailand has sufficient sources to produce electricity over the next 30 years ($DeltaX_{16}$).

Table 4.41: The factors that affect to the difference scores of opinion ($DeltaX_{16}$)

Variables	Maximum Likelihood Estimate			
	Coefficient	**Standard Error**	**T-stat**	**Prob**
Constant	0.446558	0.257664	1.73	0.083
Later, the respondents perceived accidents from nuclear power plants do not cause an atomic explosion.	1.097891	0.427739	2.57	0.01
Later, the respondents perceived nuclear power plants have safety standards better than the Chernobyl power plant.	0.801121	0.353834	2.26	0.024

Sources: Created by author

Table 4.41 reveals that after obtaining knowledge the knowledge and understanding about nuclear power plant as follows: Accidents from nuclear power plants do not cause an atomic explosion (P_4) and Nowadays, generally nuclear power plants have safety standards better than the Chernobyl power plant (P_{12}) are affected to the difference scores of opinion in topic Thailand has sufficient sources to produce electricity over the next 30 years ($DeltaX_{16}$).

8) The factors that the respondents have knowledge about nuclear power plants, both before and after obtaining knowledge ($A_1 - A_{15}$) and what affected to the difference scores of opinion in topic Thailand has sufficient sources to produce electricity over the next 30 years ($DeltaX_{16}$).

Table 4.42: The factors that affect to the difference scores of opinion ($DeltaX_{16}$)

Variables	Maximum Likelihood Estimate			
	Coefficient	**Standard Error**	**T-stat**	**Prob**
Constant	1.527229	0.208425	7.33	0
Both before and after, the respondents perceived accidents from nuclear power plants do not cause an atomic explosion.	-0.78413	0.409782	-1.91	0.056

Sources: Created by author

Table 4.42 reveals that after obtaining knowledge the knowledge and understanding about nuclear power plant as follows: Accidents from nuclear power plants do not cause an atomic explosion (A_4) is affected to the difference scores of opinion in topic Thailand has sufficient sources to produce electricity over the next 30 years ($DeltaX_{16}$).

9) The factors of whether respondents have knowledge about nuclear power plants after obtaining knowledge ($P_1 – P_{15}$) and what affected to the difference scores of opinion in topic the respondents willing to accept construction of a nuclear power plants near their community (DeltaX_{17}).

Table 4.43: The factors that affect to the difference scores of opinion

Variables	Maximum Likelihood Estimate			
	Coefficient	**Standard Error**	**T-stat**	**Prob**
Constant	0.821358	0.286247	2.87	0.004
Later, the respondents perceived use a chain reaction to produce electricity by splitting atom to heating it in steam from boiling water.	0.730798	0.376713	1.94	0.052
Later, the respondents perceived accidents from nuclear power plants do not cause an atomic explosion.	0.77042	0.45684	1.69	0.092
Later, the respondents perceived nuclear power plants can produce the cheapest price of electricity than other power plants.	0.727063	0.40472	1.8	0.072

Sources: Created by author

Table 4.43 reveals that after obtaining knowledge the knowledge and understanding about nuclear power plant as follows: Nuclear power plants use a chain reaction to produce electricity by splitting atom to heating it in steam from boiling water (P_3), Accidents from nuclear power plants do not cause an atomic explosion (P_4), and Nuclear power plants can produce the cheapest price of electricity than other power plants (P_{11}) are affected to the difference scores of opinion in topic the respondents willing to accept construction of a nuclear power plants near their community (DeltaX_{17}).

10) The factors that the respondents have knowledge about nuclear power plants, both before and after obtaining knowledge ($A_1 - A_{15}$) and what affected to the difference scores of opinion in topic the respondents willing to accept construction of a nuclear power plants near their community (DeltaX_{17}).

Table 4.44: The factors that affect to the difference scores of opinion

Variables	Maximum Likelihood Estimate			
	Coefficient	Standard Error	T-stat	Prob
Constant	1.929184	0.240168	8.03	0
Both before and after, the respondents perceived radiation from nuclear power plant is not harmful to the health of people living near a nuclear power plant.	1.310678	0.593994	2.21	0.027

Sources: Created by author

Table 4.44 reveals that after obtaining knowledge the knowledge and understanding about nuclear power plant as follows: The amount of radiation from nuclear power plant is not harmful to the health of people living near a nuclear power plant (A_{14}) is affected to the difference scores of opinion in topic the respondents willing to accept construction of a nuclear power plants near their community (DeltaX_{17}).

11)The factors of whether respondents have knowledge about nuclear power plants after obtaining knowledge ($P_1 - P_{15}$) and what affected to the difference scores of opinion in topic the respondents think that nuclear power plants make more employment (DeltaX_{18}).

Table 4.45: The factors that affect to the difference scores of opinion

Variables	Maximum Likelihood Estimate			
	Coefficient	Standard Error	T-stat	Prob
Constant	0.776916	0.273121	2.84	0.004
-	-	-	-	-

Sources: Created by author

Table 4.45 reveals that that after obtaining knowledge does not has factor affected to the difference scores of opinion in topic the respondents think that nuclear power plants make more employment (DeltaX_{18}).

12) The factors that the respondents have knowledge about nuclear power plants, both before and after obtaining knowledge ($A_1 - A_{15}$) and what affected to the difference scores of opinion in topic the respondents think that nuclear power plants make more employment (DeltaX_{18}).

Table 4.46: The factors that affect to the difference scores of opinion

Variables	Maximum Likelihood Estimate			
	Coefficient	**Standard Error**	**T-stat**	**Prob**
Constant	1.966451	0.239561	8.21	0
Both before and after, the respondents perceived accidents from nuclear power plants do not cause an atomic explosion.	1.145934	0.56824	2.02	0.044
Both before and after, the respondents perceived nuclear power plant is a solution to solve the problems of global warming.	-1.16792	0.365992	-3.19	0.001

Sources: Created by author

Table 4.46 reveals that after obtaining knowledge the knowledge and understanding about nuclear power plant as follows: Accidents from nuclear power plants do not cause an atomic explosion (A_4), and The nuclear power plant is a solution to solve the problems of global warming (A_6) are affected to the difference scores of opinion in topic the respondents think that nuclear power plants make more employment (DeltaX_{18}).

13) The factors of whether respondents have knowledge about nuclear power plants after obtaining knowledge ($P_1 – P_{15}$) and what affected to the difference scores of opinion in topic Thailand is ready to construct nuclear power plants (DeltaX_{19}).

Table 4.47: The factors that affect to the difference scores of opinion

Variables	Maximum Likelihood Estimate			
	Coefficient	**Standard Error**	**T-stat**	**Prob**
Constant	0.707458	0.27946	2.53	0.011
Later, the respondents perceived nuclear power plant has a more beneficial than disadvantage effect.	0.714752	0.357517	2	0.046
Later, the respondents perceived radiation from nuclear power plant is not harmful to the health of people living near a nuclear power plant.	0.605495	0.355922	1.7	0.089

Sources: Created by author

Table 4.47 reveals that after obtaining knowledge the knowledge and understanding about nuclear power plant as follows: Nuclear power plant has a more beneficial than disadvantage effect (P_7), and The amount of radiation from nuclear power plant is not harmful to the health of people living near a nuclear power plant (P_{14}) are affected to the difference scores of opinion in topic Thailand is ready to construct nuclear power plants (DeltaX_{19}).

1 4) The factors that the respondents have knowledge about nuclear power plants, both before and after obtaining knowledge ($A_1 - A_{15}$) and what affected to the difference scores of opinion in topic Thailand is ready to construct nuclear power plants (DeltaX_{19}).

Table 4.48: The factors that affect to the difference scores of opinion

Variables	Maximum Likelihood Estimate			
	Coefficient	**Standard Error**	**T-stat**	**Prob**
Constant	1.875835	0.235847	7.95	0
Both before and after, the respondents perceived nuclear power plant is a solution to solve the problems of global warming**.**	-0.84613	0.392965	-2.15	0.031
Both before and after, the respondents perceived nuclear fuel can be recycled to produce nuclear energy**.**	-0.67563	0.39516	-1.71	0.087

Sources: Created by author

Table 4.48 reveals that after obtaining knowledge the knowledge and understanding about nuclear power plant as follows: The nuclear power plant is a solution to solve the problems of global warming (A_6), and Nuclear fuel can be recycled to produce nuclear energy (A_{10}) are affected to the difference scores of opinion in topic Thailand is ready to construct nuclear power plants (DeltaX_{19}).

15) The factors of whether respondents have knowledge about nuclear power plants after obtaining knowledge ($P_1 – P_{15}$) and what affected to the difference scores of opinion in topic the respondents agree to construct nuclear power plants in Thailand (DeltaX_{20}).

Table 4.49: The factors that affect to the difference scores of opinion

Variables	Maximum Likelihood Estimate			
	Coefficient	**Standard Error**	**T-stat**	**Prob**
Constant	0.897192	0.305773	2.93	0.003
Later, the respondents perceived accidents from nuclear power plants do not cause an atomic explosion.	1.218992	0.585339	2.08	0.037
Later, the respondents perceived nuclear power plant has a more beneficial than disadvantage effect.	1.401671	0.471826	2.97	0.003
Later, the respondents perceived accidents do not come from the nuclear reactor, causing minor impact.	0.999601	0.45227	2.21	0.027

Sources: Created by author

Table 4.49 reveals that after obtaining knowledge the knowledge and understanding about nuclear power plant as follows: Accidents from nuclear power plants do not cause an atomic explosion (P_4), Nuclear power plant has a more beneficial than disadvantage effect (P_7), and Accidents do not come from the nuclear reactor, causing minor impact (P_{13}) are affected to the difference scores of opinion in topic the respondents agree to construct nuclear power plants in Thailand (DeltaX_{20}).

1 6) The factors that the respondents have knowledge about nuclear power plants, both before and after obtaining knowledge ($A_1 - A_{15}$) and what affected to the difference scores of opinion in topic the respondents agree to construct nuclear power plants in Thailand ($DeltaX_{20}$).

Table 4.50: The factors that affect to the difference scores of opinion

Variables	Maximum Likelihood Estimate			
	Coefficient	**Standard Error**	**T-stat**	**Prob**
Constant	2.363992	0.268052	8.82	0
Both before and after, the respondents perceived nuclear power plant is a solution to solve the problems of global warming**.**	-0.85235	0.408856	-2.08	0.037

Sources: Created by author

Table 4.50 reveals that after obtaining knowledge the knowledge and understanding about nuclear power plant as follows: The nuclear power plant is a solution to solve the problems of global warming (A_6) is affected to the difference scores of opinion in topic the respondents agree to construct nuclear power plants in Thailand ($DeltaX_{20}$).

1 7) The respondents to choose solar energy as a way to help generate electricity in the next 30 years (S).

Table 4.51: The factors for respondents to choose solar energy

Variables	Maximum Likelihood Estimate			
	Coefficient	**Standard Error**	**T-stat**	**Prob**
Constant	0.529916	0.40573	1.31	0.192
Later, the respondents perceived nuclear fuel can be recycled to produce nuclear energy**.**	-0.78448	0.390921	-2.01	0.045
Later, the respondents perceived nuclear power plants can produce the cheapest price of electricity than other power plants.	-0.91205	0.419813	-2.17	0.03
Later, the respondents perceived nuclear power plants have safety standards better than the Chernobyl power plant.	-0.69223	0.410043	-1.69	0.091
Later, the respondents perceived accidents do not come from the nuclear reactor, causing minor impact.	-0.98268	0.440661	-2.23	0.026
Later, the respondents perceived radiation from nuclear power plant is not harmful to the health of people living near a nuclear power plant.	-0.7042	0.387407	-1.82	0.069
Both before and after, the respondents perceived radiation from nuclear power plant is not harmful to the health of people living near a nuclear power plant.	-1.5276	0.680503	-2.24	0.025

Sources: Created by author

Table 4.51 reveals the knowledge and understanding about nuclear power plant as follows: Nuclear fuel can be recycled to produce nuclear energy (P_{10}), Nuclear power plants can produce the cheapest price of electricity than other power plants (P_{11}), Nowadays, generally nuclear power plants have safety standards better than the Chernobyl power plant (P_{12}), Accidents do not come from the nuclear reactor, causing minor impact (P_{13}), and The amount of radiation from nuclear power plant is not harmful to the health of people living near a nuclear power plant (P_{14},A_{14}) are affected to the respondents to choose solar energy as a way to help generate electricity in the next 30 years (S).

18) The respondents to choose nuclear power plant as a way to help generate electricity in the next 30 years (Y).

Table 4.52: The factors for respondents to choose nuclear power plant

Variables	Maximum Likelihood Estimate			
	Coefficient	**Standard Error**	**T-stat**	**Prob**
Constant	-1.5052	0.383431	-3.93	0
Later, the respondents perceived nuclear power plant does not result with acid rain.	0.699196	0.337328	2.07	0.038
Later, the respondents perceived nuclear fuel can be recycled to produce nuclear energy**.**	1.160532	0.345621	3.36	0.001
Later, the respondents perceived nuclear power plants can produce the cheapest price of electricity than other power plants.	1.173175	0.378237	3.1	0.002
Later, the respondents perceived accidents do not come from the nuclear reactor, causing minor impact.	1.064937	0.396103	2.69	0.007
Later, the respondents perceived radiation from nuclear power plant is not harmful to the health of people living near a nuclear power plant.	0.618089	0.349397	1.77	0.077
Both before and after, the respondents perceived nuclear power plant does not result with acid rain.	0.706797	0.42721	1.65	0.098
Both before and after, the respondents perceived nuclear power plants can produce the cheapest price of electricity than other power plants.	0.742585	0.38444	1.93	0.053

Sources: Created by author

Table 4.52 reveals the knowledge and understanding about nuclear power plant as follows: Nuclear power plant does not result with acid rain (P_2 , A_2), Nuclear fuel can be recycled to produce nuclear energy (P_{10}) , Nuclear power plants can produce the cheapest price of electricity than other power plants (P_{11} , A_{11}), Accidents do not come from the nuclear reactor, causing minor impact (P_{13}), and The amount of radiation from nuclear power plant is not harmful to the health of people living near a nuclear power plant (P_{14}) are affected to the respondents to choose nuclear energy as a way to help generate electricity in the next 30 years (Y).

1 9) The respondents to choose other alternatives as a way to help generate electricity in the next 30 years (Z).

Table 4.53: The factors for respondents to choose other alternatives

Variables	Maximum Likelihood Estimate			
	Coefficient	**Standard Error**	**T-stat**	**Prob**
Constant	-1.59898	0.333773	-4.79	0
Later, the respondents perceived nuclear fuel can be recycled to produce nuclear energy**.**	0.661131	0.2774	2.38	0.017
Later, the respondents perceived nuclear power plants can produce the cheapest price of electricity than other power plants.	0.866327	0.307704	2.82	0.005
Later, the respondents perceived radiation from nuclear power plant is not harmful to the health of people living near a nuclear power plant.	0.596526	0.293289	2.03	0.042
Both before and after, the respondents perceived the white smoke that comes out from nuclear power plants is not dangerous to smell.	0.75885	0.417061	1.82	0.069
Both before and after, the respondents perceived nuclear power plant is a solution to solve the problems of global warming.	-0.57446	0.334067	-1.72	0.086
Both before and after, the respondents perceived nuclear power plant has a more beneficial than disadvantage effect.	-0.64772	0.32785	-1.98	0.048
Both before and after, the respondents perceived nuclear power plants can produce the cheapest price of electricity than other power plants.	0.684335	0.32397	2.11	0.035

Sources: Created by author

Table 4.53 reveals the knowledge and understanding about nuclear power plant as follows: Nuclear fuel can be recycled to produce nuclear energy (P_{10}), Nuclear power plants can produce the cheapest price of electricity than other power plants (P_{11} , A_{11}), The amount of radiation from nuclear power plant is not harmful to the health of people living near a nuclear power plant (P_{14}), The white smoke that comes out from nuclear power plants is not dangerous to smell (A_5), The nuclear power plant is a solution to solve the problems of global warming (A_6), and Nuclear power plant has a more

beneficial than disadvantage effect (A_7) are affected to the respondents to choose other alternatives as a way to help generate electricity in the next 30 years (Z).

2 0) The factors that affected to the difference scores of opinion in topic Thailand has sufficient sources to produce electricity over the next 30 years (DeltaX_{16}).

Table 4.54: The factors that affect to the difference scores of opinion

Variables	Maximum Likelihood Estimate			
	Coefficient	**Standard Error**	**T-stat**	**Prob**
Constant	0.440872	0.354298	1.24	0.213
Later, the respondents perceived accidents from nuclear power plants do not cause an atomic explosion.	1.068375	0.465224	2.3	0.022
Later, the respondents perceived nuclear power plants have safety standards better than the Chernobyl power plant.	0.759279	0.373536	2.03	0.042

Sources: Created by author

Table 4.54 reveals the knowledge and understanding about nuclear power plant as follows: Accidents from nuclear power plants do not cause an atomic explosion (P_4), Nowadays, generally nuclear power plants have safety standards better than the Chernobyl power plant (P_{12}) are affected to the difference scores of opinion in topic Thailand has sufficient sources to produce electricity over the next 30 years (DeltaX_{16}).

21) The factors that affected to the difference scores of opinion in topic the respondents accept construction of a nuclear power plants near their community (DeltaX_{17}).

Table 4.55: The factors that affect to the difference scores of opinion

Variables	Maximum Likelihood Estimate			
	Coefficient	**Standard Error**	**T-stat**	**Prob**
Constant	0.583563	0.401923	1.45	0.147
Later, the respondents perceived use a chain reaction to produce electricity by splitting atom to heating it in steam from boiling water.	0.890968	0.423034	2.11	0.035
Later, the respondents perceived nuclear power plants can produce the cheapest price of electricity than other power plants.	0.886949	0.452381	1.96	0.05

Sources: Created by author

Table 4.55 reveals the knowledge and understanding about nuclear power plant as follows: Nuclear power plants use a chain reaction to produce electricity by splitting atom to heating it in steam from boiling water (P_3) and Nuclear power plants can produce the cheapest price of electricity than other power plants (P_{11}) are affected to the difference scores of opinion in topic the respondents accept construction of a nuclear power plants near their community (DeltaX_{17}).

2 2) The questions, that affect to the difference scores of opinion in topic nuclear power plants make more employment (DeltaX_{18}).

Table 4.56: The factors that affect to the difference scores of opinion

Variables	Maximum Likelihood Estimate			
	Coefficient	**Standard Error**	**T-stat**	**Prob**
Constant	1.046331	0.397234	2.63	0.008
Later, the respondents perceived use a chain reaction to produce electricity by splitting atom to heating it in steam from boiling water.	0.906479	0.396368	2.29	0.022
Both before and after, the respondents perceived use a chain reaction to produce electricity by splitting atom to heating it in steam from boiling water.	0.968808	0.436	2.22	0.026
Both before and after, the respondents perceived accidents from nuclear power plants do not cause an atomic explosion.	1.867905	0.643146	2.9	0.004
Both before and after, the respondents perceived nuclear power plant is a solution to solve the problems of global warming.	-1.17816	0.400141	-2.94	0.003
Both before and after, the respondents perceived nuclear fuel can be recycled to produce nuclear energy.	-0.79728	0.47966	-1.66	0.096

Sources: Created by author

Table 4.56 reveals the knowledge and understanding about nuclear power plant as follows: Nuclear power plants use a chain reaction to produce electricity by splitting atom to heating it in steam from boiling water (P_3, A_3), Accidents from nuclear power plants do not cause an atomic explosion (A_4), and Nuclear fuel can be recycled to produce nuclear energy (A_{10}) are affected to the difference scores of opinion in topic nuclear power plants make more employment (DeltaX_{18}).

2 3)The factors that affected to the difference scores of opinion in topic Thailand is ready to construct nuclear power plants (DeltaX_{19}).

Table 4.57: The factors that affect to the difference scores of opinion

Variables	Maximum Likelihood Estimate			
	Coefficient	**Standard Error**	**T-stat**	**Prob**
Constant	0.707998	0.397265	1.78	0.075
Later, the respondents perceived radiation from nuclear power plant is not harmful to the health of people living near a nuclear power plant.	0.779689	0.422071	1.85	0.065
Both before and after, the respondents perceived nuclear power plant is a solution to solve the problems of global warming.	-0.79095	0.420484	-1.88	0.06

Sources: Created by author

Table 4.57 reveals the knowledge and understanding about nuclear power plant as follows: The amount of radiation from nuclear power plant is not harmful to the health of people living near a nuclear power plant (P_{14}) and The nuclear power plant is a solution to solve the problems of global warming (A_6) are affected to the difference scores of opinion in topic Thailand is ready to construct nuclear power plants (DeltaX_{19}).

24) The factors that affected to the difference scores of opinion in topic the respondents agree to construct nuclear power plants in Thailand (DeltaX_{20}).

Table 4.58: The factors that affect to the difference scores of opinion

Variables	Maximum Likelihood Estimate			
	Coefficient	**Standard Error**	**T-stat**	**Prob**
Constant	1.130154	0.461209	2.45	0.014
Later, the respondents perceived accidents from nuclear power plants do not cause an atomic explosion.	1.265847	0.664578	1.9	0.057
Later, the respondents perceived the white smoke that comes out from nuclear power plants is not dangerous to smell.	-1.4048	0.752877	-1.87	0.062
Later, the respondents perceived nuclear power plant has a more beneficial than disadvantage effect.	1.420757	0.525838	2.7	0.007
Later, the respondents perceived nuclear power plants have safety standards better than the Chernobyl power plant.	-1.00284	0.44526	-2.25	0.024
Later, the respondents perceived accidents do not come from the nuclear reactor, causing minor impact.	1.510222	0.530591	2.85	0.004
Both before and after, the respondents perceived nuclear power plants have safety standards better than the Chernobyl power plant.	-1.20079	0.549649	-2.18	0.029

Sources: Created by author

Table 4.58 reveals the knowledge and understanding about nuclear power plant as follows: Accidents from nuclear power plants do not cause an atomic explosion (P_4), The white smoke that comes out from nuclear power plants is not dangerous to smell (P_5), Nuclear power plant has a more beneficial than disadvantage effect (P_7),Nowadays, generally nuclear power plants have safety standards better than the Chernobyl power plant (P_{12} , A_{12}), and Accidents do not come from the nuclear reactor, causing minor impact (P_{13}) are affected to the difference scores of opinion in topic the respondents agree to construct nuclear power plants in Thailand (DeltaX_{20}).