

CHAPTER III



RESULTS

This research study aims at the development of a teaching model based on metacognition with the main objective of improving music improvisation ability. The study adopted the pretest-posttest control group design. The tests were conducted at the end of the basic-knowledge/techniques of improvisation session (pretest), at the end of the treatment session (posttest 1), and at 4 weeks after finishing the treatment session (posttest 2). For the test, each subject had to perform three improvisation performances (8 beat, 2 beat, and Latin style). The means and standard deviations of music improvisation performance scores for the pretest, posttest 1, and posttest 2 of the two groups were summarized in Table 3. To get the clear outcome of the changing level in music improvisation performance score for pretest, posttest 1, and posttest 2 of the groups, the music improvisation performance scores of each subject in both groups were plotted as shown in Figure 5.

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Table 3 The means and standard deviations of music improvisation performance scores for the pretest, at the end of the treatment session (posttest 1), and at 4 weeks after finishing the treatment session (posttest 2) of the experimental group and the control group

| Training group | Subject number | Music improvisation performance score | | |
|--------------------|----------------|---------------------------------------|------------|------------|
| | | Pretest | Posttest 1 | Posttest 2 |
| Experimental group | 1 | 15.67 | 21.00 | 23.00 |
| | 2 | 14.00 | 17.33 | 18.67 |
| | 3 | 13.66 | 16.33 | 19.33 |
| | 4 | 11.67 | 16.33 | 15.67 |
| | 5 | 10.00 | 12.67 | 16.00 |
| | X | 13.00 | 16.73 | 18.53 |
| | S.D. | 2.20 | 2.98 | 2.97 |
| Control group | 6 | 15.67 | 18.00 | 17.67 |
| | 7 | 15.00 | 15.67 | 16.00 |
| | 8 | 12.00 | 14.67 | 16.33 |
| | 9 | 11.67 | 13.33 | 13.67 |
| | 10 | 9.67 | 11.33 | 13.67 |
| | X | 12.80 | 14.60 | 15.47 |
| | S.D. | 3.06 | 2.50 | 1.76 |

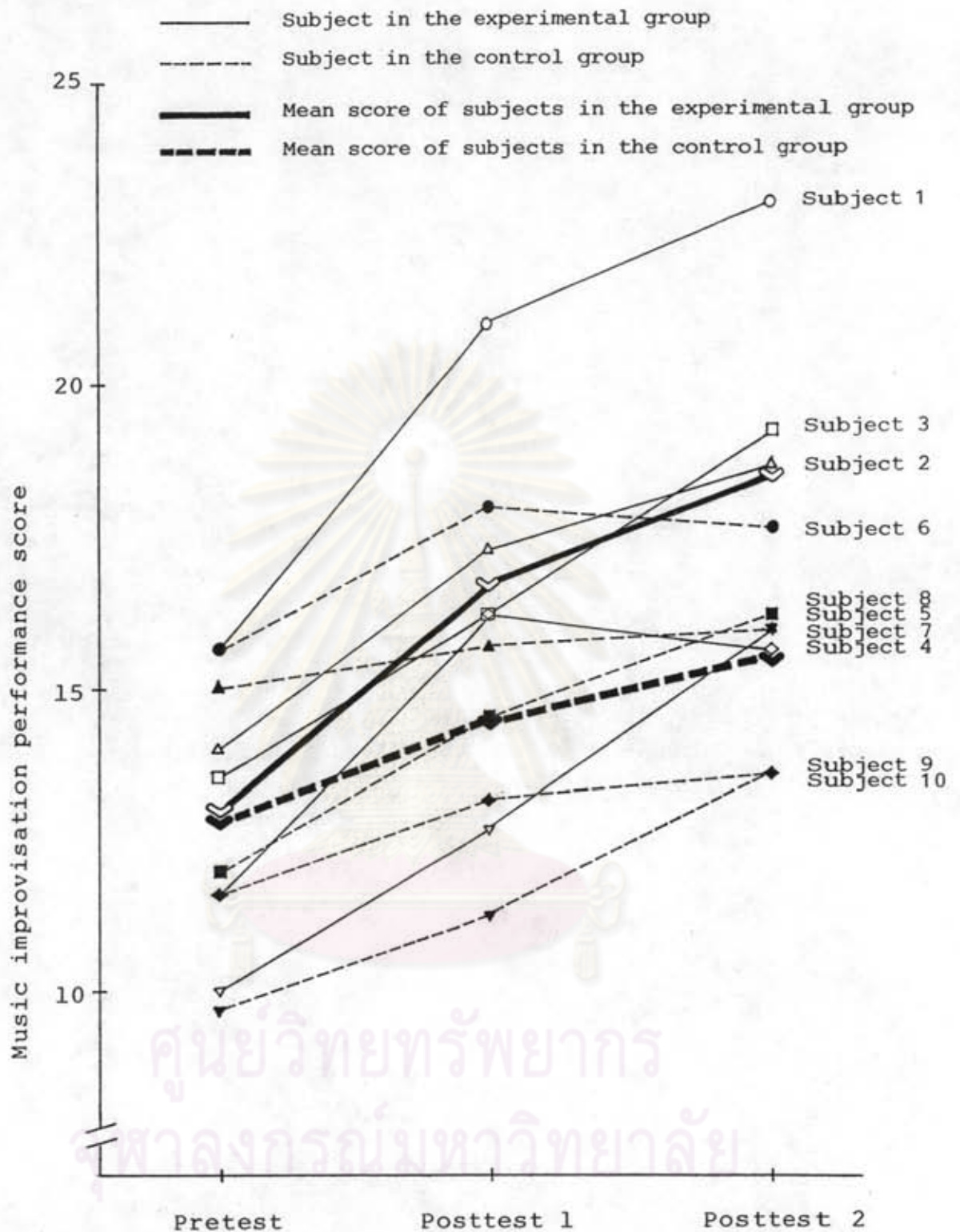


Figure 5 The music improvisation performance scores for the pretest, at the end of the treatment session (posttest 1), and at 4 weeks after finishing the treatment session (posttest 2) of subjects in the experimental group and the control group

From Figure 5, the graphs show that the music improvisation performance scores in each subject are increasing from pretest to posttest 1 and further to posttest 2; except subject 4 and 6, the gained scores of posttest 2 are lower than those of posttest 1. Nevertheless, in comparing the means of music improvisation performance scores between the two groups, the gained score of posttest 1 is higher than that of pretest and also the gained score of posttest 2 is higher than that of posttest 1. After determining the increasing level of music improvisation performance scores, the graphs show that the increasing in gained scores of pretest to posttest 1 and further to posttest 2 of the experimental group are much more than those of the control group.

The music improvisation performance scores gained from the pretest were used for matching the subjects, then subjects were randomly assigned into either the experimental group or the control group. The means of music improvisation performance scores for the pretest in the experimental group and the control group were 13.00 and 12.80 respectively. The test in mean differences of music improvisation performance scores using t-independent test, in these 2 treatment groups for the pretest was done in order to make sure that they have no difference in music improvisation performance at the starting point before receiving the treatment, as shown in Table 4.

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Table 4 The test in mean differences of music improvisation performance scores in the experimental group and the control group for the pretest

| Training group | Number of subjects | Mean | Standard deviation | t-test |
|--------------------|--------------------|-------|--------------------|--------|
| Experimental group | 5 | 13.00 | 2.20 | 0.12 |
| Control group | 5 | 12.08 | 3.06 | |

$p < .05$ (df = 8)

$t_{.05} = 2.036$

Table 4 shows that there is no statistically significant difference in mean of music improvisation performance scores in the experimental group and the control group for the pretest.

Subjects were tested after the treatment session. Table 5 shows the result of the test in mean differences of music improvisation performance scores, using t-independent test, in the experimental group and the control group for the test at the end of the treatment session (posttest 1). Table 6 shows the result of the test at 4 weeks after finishing the treatment session (posttest 2).



Table 5 The test in mean differences of music improvisation performance scores in the experimental group and the control group for the test at the end of the treatment session (posttest 1)

| Training group | Number of subject | Mean | Standard deviation | t-test |
|--------------------|-------------------|-------|--------------------|--------|
| Experimental group | 5 | 16.73 | 2.98 | 1.23 |
| Control group | 5 | 14.60 | 2.50 | |

$p < .05$ (df = 8)

$t_{.05} = 1.860$

Table 6 The test in mean differences of music improvisation performance scores in the experimental group and the control group for the test at 4 weeks after finishing the treatment session (posttest 2)

| Training group | Number of subject | Mean | Standard deviation | t-test |
|--------------------|-------------------|-------|--------------------|--------|
| Experimental group | 5 | 18.53 | 2.97 | 1.99* |
| Control group | 5 | 15.47 | 1.76 | |

$P < .05$ (df = 8)

$t_{.05} = 1.860$

Table 5 shows that there is no statistically significant difference in means of music improvisation performance scores in the experimental group and in the control group for the test at the end of the treatment session (posttest 1). But, for the test at 4 weeks after finishing the treatment session (posttest 2), there is difference in means of music improvisation performance scores in these 2 treatment groups at .05 level of significance as shown in Table 6. The means of music improvisation performance scores are 16.73 and 14.60 for the posttest 1, and 18.53 and 15.47 for the posttest 2 in the experimental group and the control group, respectively. (see Table 3)

In order to determine the effectiveness of the treatment in music improvisation ability, one-way analysis of variance with repeated measure was used for testing in mean differences of music improvisation performance scores for the pretest, at the end of the treatment session (posttest 1), and at 4 weeks after finishing the treatment session (posttest 2) in both groups. The results of the test for the experimental group are shown in Table 7, and for the control group in Table 8.

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Table 7 The one-way analysis of variance with repeated measure of music improvisation performance scores in the experimental group at the pretest, at the end of the treatment session (posttest 1), and at 4 weeks after finishing the treatment session (posttest 2)

| Source of variance | ss | df | MS | F |
|--------------------|--------|----|-------|--------|
| Between subjects | 82.46 | 4 | 20.61 | |
| Within subjects | 87.16 | 10 | 8.72 | |
| Tests | 79.67 | 2 | 39.83 | 42.53* |
| Residual | 7.49 | 8 | 0.94 | |
| Total | 169.62 | 14 | 12.12 | |

$$*F_{.95}(2,8) = 4.46$$

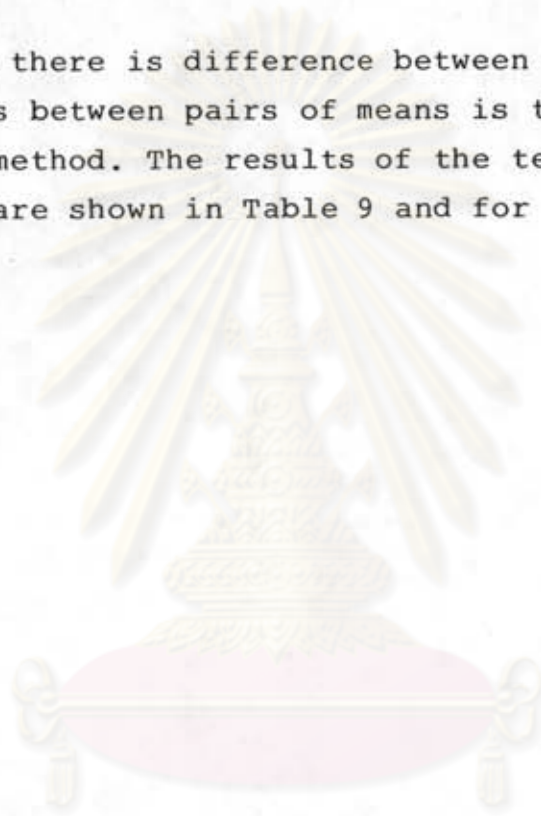
Table 8 The one-way analysis of variance with repeated measure of music improvisation performance scores in the control group at the pretest, at the end of the treatment session (posttest 1), and at 4 weeks after finishing the treatment session (posttest 2)

| Source of variance | ss | df | MS | F |
|--------------------|-------|----|-------|-------|
| Between subjects | 65.69 | 4 | 16.42 | |
| Within subjects | 27.60 | 10 | 2.76 | |
| Tests | 18.49 | 2 | 9.24 | 8.11* |
| Residual | 9.11 | 8 | 1.14 | |
| Total | 93.29 | 14 | 6.66 | |

$$F^*_{.95}(2,8) = 4.46$$

Table 7 shows that there is difference in mean of music improvisation performance scores in the experimental group at the pretest, at the end of the treatment session (posttest 1), and at 4 weeks after finishing the treatment session (posttest 2) at .05 level of significance. The result is also the same for the control group as shown in Table 8.

Since there is difference between the means, the test on differences between pairs of means is then analyzed by Newman-Keuls method. The results of the test for the experimental group are shown in Table 9 and for the control group in Table 10.



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Table 9 Test on differences between pairs of means of music improvisation performance scores in the experimental group at the pretest, at the end of the treatment session (posttest 1), and at 4 weeks after finishing the treatment session (posttest 2)

| Tests | Pretest | Posttest 1 | Posttest 2 |
|--------------------|----------------|------------|------------|
| Totals | 65.00 | 83.66 | 92.67 |
| Pretest | 65.00 | - | 18.66 * |
| Posttest 1 | 83.66 | - | 9.01 * |
| Posttest 2 | 92.67 | - | - |
| | $q_{.95}(r,8)$ | 3.26 | 4.04 |
| $\sqrt{nMS_{res}}$ | $q_{.95}(r,8)$ | 7.05 | 8.74 |

* $\alpha \leq .05$

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Table 10 Test on differences between pairs of means of music improvisation performance scores in the control group at the pretest, at the end of the treatment session (posttest 1), and at 4 weeks after finishing the treatment session (posttest 2)

| Tests | | Pretest | Posttest 1 | Posttest 2 |
|--------------------|----------------|---------|------------|------------|
| | Totals | 64.01 | 73.00 | 77.34 |
| Pretest | 64.01 | - | 8.99 * | 13.33 * |
| Posttest 1 | 73.00 | | - | 4.34 |
| Posttest 2 | 92.67 | | | - |
| | $q_{.95}(r,8)$ | | 3.26 | 4.04 |
| $\sqrt{nMS_{res}}$ | $q_{.95}(r,8)$ | | 7.78 | 9.64 |

* $\alpha \leq .05$

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The results from Table 9, tested at .05 level of significance, show that in the experimental group, the means of music improvisation performance scores for posttest 1 and posttest 2 are higher than that of the pretest, and also the mean of music improvisation performance scores for posttest 2 is higher than that of posttest 1.

In the control group, the results from Table 10, tested at .05 level of significance, show that the means of music improvisation performance scores for posttest 1 and posttest 2 are higher than that of the pretest, but there is no difference between the means for posttest 1 and posttest 2.



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