# CHAPTER 4
# RESULTS

The objectives of this study were to:

1. To produce the video program on "Sufficiency Economy: from Concept to Practice".

2. Compare and analyze cognitive domain learning outcomes of the farmers based on memory and understanding in the contents of the video program on "Sufficiency Economy: From Concept to Practice" produced in 3 different forms:

   2.1 The video program presenting normal continuity

   2.2 The video program presenting normal continuity with motive graphic

   2.3 The video program presenting normal continuity with motive pictures which can be stopped as pictures;

3. Assess the video program on "Sufficiency Economy: From Concept to Practice". This paper consisted of 3 parts as follows:

Part 1. Basic data of farmers in Chaing Mai province

Part 2. Learning outcomes of the farmers after watching the video program

Part 3. Opinions of the farmers about the video program after watching it

## Part 1. Basic data of farmers in Chiang Mai province

### Sex

More than one-half of the respondents (60.83%) were female and the rest were male (39.17%). More than one-half of the respondents (53.30%) in the control group were female and the rest (46.70%) were male. Most of the respondents (70.00%) in the experimental group 1 were female and the rest (30.00%) were male. More than one-half of the respondents (53.30%) were female and the rest 46.70% were male. Most of the respondents (66.70%) were female and the rest (33.30%) were male. (Table 3).

**Age**

Less than one-half (40.00%) of all of the respondents had their age range of 51-60 years. This was followed by 41-50 and 61-70 years. Besides, 10.83 percent of the respondents were less than 41 years old whereas only 4.17 percent were more than 71 years old. Based on the comparison of age of the respondents in each group, it was found than less than one-half (40.00% of the respondents in the control group had their age range of 41-50 years. Besides, 33.00 percent had their age range of 51-60 years; 26.70 percent had their age range of 61-70 years; and only 3.30 percent had their age range of less than 41 years. For the first experimental group, one-third (36.70%) of the respondents had their age range of 51-60 years; 33.30 percent had their age range of 61-70 year; 16.70 percent had their age range of less than 41 years; and 13.30 percent had their age range of 41-50 years. For the second experimental group, almost one-half (43.30%) of the respondents had their age range of 51-60 years; 18.70 percent had their age range of less than 41 years; and 16.70 percent had their age range of 41-50 and 61-70 years. However, only 6.70 percent were 71 years old and above. For the third experimental group, one-half (50.00%) of the respondents had their age range of 51-60 years; 20.00 percent had their age range of 41-50 years; 13.30 percent had their age range of 61-70 years; 10.00 percent were more than 71 years old; and only 6.70 percent were less than 41 years (Table 3).

**Table 3** Frequency distribution of data related to basic attributes of the farmers

| Basic data | Control group | | Experimental group 1 | | Experimental group=2 | | Experimental group=3 | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % | No. | % |
| **Sex** | | | | | | | | | | |
| Male | 14 | 46.70 | 9 | 30.00 | 14 | 46.70 | 10 | 33.30 | 47 | 39.17 |
| Female | 16 | 53.30 | 21 | 70.00 | 16 | 53.30 | 20 | 66.70 | 73 | 60.83 |
| **Age (Year)** | | | | | | | | | | |
| Less than 41 | 1 | 3.30 | 5 | 16.70 | 5 | 18.70 | 2 | 6.70 | 13 | 10.83 |
| 41 – 50 | 12 | 40.00 | 4 | 13.30 | 5 | 16.70 | 6 | 20.00 | 27 | 22.50 |
| 51 – 60 | 9 | 30.00 | 11 | 36.70 | 13 | 43.30 | 15 | 50.00 | 48 | 40.00 |
| 61 – 70 | 8 | 26.70 | 10 | 33.30 | 5 | 16.70 | 4 | 13.30 | 27 | 22.50 |
| 71 years and above | - | - | - | - | 2 | 6.70 | 3 | 10.00 | 5 | 4.17 |
| Minimum | 33.00 | | 30.00 | | 28.00 | | 30.00 | | 28.00 | |
| Maximum | 70.00 | | 69.00 | | 72.00 | | 81.00 | | 81.00 | |
| Mean | 54.13 | | 54.37 | | 54.57 | | 55.27 | | 54.33 | |
| SD | 8.71 | | 11.64 | | 11.30 | | 10.67 | | 10.52 | |

**Educational Attainment**

More than one-half (55.83%) of all of the farmers were elementary school graduates (Prathomsuksa 6). Only 12.50 percent were lower secondary school graduates and below; 10 percent were vocational certificate graduates; one-half (50.00%) of the respondents in the control group were elementary school graduates (Prathomsuksa 6); 16.70 percent were Prathomsuksa 4 graduates. Besides, only 6.67 percent were vocational certificate and higher. For farmers in the experimental group 1, more than one-half (60.00%) of them were Prathomsuksa 6 graduates. Only 13.30 percent were lower than Prathomsuksa 4 graduates. Another 13.30 percent were Prathomsuksa 4 graduates. Only 10.00 percent were vocational certificate graduates and higher. Only 3.30 percent were lower secondary school graduates. For the respondents in the experimental group 2, less than one-half of them (43.30%) were Prathomsuksa 6 graduates. One-fifth (20.00%) were lower secondary school graduates. Only 16.70 percent were vocational certificate graduates and higher Ten percent were Prathomsuksa 4 graduate and another 16 were lower than Prathomsuksa 4 graduates. For the experimental group 3, most of the farmers (70.00%) were Prathomsuksa 6 graduates. Only 16.70 percent were lower secondary school graduates. Only 6.67 percent were vocational certificate graduates and higher. Besides, only 3.30 percent were Prathomsuksa 4 graduates and lowers (Table 4).

**Competency in Reading and Writing**

It was found that more than one-half (64.17%) of all of the respondents had a high level of the competency in reading and writing. One-third (34.17%) had a moderate level whereas only 1.67 percent were illiterate. Compared the competency in reading and writing of the respondents in each group, it was found than those of the 4 groups had a high level of the competency in reading and writing. For respondents in the control group, more than one-half (56.70%) of them had a high level of the proficiency in reading and writing. Less than one-half (40.00%) had a moderate level of reading and writing; only 3.30 percent could read but could not write. For respondents in the first experimental group, 56.70 percent had a high level of the competency in reading and writing; 40 percent could read but could not write; and only 3.30 percent were illiterate. For respondents in the second experimental group, most of them (73.30%) had a high a level of the competency in reading and writing

whereas 26.70 percent had a moderate level of the competency. For respondents in the third experimental group, most of them (70.00%) had a high level of the competency in reading and writing whereas 30.00 percent of them had a moderate level the competency (Table 4).

**Table 4** Frequency distribution of data related to educational attainment proficiency in reading and writing of the farmers.

| Basic data | Control group | | Experimental group 1 | | Experimental group=2 | | Experimental group=3 | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % | No. | % |
| **Educational attainment** | | | | | | | | | | |
| Lower than Prathomsuksa 4 | 5 | 16.70 | 4 | 13.30 | 3 | 10.00 | 1 | 3.30 | 13 | 10.83 |
| Prathomsuksa 4 graduates | 5 | 16.70 | 4 | 13.30 | 3 | 10.00 | 1 | 3.30 | 13 | 10.83 |
| Prathomsuksa 6 graduates | 15 | 50.00 | 18 | 60.00 | 13 | 43.30 | 21 | 70.00 | 67 | 55.83 |
| Lower secondary school graduates | 3 | 10.00 | 1 | 3.30 | 6 | 20.00 | 5 | 16.70 | 15 | 12.50 |
| Professional experience | 2 | 6.67 | 3 | 10.00 | 5 | 16.70 | 2 | 6.67 | 12 | 10.00 |
| **Literacy competency** | | | | | | | | | | |
| A high level of literacy competency | 17 | | 56.70 | | 17 | | 56.70 | | 22 | |
| A moderate level of literacy competency | 12 | | 40.00 | | 12 | | 40.00 | | 8 | |
| Illiteracy | 1 | | 3.30 | | 1 | | 3.30 | | - | |

**Main Agricultural Careers**

Less than one-half (38.33%) of all of the respondents grew rice. Besides, 30.28 percent grew fruit trees; 12.50 percent domesticated animals; 6.60 percent grew field crops; 5.00 percent grew vegetables or did other occupations. Based on the comparison of main occupations of respondents in each group, it was found that less than one-half (40.00 percent) of those in the control group grew fruit trees; 36.70 percent grew rice; 10.00 percent grew field crops; 6.70 percent grew vegetables; 3.30 percent domesticated animals; and other 3.30 percent did other occupations. For respondents in the first experimental group, 43.30 percent grew rice; 23.30 percent grew fruit trees, 13.30 percent domesticated animals; 6.70 percent grew field crops; 6.70 percent grew vegetables; and only 6.70 percent did other occupations. For respondents in the second experimental group, one-third (33.30%) of them grew rice; 26.73 percent domesticated animals; 23.30 percent grew fruit trees; 13.30 percent grew vegetables; and 3.30 percent did other occupations. For respondents in the third experimental group, less than one-half (40.00%) of them grew rice; 36.70 percent grew fruit trees; 10.00 percent grew field corps; 6.70 percent domesticated animals; and 6.70 percent did other careers, respectively (Table 5).

**Income Earned from Agricultural Careers**

Most all of the respondents (81.67%) earned incomes from the agricultural sector for less than 90,001 baht per year. Besides, 14.17 percent earned the incomes for 90,001-180,000 and 180,001-270,000 baht per year, respectively. Only 0.83 percent earned the incomes for 270,001-360,000 baht per year. Likewise, only 0.83 percent earned the incomes for more than 360,000 baht per year. For respondents in the control group, most of them (80.00%) earn incomes from the agricultural sector for less than 90,001 baht per year. Besides, 16.70 and 3.30 percent earned incomes form the agricultural sector for 90,001-180,000 and 180,001-270,000 baht per year. For the experimental group 1, most of the respondents (80.00%) earned incomes form the agricultural sector for less than 90,001 baht per year. Besides, 13.30 and 6.70 percent earned incomes form the agricultural sector 90,001-180,000 and 180,001-270,000 baht per year. For the experimental group 2, most of the respondents (86.70%) earned incomes form the agricultural sector for less than 90,001 baht per

year. Besides, 13.30 percent earned incomes from the agricultural sector for 90,001-180,000. For the experimental group 3, most of the respondents (80.00%) earned incomes form the agricultural sector for less than 90,001 baht per year. Besides, only 13.30 and 6.70 percent earned incomes form the agricultural sector fro 90,001-180,000 and 180,001-270,000 baht per year, respectively. The respondents earning incomes for 270,000-360,000 and more4 than 360,000 baht per year accounted for 3.30 percent each (Table 5).

**Incomes earned from non-agricultural sector**

It was found than most of all of the respondents (71.67%) earned incomes form non-agricultural sector for less than 16,001 baht per year. Besides, 16.67, 5.00, and 5.00 percent earned incomes form non-agricultural sector for 16,001-32,000, 32,001-48,000, and 48,001-64,000 baht per year. Only 1.67 percent earned incomes form non-agricultural sector for 64,000 baht per year. For respondents of control group, only 10.00% percent earned incomes form non-agricultural sector for less than 16,001 baht per year. Besides, 13.00, 6.70, and 6.70 percent earned incomes from non-agricultural sector for 16,001-32,000, 32,001-48,000, and 48,001-64,000 baht per year, respectively. Only 3.30 percent earned incomes form non-agricultural sector for more than 64,000 per year. For the second experimental group, more than one-half (63.30%) of the respondents earned incomes form non-agricultural group for less than 16,001 baht per year. Only 26.70 and 10.00 percent earned incomes from non-agricultural sector for 16,001-32,000 and 32,001-48,000 baht per year, respectively. For the third experimental group, most of the respondents (73.30%) earned incomes from non-agricultural sector for less than 90,001 baht per year. Besides, only 20.00, 3.30, and 3.30 percent earned incomes from non-agricultural sector for 90,001-180,000, 180,001-270,000 and 270,001-360,000 baht per year, respectively (Table 5).

**Table 5** Frequency distribution of data about main occupation of the farmers and incomes earned from agricultural and non-agricultural sectors.

| Basic data | Control group | | Experimental group 1 | | Experimental group=2 | | Experimental group=3 | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % | No. | % |
| **Main agricultural career** | | | | | | | | | | |
| Rice growing | 11 | 36.70 | 13 | 43.30 | 10 | 33.30 | 12 | 40.0 | 46 | 38.33 |
| Field crop growing | 3 | 10.00 | 2 | 6.70 | - | - | 3 | 10.00 | 8 | 6.67 |
| Fruit tree growing | 12 | 40.00 | 7 | 23.30 | 7 | 23.30 | 11 | 36.70 | 37 | 30.83 |
| Animal domestication | 1 | 3.30 | 4 | 13.30 | 8 | 26.70 | 2 | 6.70 | 15 | 12.50 |
| Vegetable growing | 2 | 6.70 | 2 | 6.70 | 4 | 13.30 | - | - | 8 | 6.67 |
| Other | 1 | 3.30 | 2 | 6.70 | 1 | 3.30 | 2 | 6.70 | 6 | 5.00 |
| **Incomes earned from farming (baht/year)** | | | | | | | | | | |
| Less than 90,001 | 24 | 80.00 | 24 | 80.00 | 26 | 86.70 | 24 | 80.00 | 98 | 81.67 |
| 90,001 – 180,000 | 5 | 16.70 | 4 | 13.30 | 4 | 13.30 | 4 | 13.30 | 17 | 14.17 |
| 180,001 – 270,000 | 1 | 3.30 | 2 | 6.70 | - | - | 2 | 6.70 | 5 | 4.17 |
| 270,001 – 360,000 | - | - | - | - | - | - | 1 | 3.30 | 1 | 0.83 |
| More than 360,000 | - | - | - | - | - | - | 1 | 3.30 | 1 | 0.83 |

**Table 5** (Continued)

| Basic data | Control group | | Experimental group 1 | | Experimental group=2 | | Experimental group=3 | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % | No. | % |
| Minimum | 10,000.00 | | 15,000.00 | | 12,000.00 | | 20,000.00 | | 10,000.00 | |
| Maximum | 190,000.00 | | 250,000.00 | | 150,000.00 | | 800,000.00 | | 800,000.00 | |
| Mean | 55,533.33 | | 58,833.33 | | 50,066.67 | | 92,333.33 | | 64,191.67 | |
| SD | 46,932.62 | | 55,796.48 | | 37,540.72 | | 149,843.21 | | 85,946.17 | |
| **Other (Baht/year)** | | | | | | | | | | |
| Less than 16001 | 21 | 10.00 | 24 | 80.00 | 19 | 63.30 | 22 | 73.30 | 86 | 71.67 |
| 60,001 – 32,000 | 4 | 13.30 | 2 | 6.70 | 8 | 26.70 | 6 | 20.00 | 20 | 16.67 |
| 32,001 – 48,000 | 2 | 6.70 | - | - | 3 | 10.00 | 1 | 3.30 | 6 | 5.00 |
| 48,001 – 64,000 | 2 | 6.70 | 3 | 10.00 | - | - | 1 | 3.30 | 6 | 5.00 |
| More than 64,000 | 1 | 3.30 | 1 | 3.30 | - | - | - | - | 2 | 1.67 |
| Minimum | 0.00 | | 0.00 | | 0.00 | | 3,000.00 | | 0.00 | |
| Maximum | 70,000.00 | | 100,000.00 | | 45,000.00 | | 50,000.00 | | 100,000.00 | |
| Mean | 14,686.67 | | 13,106.67 | | 13,950.00 | | 12,700.00 | | 13,610.83 | |
| SD | 17,851.55 | | 22,094.39 | | 12,182.77 | | 11,543.47 | | 16,305.26 | |

**Frequency in Agricultural exposure**

It was found that most of the respondents (82.50%) perceived agricultural knowledge for less than 10 times per year. Only 12.50 percent perceived agricultural knowledge for 10-20 times per year. Besides, only 2.50 percent perceived agricultural knowledge for 21-30 times per year and more than 30 times per year each.

It was found that most respondents in the control group (80.00%) perceived agricultural knowledge for less than 10 times per year. Only 13.30 percent perceived agricultural knowledge for 10-20 times per year. Besides, only 3.30 perce3nt perceived agricultural knowledge for 21-30 times and more than 30 times per year. For the first experimental group, most of the respondents (83.30%) perceived agricultural knowledge for less than 10 times per year. Only 13.30 and 3.30 percent perceived agricultural knowledge for 10-20 and 21-30 times per year, respectively. For the second experimental group, most of the respondents (93.30%) perceived agricultural knowledge for less than 10 times per year. Only 6.70 percent perceived agricultural knowledge for 10-20 times per year. For the third experimental group, most of the respondents (73.30%) perceived agricultural knowledge for less than 10 times per year. Only 12.50 percent perceived agricultural knowledge for 10-20 times per year. Besides, only 2.50 percent perceived agricultural knowledge for 21-30 and more than 31 times per year (Table 6).

**Sources of Agricultural knowledge through various media**

It was found than most of the respondents (70.83%) perceived agricultural knowledge through television. The rest were radio (20.83%), information board (3.33%), and newspaper (1.67%). Based on the comparison of agricultural knowledge sources, respondents in the control group perceived agricultural knowledge through television, radio, newspaper/academician for 66.70, 26.70, and 3.30 percent respectively. For the first experimental group, most of the respondents perceived agricultural knowledge through television (80.00%) and 20.00 percent perceived agricultural knowledge through radio. For the second experimental group, most of the respondents (80.00%) used to watch agricultural video program (Table 6).

**Table 6** Frequency distribution of data about agricultural perception and sources of the farmers

| Basic data | Control group | | Experimental group 1 | | Experimental group=2 | | Experimental group=3 | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % | No. | % |
| **Frequency in agricultural knowledge exposure** | | | | | | | | | | |
| Less than 10 times per year | 24 | 80.00 | 25 | 83.30 | 28 | 93.30 | 22 | 73.30 | 99 | 82.50 |
| 10 – 20 times per year | 4 | 13.30 | 4 | 13.30 | 2 | 6.70 | 5 | 16.70 | 15 | 12.50 |
| 21 – 30 times per year | 1 | 3.30 | 1 | 3.30 | - | - | 1 | 3.30 | 3 | 2.50 |
| 31 times per year and above | 1 | 3.30 | - | - | - | - | 2 | 6.70 | 3 | 2.50 |
| **Media providing agricultural knowledge** | | | | | | | | | | |
| Radio | 8 | 26.70 | 6 | 20.00 | 4 | 13.30 | 7 | 23.30 | 25 | 20.83 |
| Television | 20 | 66.70 | 24 | 80.00 | 22 | 73.30 | 19 | 63.30 | 85 | 70.83 |
| Newspaper | 1 | 3.30 | - | - | - | - | 1 | 3.30 | 2 | 1.67 |
| Information board | - | - | - | - | 1 | 3.30 | 3 | 10.00 | 4 | 3.33 |
| Other | 1 | 3.30 | - | - | 3 | 10.00 | - | - | 4 | 3.33 |

**Agricultural Video Program watching**

It was found than most of the respondents (80.00%) used to watch agricultural video program but the rest (20.00%) did not. Besides, it was found than most of the respondents (66.70%) in the experimental group 1 used to watch agricultural video programs but the rest (33.30%) did not. Most of the respondents (93.30%) in the experimental group 2 used to watch agricultural video program but the rest (6.70%) did not. Likewise, most of the respondents in the agricultural group 3 used to watch agricultural video programs but the rest (20.00%) did not (Table 7).

**Sufficiency Economy Training**

One-half (50%) of all of respondents had attended the training on sufficiency economy. For respondents in the control group, less than one-half of them (46.70%) had never attended the training on sufficiency economy. Less than one-half (46.70%) of the respondents in the first experimental group had attended the training on sufficiency economy. More than one-half (63.30%) of the respondents in the second experimental group had attended the training on sufficiency economy. However, less than one-half (36.70%) of the respondents in the third experimental group had attended the training on sufficiency economy (Table 7).

**Knowledge about Sufficiency Economy**

More than one-half (54.17%) of the respondents had a moderate level of knowledge about sufficiency economy. Less than one-half (32.50%) of the respondents had a low level of knowledge about sufficiency economy. Only 9.17 percent had a high level of knowledge about sufficiency economy and only 4.17 percent did not have knowledge about sufficiency economy. For respondents in the control group, more than one-half (60.00%) of them had a moderate level of sufficiency economy. Less than one-third (30.00%) of them had a low level knowledge about sufficiency economy. Only 6.70 percent had a high level of knowledge about sufficiency economy and only 3.30 percent did not have knowledge about sufficiency economy. For respondents in the first experimental group, one-half (50.00%) of them had a moderate level of sufficiency economy. Less than one-half (33.30%) of them had a low level of knowledge about sufficiency economy. Only

13.30 percent had a high level of knowledge about sufficiency economy and 3.30 percent did to have knowledge about sufficiency economy. For respondents in the second experimental group, most of the respondents (70.00%) had a moderate level of sufficiency economy. Only 16.70 percent had a low level of knowledge about sufficiency economy and 10.00 percent had a high level knowledge about sufficiency economy. Only 3.30 percent did not have knowledge about it. For respondents in the third experimental group, one-third (30.70%) had a moderate level of sufficiency economy. One-half (50.00%) of them had a low level of knowledge about sufficiency economy. Besides, 6.70 percent had a high level of knowledge about sufficiency economy and 6.70 percent did not have knowledge about it (Table 7).

**Interested in Sufficiency Economy**

Almost all of the respondents (98.33%) were interested in sufficiency economy. Only 1.67 percent was not interested in it. It was found that all of the respondents in the control group were interested in sufficiency economy. For respondents in the second and third groups, only 3.30 percent of them were not interested in sufficiency economy (Table 7).

**Table 7** Frequency distribution of data about the agricultural video program training on sufficiency economy and knowledge, and interest of the farmers.

| Basic data | Control group | | Experimental group 1 | | Experimental group=2 | | Experimental group=3 | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % | No. | % |
| **Watching agricultural video program** | | | | | | | | | | |
| Yes | 24 | 80.00 | 20 | 66.70 | 28 | 93.30 | 24 | 80.00 | 96 | 80.00 |
| No | 6 | 20.00 | 10 | 33.30 | 2 | 6.70 | 6 | 20.00 | 24 | 20.00 |
| **Training on sufficiency economy** | | | | | | | | | | |
| Yes | 14 | 46.70 | 14 | 46.70 | 19 | 63.30 | 13 | 43.30 | 60 | 50.00 |
| No | 16 | 53.30 | 16 | 53.30 | 11 | 36.70 | 17 | 56.70 | 60 | 50.00 |
| **Knowledge about sufficiency economy** | | | | | | | | | | |
| No | 1 | 3.30 | 1 | 3.30 | 1 | 3.30 | 2 | 6.70 | 5 | 4.17 |
| Low level | 9 | 30.00 | 10 | 33.30 | 5 | 16.70 | 15 | 50.00 | 39 | 32.50 |
| Moderate level | 18 | 60.00 | 15 | 50.0 | 21 | 70.00 | 11 | 36.70 | 65 | 54.17 |
| High level | 2 | 6.70 | 4 | 13.30 | 3 | 10.00 | 2 | 6.70 | 11 | 9.17 |

**Table 7** (Continued)

| Basic data | Control group | | Experimental group 1 | | Experimental group=2 | | Experimental group=3 | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % | No. | % |
| **Interested in sufficiency economy** | | | | | | | | | | |
| No | - | - | - | - | 1 | 3.30 | 1 | 3.30 | 2 | 1.67 |
| Yes | 30 | 100 | 30 | 100 | 29 | 96.70 | 29 | 96.70 | 118 | 98.33 |



**Remark:** Control group = Have never watched the video program

Experimental group 1 = The video program presenting normal continuity (pictorial illustration)

Experimental group 2 = The video program presenting normal continuity (pictorial and graphic illustration)

Experimental group 3 = The video program presenting normal continuity (pictorial illustration and motive pictures with can be stopped as still pictures)

**Part 2. Learning outcomes of the farmers after watching the video program**

1. Learning outcomes of the farmers before watching the video program of the 4 farmers groups (pre-test)
2. The difference of learning outcomes before and after watching the video program
3. Learning outcomes after watching the video program of the 4 farmers groups
4. The difference of scores before and after watching the video program of the 4 farmers groups

**1. Learning outcomes of the 4 farmers groups before watching the video program (15 scores)**

The control group obtained an average mean score of 6.90. The experimental group 1, 2, and 3 obtained an average mean score of 7.00, 7.63, and 8.20, respectively (Table 8). As a whole, there was no significant relationship among their obtained scores (F = 2.18, $\rho > 0.50$) as shown in Table 9.

**2. The difference of learning outcomes before and after watching the video program (pre-test and post test)**

The control group obtained an average mean score of 6.90 (pre-test) and 7.10 (post-test). There was no significant difference (t-test = 0.46) as shown in Table 10. The experimental group 1 obtained an average mean score of 7.00 (pre-test) and 8.23 (post-test). There was a statistically significant difference (t-test = - 5.52**, $\rho <$ 0.01) as shown in Table 10. The experimental group 2 obtained an average mean score of 7.63 (pre-test) and 9.80 (post-test). There was a statistically significant difference (t-test = 14.99**, $\rho < 0.01$) as shown in Table 10. The experimental group 5 obtained an average mean score of 8.20 (pre-test) and 11.70 (post-test). There was a statistically significant difference (t-test = -7.17**, $\rho < 0.01$) as shown in Table 10. Based on results of the study, it implied that the video program presented to the farmers had an effect on their increased knowledge on sufficiency economy.

**3. Learning outcome after watching the video program (post-test)of the 4 farmers groups (15 scores)**

The control group obtained an average mean score 7.10. The experimental group 1, 2, and 3 obtained an average mean score of 8.23, 9.80, and 11.70, respectively (Table 8). Based on results of the study, it implied that there was a statistically significant difference (F = 25.47, $\rho$ < 0.01) as shown in Table 11. Based on LSD testing (Least Significant Difference), the following were shown: (Table 8)

1. The experimental group 1 had a higher learning outcome than that of the control group with the statistical significance level at 0.05
2. The experimental group 2 had a higher learning outcome than that of the control group with the statistical significant level at 0.01
3. The experimental group 3 had a higher learning outcome than that of the experimental group 1 with the statistical significance level at 0.05
4. The experimental group 3 had a higher learning outcome than that of the control group with the statistical significance level at 0.01
5. The experimental group 3 had a higher learning outcome than that of the experimental group 1 with the statistical significance level at 0.01
6. The experimental group 3 had a higher learning outcome than that of the experimental group 2 with the statistical significance level 0.01

Based on results of the study, it could be concluded that the obtained scores of the experimental group 1 and 2 were higher than that of the control group. Besides, the obtained score of the experimental group 3 showed that farmers of the experimental group 3 had the highest learning outcomes.

**4. Difference of the scores before and after watching the video program of the 4 farmers groups**

The control group had the difference in the scores between and after watching the video for 20 whereas that of the experimental group 1, 2, and 3 were 1.23, 2.17, and 3.50, respectively (Table 8).

It was found that there was a statistically significant difference of an average mean score among the 4 farmers groups (F = 20.64, $\rho$ < 0.01) as shown in

Table 12. For the LSD test (Least Significance Difference, the following were shown in Table 3):

1. The experimental group 1 had a difference in a higher average mean score before and after watching the video program than that of the control group with a statistical significance level at 0.05

2. The experimental group 2 had a difference in a higher average mean score before and after watching the video program than that of the control group with a statistical significance level at 0.01

3. The experimental group 2 had a difference in a higher average mean score before and after watching the video program than that of the experimental group 1 with a statistical significance level at 0.05

4. The experimental group 3 had a difference in a higher average mean score before and after watching the video program than that of the control group with a statistical significance level at 0.01

5. The experimental group 3 had a difference in a higher average mean score before and after watching the video program than that of the experimental group 1. With a statistical significance level at 0.01

6. The experimental group 3 had a difference in a higher average mean score before and after watching the video program than that of the experimental group 2 with a statistical significance level at 0.05

**Table 8** Scores of learning outcomes of the farmers before and after watching the video program and the difference in the scores between and after watching the video program of each farmers group

| | Control group | | Experimental group1 | | Experimental group2 | | Experimental group3 | | F-ratio |
|---|---|---|---|---|---|---|---|---|---|
| | $\bar{x}$ | SD | $\bar{x}$ | SD | $\bar{x}$ | SD | $\bar{x}$ | SD | |
| Pre-Test | 6.90[b] | 2.58 | 7.00[ba] | 1.97 | 7.63[bb] | 2.17 | 8.20[ab] | 2.22 | 2.18[ns] |
| Post-Test | 7.10[a] | 2.40 | 8.23[a] | 2.01 | 9.80[a] | 1.84 | 11.70[a] | 2.37 | 25.47** |
| Differences | 0.20 [a] | 1.47 | 1.23[a] | 1.22 | 2.17[a] | 0.14 | 3.50[a] | 2.67 | 20.64** |

*Remarks

Control group = Did not watch the video program

Experimental group 1 = The video program presenting normal continuity (pictures and explanation)

Experimental group 2 = The video program presenting normal continuity (pictures, explanation and graphic

Experimental group 3 = The video program presenting normal continuity with motive pictures which can be stopped as pictures

ns = Not statistical difference

** = Statistically significant difference

b : b = Not statistical difference

b : ba = Not statistical difference

a : a = Statistically significant difference

b : ab = Statistically significant difference

ba : ab = Statistically significant difference

**One–way variance analysis**

F–test was used for one–way variance analysis of the difference in an average mean score of the 4 famers groups

**Table 9** An analysis of one–way variance of the basic knowledge about sufficiency economy before watching the video program

| Source of variance | df | SS | MS | F-ratio | $\rho$ |
|---|---|---|---|---|---|
| Among groups | 3 | 33.00 | 11.00 | $2.18^{ns}$ | 0.09 |
| Within group | 116 | 623.83 | 5.38 | | |
| **Total** | 119 | 664.13 | | | |

*Remarks

ns = Not statistical difference

df = Degrees of freedom

ss = Sum of Square

MS = Mean Square

F = F–distribution

Results of the study revealed that there was no statistical difference in learning outcomes before watching the video program among the A farmers groups (Table 9)

**Table 10** And average mean score and standard deviation of obtained scores of the farmers before and after watching the video program

| | Pre-Test | | Post-Test | | t | $\rho$ |
|---|---|---|---|---|---|---|
| | $\bar{x}$ | SD | $\bar{x}$ | SD | | |
| Control group | 6.90 | 2.58 | 7.10 | 2.40 | $0.46^{ns}$ | 0.46 |
| Experimental group 1 | 7.00 | 1.97 | 8.23 | 2.01 | -5.52** | 0.00 |
| Experimental group 2 | 7.63 | 2.17 | 9.80 | 1.85 | -14.99** | 0.00 |
| Experimental group 3 | 8.20 | 2.22 | 11.70 | 2.37 | -7.17** | 0.00 |
| Total | 7.36 | 2.36 | 9.21 | 2.75 | -9.68** | |

*Remarks

df = 29

ns = Not statistical difference

** = Statistically significant difference at 0.01

Control group = Did not watch the video program

Experimental group 1 = The video program presenting normal continuity (pictures and explanation)

Experimental group 2 = The video program presenting normal continuity with graphic

Experimental group 3 = The video program presenting motive pictures which can be stopped as pictures

**Table 11** An analysis of one – way variance of the learning outcomes score (Post–Test) after watching video program

| Source of variance | df | SS | MS | F-ratio | $\rho$ |
|---|---|---|---|---|---|
| Among groups | 3 | 358.63 | 119.54 | 25.47** | 0.00 |
| Within group | 116 | 545.17 | 4.70 | | |
| Total | 119 | 903.79 | | | |

*Remarks

** = Significant difference at 0.01

df = Degree of freedom

ss = Sum of square

MS = Mean square

F = F – distribution

It was found that there was a statistically significant difference (0.01) in learning outcomes after watching the video program of the A farmers groups. This implied that the sample group (control and experimental groups) obtained a different score of post–test (after watching the video program)

**Table 12** An analysis of one – way variance of the learning outcomes scores of the Pre–Test and Post–Test

| Source of variance | df | SS | MS | F-ratio | $\rho$ |
|---|---|---|---|---|---|
| Among groups | 3 | 177.09 | 59.03 | 20.64** | 0.00 |
| Within group | 116 | 331.88 | 2.86 | | |
| Total | 119 | 508.93 | | | |

*Remarks

** = Significant difference at 0.01

df = Degrees of freedom

ss = Sum square

MS = Mean square

F = F – distribution

Based on Table 7, there was a statistically significant difference (0.01) of the scores before and after watching the video program of the A farmers groups.

**An analysis of frequency distribution of the learning outcome scores of the farmers before and after watching the video program**

**Leaning outcomes of the A farmers groups before watching the video program**

It was found that almost one–half (44.17%) of A farmers obtained the score range of 6–8. Less than one–their (31.67%) of the farmers obtained the score range of 9–11. About one–fifth of the farmers obtained the score range of 3–5. Only 2.50 percent obtained the score range of more than 12 (Table 13)

Less than one–half (36.70, 33.30 and 30.00%) of farmers in the control group obtained the score range of 9–11, 6–8, and 3–5, respectively. No one obtained the score of more than 12. For farmers in the experimental group 1, it was found that about one–half (53.30%) of them obtained the score range of 6–8. This was followed by 3–5 and 9–11 (23.30% each). For farmers in the experimental group 2, about one–half (53.30%) of them obtained the score range 6–8. This was followed by 9–11 (26.70%), 3–5 (16.70%), and more than 12 (3.30%). For farmers in the experimental group 3, less than one–half (40.00%) obtained the score range of 9–11. About one–

third (36.70%) of them obtained the score range of 6–8. Besides, 16.70 and 6.70 percent obtained the score range of 3–5 and more than 12, respectively (Table 13).

**Learning outcomes of the four farmers groups after watching the video program**

It was found that less than one–half (37.50%) of the A farmers groups obtained the score range of 9–11. Only 33.30, 22.50, and 0.67 percent obtained the score range of 6–8, more than 12, and 3–5, respectively (Table 13).

For farmers in the control group, less than one–half (43.30%) obtained the score range of 6–8. About one–third (33.30%) of them obtained the score range of 9–1. One–fifth (20.00%) obtained the score range of 3–5 and 3.30 percent obtained the score range of more than 12. For farmers in the experimental group 1, more than one–half (56.70%) of them obtained the score range of 6–8. Only 33.30, 6.70, and 3.30 percent obtained the score range of 9–11, more than 12, and 3–5, respectively. For farmers in the experimental group 2, more than one–half (60.00%) of them obtained the score range of 9–11. Only 26.70 and 13.30 percent obtained the score range of 6–8 and more than 12, respectively. None of farmers in the experimental group 2 obtained the score range of 3–5. For farmers in the experimental group 3, more than one–half (66.70%) of them obtained the score range of more than 12. Only 23.30, 6.70, and 3.30 percent obtained the score range of 9–11, 6–8, and 3–5, respectively (Table 13).

**Table 13** Frequency distribution of the learning outcome score of the farmers before and after watching the video program

| Learning outcome score | Control group | | Experimental group 1 | | Experimental group 2 | | Experimental group 3 | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % | No. | % |
| **Obtained score before watching the radio program** | | | | | | | | | | |
| 3 – 5 | 9 | 30.00 | 7 | 23.30 | 5 | 16.70 | 5 | 16.70 | 26 | 21.67 |
| 6 – 8 | 10 | 33.30 | 16 | 53.30 | 16 | 53.30 | 11 | 36.70 | 53 | 44.17 |
| 9 – 11 | 11 | 36.70 | 7 | 23.30 | 8 | 26.70 | 12 | 40.00 | 38 | 31.67 |
| 12 and above | - | - | | | 1 | 3.30 | 2 | 6.70 | 3 | 2.50 |
| **Obtained score after watching the video program** | | | | | | | | | | |
| 3 – 5 | 6 | 20.00 | 1 | 3.30 | - | - | 1 | 3.30 | 8 | 6.67 |
| 6 – 8 | 13 | 43.30 | 17 | 56.70 | 8 | 26.70 | 2 | 6.70 | 40 | 33.33 |
| 9 – 11 | 10 | 33.30 | 10 | 33.30 | 18 | 60.00 | 7 | 23.30 | 45 | 37.50 |
| 12 and above | 1 | 3.30 | 2 | 6.70 | 4 | 13.30 | 20 | 66.70 | 27 | 22.50 |

**Part 3 Opinions of the farmers after watching the video program Experimental group 1 The video program presenting normal continuity – pictures and explanation (Table 14)**

**1. Content**

**Operational steps of the video program on "Sufficiency Economy: From Concept to Practice".** More than one–half (63.33%) of the farmers agreed that the video program was rather good. However, 23.33 percent stated that it was very appropriate. Only 13.33 percent stated that it was not good enough due to rapid presentation.

**Time span of content presentation.** Less than one–half (46.67%) of the farmers agreed that the content was appropriate. However, 43.63 and 10.06 percent stated that the content was rather good and not good enough (To long), respectively.

**Content understanding.** Less than one–half (46.67%) of the farmers stated that the content was rather not understood. About one–third (33.63%) of the farmers understood it at a moderate level but 20.00 percent understood the content very well.

**2. Picture**

**Clearness of presented pictures**. More than one–half (53.33%) of the farmers stated that presented pictures were clear enough where as the rest (46.67%) stated that presented pictures were very clear.

**Confusing picture presentation.** Most of the farmers (90.00%) stated that almost no pictures were confusing. Only 3.3 percent stated that some parts were confusing and 6.67 percent stated that the whole video program were confusing.

**3. Sound**

**Sound clearness.** Most of the farmers (73.33%) stated that the sound was very clear. Only 20.00 percent stated that the sound was clear enough and 6.67 percent stated that the sound was too loud.

**Appropriateness of the explanation sound**. More than one–half (63.33%) of the farmers stated that the explanation sound was appropriate. Only 30.00 percent stated that it was rather appropriate and 6.67 percent stated that it was not good enough due to the rapidness of explanation.

**Music.** More than one–half (63.33%) of the farmers stated that the music was good enough. Only 33.33 percent stated that it was very good and 3.33 percent stated that it was too loud.

**Vocabulary used for the explanation.** Most of the farmers (90.00%) stated that they knew all presented vocabulary. Only 10 percent did not understand some words.

**Favorite language style which is easy to understand.** More than one–half (64.33%) of the farmers liked northern dialect and Thai language. About one–fifth (23.33%) of them preferred northern dialect and only 13.30 percent preferred Thai language.

**Language which should be used in the video program.** Most of the farmer (76.67%) stated that northern dialect and Thai language could be used. One–fifth of the farmers stated that northern dialect should be used. Only 3.33 percent stated that Thai language should be used.

**Experimental group 2 The video program presenting normal continuity – pictures, explanation, and graphic (Table 14)**

**1. Content**

**Operational steps of the video program on "Sufficiency Economy from Concept to Practice".** More than one–half (63.33%) of the farmers stated that the time span of content presentation was appropriate. One–fourth (23.33%) of the farmers stated that it was rather appropriate. Only 13.33 percent stated that it was not good enough because it was too long.

**Content understanding.** More than one–half (63.33%) of the farmers understood the content at a moderately. About one–third (33.33%) of the farmers understood it very well. Only 3.33 percent almost did not understand it.

**2. Pictures**

**Clearness of presented pictures.** More than one–half (56.67%) of the farmers stated that the pictures were very clear. Forty percent stated that the pictures were clear and only 3.30 percent stated that it was not clear enough.

**Confusing picture presentation**. Most of the farmers (90.00%) stated that there was no picture which they could not understand. Only 6.67 percent could not understand in some part and 3.33 percent stated that it was confusing.

**3. Sound**

**Sound clearness.** Most of the farmers (70.00%) stated that the sound was very clear and 30.00 percent stated that it was rather clear.

**Appropriateness of the explanation sound**. Less than one–half (46.67%) percent stated that the sound was not good and the explanation was rather fast.

**Music.** Most of the farmers (70.00%) stated that the music was very appropriate. About one–fourth (23.33%) of the farmers stated that it was rather appropriate. Only 6.67 percent stated that the music was not so good because it was too loud.

**Vocabulary used for the explanation.** Almost all of the farmers (96.67%) stated that there was no vocabulary presented in the video program which they did not understand. Only 3.33 percent stated that there were some words which they did not understand.

**Favorite language style which is easy to understand.** Most of the farmers (70.00%) liked and understood both northern dialect and Thai language. About one–fourth (26.67%) of the farmers preferred northern dialect. Only 3.33 percent preferred Thai language.

**Language which should use in the video program**. More than one–half (60.00%) of the farmers stated that any of the northern dialect and Thai language could be used. About one–fourth (26.67%) stated that northern dialect should be used. The rest (13.33%) stated that Thai language should be used.

**Experimental group 3 The video program presenting motive pictures which could be stopped as pictures (Table 14)**

**1. Content**

**Operational steps of the video program on "Sufficiency Economy: from Concept to Practice".** Most of the farmers (70.00%) stated that the operational steps were very appropriate. Only 16.67 percent stated that it was rather appropriate and 13.30 percent stated that it was not so good due to rapid presentation.

**Time span of content presentation.** More than one–half (63.33%) of the farmers stated that time span of content presentation was appropriate. Only 23.33 percent stated that it was rather appropriate and 13.33 percent stated that it was not appropriate due to long presentation.

**Content understanding.** Most of the farmers (90.00%) understood the content very well. Only 6.67 percent did not understand it very well and 3.33 percent rather understood the content.

**2. Pictures**

**Clearness of picture presentation.** Most of the farmers (73.33%) stated that the picture presentation was very clear. Only 23.33 percent and 3.33 percent stated that it was rather clear and not clear, respectively.

**Confusing pictures.** Most of the farmers (86.67%) stated that there was no picture which they did not understand. Only 10.00 percent stated that they did not understand in some parts and 3.33 percent stated that it was confusing.

**3. Sound**

**Clearness of sound.** Most of the farmers (83.33%) stated that the sound was very good. The rest (16.67%) stated that the sound was rather good.

**Appropriateness of the sound presented in the video program.** Most of the farmers (70.00%) stated that the sound presented in the video program was appropriate. About one–fourth (23.33%) stated that it was rather appropriate. Only 6.67 percent stated that it was not so appropriate due to rapid explanation.

**Music.** One–half (50.00%) of the farmers stated that the music presented in the video program was very appropriate. Almost one–half of them (46.67%) stated that the music was rather appropriate. Only 3.33 percent stated that it was not so good because it was too loud.

**Vocabulary used for the explanation.** Most of the farmers (93.33%) stated that there was no word which they could not understand. Only 6.67 percent did not understand some words.

**Favorite language style which is easy to understand**. Most of the farmers (70.00%) stated that they liked and understood both northern dialect and Thai language. About one–fourth (23.33%) of them stated that they preferred northern dialect. Only 6.67 percent preferred Thai language.

**Language which should be used in the video program.** More than one–half (63.33%) of the farmers stated that any of both northern dialect and Thai language could be used. About one–fourth (26.67%) of them stated Thai language should be used. Only 10.00 percent stated that northern dialect should be used.

**Table 14** Assessment of farmer opinions about the video program

| Items | Experimental group 1 | | Experimental group 2 | | Experimental group 3 | | Remarks |
|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | |
| **1. Content** | | | | | | | |
| **Operational steps of the video program** | | | | | | | |
| - Very appropriate | 7 | 23.33 | 17 | 56.67 | 21 | 70.00 | |
| - Rather appropriate | 19 | 63.33 | 9 | 30.00 | 5 | 16.67 | |
| - Not appropriate | 4 | 13.33 | 4 | 13.33 | 4 | 13.33 | Too fast |
| **Time span of the video program presentation** | | | | | | | |
| - Very appropriate | 14 | 46.67 | 19 | 63.33 | 19 | 63.33 | |
| - Rather appropriate | 13 | 43.33 | 7 | 23.33 | 7 | 23.33 | |
| - Not appropriate | 3 | 10.00 | 4 | 13.33 | 4 | 13.33 | Too long |

**Table 14** (Continued)

| Items | Experimental group 1 | | Experimental group 2 | | Experimental group 3 | | Remarks |
|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | |
| **Content understanding** | | | | | | | |
| - Very understand | 6 | 20.00 | 10 | 33.33 | 27 | 90.00 | |
| - Rather understand | 10 | 33.33 | 19 | 63.33 | 1 | 3.33 | |
| - Not understand | 14 | 46.67 | 1 | 3.33 | 2 | 6.67 | |
| **2. Pictures** | | | | | | | |
| **Clearness of the pictures** | | | | | | | |
| - Very clear | 14 | 46.67 | 17 | 56.67 | 22 | 73.33 | |
| - Rather clear | 16 | 53.33 | 12 | 40.00 | 7 | 23.33 | |
| - Not clear | - | - | 1 | 3.33 | 1 | 3.33 | |

**Table 14** (Continued)

| Items | Experimental group 1 | | Experimental group 2 | | Experimental group 3 | | Remarks |
|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | |
| **Confusing pictures** | | | | | | | |
| - None | 27 | 90.00 | 27 | 90.00 | 26 | 86.67 | |
| - Some | 1 | 3.33 | 2 | 6.67 | 3 | 10.00 | |
| - Confusing | 2 | 6.67 | 1 | 3.33 | 1 | 3.33 | |
| **3. Sound** | | | | | | | |
| **Clearness** | | | | | | | |
| - Very clear | 22 | 73.33 | 21 | 70.00 | 25 | 83.33 | |
| - Rather clear | 6 | 20.00 | 9 | 30.00 | 5 | 16.67 | |
| - Not clear | 2 | 6.67 | - | - | - | - | |

**Table 14** (Continued)

| Items | Experimental group 1 | | Experimental group 2 | | Experimental group 3 | | Remarks |
|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | |
| **Appropriateness** | | | | | | | |
| - Good | 19 | 63.33 | 14 | 46.67 | 21 | 70.00 | |
| - Rather good | 9 | 30.00 | 14 | 46.67 | 7 | 23.33 | |
| - Not good | 2 | 6.67 | 2 | 6.67 | 2 | 6.67 | Too fast explanation |
| **Music** | | | | | | | |
| - Very good | 10 | 33.33 | 21 | 70.00 | 15 | 50.00 | |
| - Rather good | 19 | 63.33 | 7 | 23.33 | 14 | 46.67 | |
| - Not good enough | 1 | 3.33 | 2 | 6.67 | 1 | 3.33 | Too loud |
| **Vocabulary** | | | | | | | |
| - Understand | 27 | 90.00 | 29 | 96.67 | 28 | 93.33 | |
| - Not understand in some words | 3 | 10.00 | 1 | 3.33 | 2 | 6.67 | |

**Table 14** (Continued)

| Items | Experimental group 1 | | Experimental group 2 | | Experimental group 3 | | Remarks |
|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | |
| **Favorite language which is easy to understand** | | | | | | | |
| - Northern dialect | 7 | 23.33 | 8 | 26.67 | 7 | 23.33 | |
| - Thai language | 4 | 13.33 | 1 | 3.33 | 2 | 6.67 | |
| - Both northern dialect and Thai language | 19 | 64.33 | 21 | 70.00 | 21 | 70.00 | |
| **Language which use be used in the vide program** | | | | | | | |
| - Northern dialect | 1 | 3.33 | 8 | 26.67 | 3 | 10.00 | |
| - Thai language | 6 | 20.00 | 4 | 13.33 | 8 | 26.67 | |
| - Both northern dialect and Thai language | 23 | 76.67 | 18 | 60.00 | 19 | 63.33 | |