

# The Students' Learning Effects on Dance Domain of Arts Education

Sheng-Min Cheng

**Abstract**—The purpose of this study was to explore the learning effects on dance domain in Arts Curriculum at junior and senior high levels. A total of 1,366 students from 9<sup>th</sup> to 11<sup>th</sup> grade of different areas from Taiwan were administered a self-designed dance achievement test. Data were analyzed through descriptive analysis, independent sample t test, one-way ANOVA and Post hoc comparison analysis using Scheffé Test. The results showed (1) female students' dance achievements were higher than the males; (2) performances of students learning in dance talented classes were higher than those in regular classes; (3) senior high students' performances were higher than the junior high students; and (4) the performances of students in northern and central areas of Taiwan were higher than those from southern and eastern areas. Based on the findings, the researcher made some suggestions for future studies and implementations.

**Keywords**—arts education, dance learning effects, secondary level students, dance talented students

## I. INTRODUCTION

**I**N Taiwan, all level educational goals emphasize on balancing the moral ethics, intelligence, physique, social skills and aesthetics altogether. Even though the education reform in this two decades had transferred the knowledge-based to competence-based, the curriculum goals all focused on improving citizens' quality of life and increasing art and culture cultivation through arts education [1].

The curriculum of arts education named Art and Humanity Curriculum for elementary and junior high school students, and Art Life Curriculum for senior high school students. The range of Art and Humanity Curriculum of the Grade 1-9 Curriculum Guidelines included visual arts, music, and performing arts [2]. The purposes of this curriculum were (1) to nurture the knowledge and skills of arts; (2) to encourage participating in literary arts activities; (3) to promote the evaluative and enjoyable abilities about the arts; (4) to cultivate the interests for life; (5) to enlighten art potential; (6) to assist in developing ones' healthy personalities. The Art Life Curriculum, one of the obligatory courses in the Curriculum Guidelines for Senior High School [3], also including visual application arts, music application arts, and performing arts, emphasized the objects which were: (1) to explore the relationship between different types of arts and life; (2) to

increase the knowledge and skills of arts in normal life; (3) to build the foundation of application on different types of arts; (4) to cultivate one's general capacity and disposition of arts and culture. Under the Curriculum Guidelines for Senior High School and the Curriculum Guidelines for Grade 1-9, accepting arts education became every students' rights and obligations. Although there were three types of arts were mentioned in the Curriculum Guidelines for Senior High School and the Curriculum Guidelines for Grade 1-9 in Taiwan, and dance would never be mentioned alone in arts education, dance emphasizing the body movement and creative dance was actually an important performance competence.

Beside the regular education which emphasized dance dimension of the arts education, dance talented students even became one type of gifted and talented students of Special Education [4]. Helping the dance talented students fulfill their potential was the main object of Special Education Act [5] in Taiwan.

No matter from the perspectives of regular education or from the dance talented education, the objectives of arts education which emphasized the combination of arts and life influenced the content, instruction, and assessment in dance domain of arts education. However, the learning effects on dance domain of arts education in Taiwan would never be explored before. Lacking the dance test might be the main reason for the situation.

There was no standardized assessment instrument to assess the students' learning effects on dance domain of arts education in Taiwan. Every semester, the students got their grade point of arts education based on performance assessment which was assessed by their art teachers. It limited the generalization of learning effects on arts education across different subgroups. For understanding the learning effects of arts education in dance domain, the researcher should develop a dance test at first. Then, researcher administrated the test to secondary school students whom were selected randomly based on the student ratio of four different areas of Taiwan. Finally, researcher analyzed the collected data and made some discussions.

Based on the background of the study, the purposes of this study were four: (1) to examine the performances differences between different students' gender; (2) to find out the differences of performances between students who accepted arts education in regular classes and in dance talented classes; (3) to analyze the effects of arts educations between different students' grade; and (4) to analyze the effects of arts education

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in different areas in Taiwan.

## II. LITERATURE REVIEW

### A. Implication of Dance

Dance was a way expressed one's inner impulses, emotions, and consciousness through the combinations of limbs and trunk, with time, space, and power [6], by doing, acting, and dancing [7]. Dance was also an art talented to communicate internal world and touch others hearts. Chang induced the Effort and Shape components of Laban Movement Analysis into five elements which were body, time, space, effort, and relationship [8]. The five elements also became the fundamental factors in designing the dance test.

### B. Assessment of Dance

National Dance Education Organization pointed out that students should know and be able to performing, creating, responding, and interconnecting dance to life and other disciplines in the art of dance [9].

According to the revision of Bloom's Taxonomy of Educational Objectives [10], the four main categories in the knowledge dimension were: (1) factual knowledge, which included the knowledge of terminology, and the knowledge of specific details and elements; (2) conceptual knowledge, which included the knowledge of classifications and categories, the knowledge of principles and generalizations, and the knowledge of theories, models, and structures; (3) procedural knowledge, which included the knowledge of subject-specific skills and algorithms, the knowledge of subject-specific techniques and methods, and the knowledge of criteria for determining when to use appropriate procedures; and (4) meta-cognitive knowledge, which included the strategic knowledge, knowledge about cognitive tasks, and self-knowledge. Beside the knowledge dimension of Bloom's Taxonomy of Educational Objectives, Simpson's schema for classifying educational objectives in psychomotor domain included perception, set, guided response, mechanism, complex overt response, adaptation, and origination was an educational theory which usually be cited in Taiwan [11].

In Taiwan, the students applied the identification for dance talented should fill out the Observed Checklist of Dance Talented for Senior High School Students. The items of the checklist included: (1) to use different body movements to express the same topic; (2) be sensible of the limbs and trunk, and be good at motor skills; (3) be good at imitate movements, and to make movements combination following the instruction of teachers easily; (4) to act dexterously, to react to direction and rhythm rapidly; (5) to learn new movement speedy and excellently; (6) easy to dance following the music and rhythm; (7) to perform vividly, to possess of the characteristics on stage performance; (8) be good at the body movements with speed, elasticity, and coordination; (9) to move rhythmically; (10) to display outstanding on dance, physical and performing arts

competition. The results of literature review would become the theoretical base for developing dance test in this study.

## III. METHODS

### A. Participants

The total participants of this study were 1,366 students, consisted by 422 ninth-grade students, 552 tenth-grade students and 392 eleventh-grade students. There were 604 male, 757 female participants, and 5 data were missing. Beside the difference of the grade and gender, there were 90 participants attending dance talented programs, and 1,276 participants were regular students. All participants were randomly selected based on the student ratio of northern, middle, southern and eastern, four administrative areas in Taiwan separately and participated in the study from April to June in 2010.

### B. Instruments

The dance test administered to participants was developed by the researcher. At first, researcher built a test development team composed by teachers of the department of dance in a university and high school dance programs' teachers. Then the members of the test development team constructed the test structure based on the knowledge dimension of the revision of Bloom's Taxonomy of Educational Objectives and the Simpson's Classification of Educational Objectives: Psychomotor Domain. According to the theories, researcher developed the two-way specification table listing the four categories of knowledge on one dimension and the seven categories of psychomotor domain on the other. After that, the members of the test development team adopted the modern dance, ballet, Chinese dance, and improvisation, four different types of dance to formulate items for the initial item pool. The initial item pool was the result of a continual cycle of developing and editing draft items, and reviewing edited items for congruence and technical accuracy by subject matter experts.

When the initial item pool was developed, the pilot exam which contained 53 items must go through a field test to determine the usefulness of the items based upon item analysis of the classical test theory (CTT).

According to the results of the item analysis, 11 items were deleted and 42 items were retained for the Dance Aptitude Test. The reliability of the test calculated using Cronbach's Alpha Coefficient for internal consistency was 0.925 ( $p < .01$ ), and three-week test-retest reliability was 0.551 ( $p < .05$ ). The validity of the test was adopted content validity. Content validity of the test was judged by a panel of experts in the field of education and dance. The comments received from the panel of experts became the basis for modifications during the test development procedural.

### C. Statistical Analysis

The collected data were analyzed using the SPSS (19.0) for Windows computer software through various statistical

techniques such as the t-test, ANOVA and Post hoc comparison analysis using Scheffé Test.

#### IV. RESULTS

Based on the three objectives of this study, the results were the following:

##### A. Gender Differences

Independent-sample t test was conducted to find out the differences of performances of dance test in different gender. The results appeared in Table I.

TABLE I  
GENDER DIFFERENCES ON DANCE PERFORMANCE

|        | N   | Mean    | SD      | t Value | Sig. |
|--------|-----|---------|---------|---------|------|
| Male   | 604 | 25.1871 | 4.40523 | -11.775 | .000 |
| Female | 757 | 28.0542 | 4.50819 |         |      |

The results indicated that the performances of male students were lower than the performances of female students significantly ( $M_{\text{male}} = 25.1871$ ,  $M_{\text{female}} = 28.0542$ ,  $t_{(1359)} = -11.775$ ,  $p = .000$ ).

##### B. Placement Differences

Independent-sample t test was also conducted to find out the differences between students who accepted arts education in regular class and in dance talented classes. The results appeared in Table II.

TABLE II  
PLACEMENT DIFFERENCES ON DANCE PERFORMANCE

|                | N    | Mean    | SD      | t Value | Sig. |
|----------------|------|---------|---------|---------|------|
| Regular        | 1276 | 26.1215 | 4.06864 | -23.101 | .000 |
| Dance Talented | 90   | 36.1444 | 2.32505 |         |      |

The t value ( $t_{(1364)} = -23.101$ ,  $p = .000$ ) showed a significantly difference between the regular students ( $M_{\text{regular}} = 26.1215$ ) and dance talented students ( $M_{\text{dance talented}} = 36.1444$ ).

##### C. Grade Differences

One-Way ANOVA was used in this study to analyze the differences of performances between the different grade students. The descriptive results appeared in Table III, and the result of ANOVA showed in Table IV.

TABLE III  
DESCRIPTIONS OF DIFFERENT GRADE

|                        | N   | Mean    | SD      | SE     | Minimum | Maximum |
|------------------------|-----|---------|---------|--------|---------|---------|
| 9 <sup>th</sup> grade  | 422 | 25.0190 | 4.54637 | .22131 | 11.0    | 39.0    |
| 10 <sup>th</sup> grade | 552 | 27.5670 | 4.58109 | .19498 | 10.0    | 40.0    |
| 11 <sup>th</sup> grade | 392 | 27.5740 | 4.48637 | .22660 | 15.0    | 40.0    |

Table III showed the total number, mean scores, standard deviation, and standard error, minimum and maximum score of the three different grade students in this study. The F value of ANOVA in Table IV showed that there were significantly difference between the three groups of participants ( $F = 45.968$ ,  $p = .000$ ).

TABLE IV  
GRADE DIFFERENCES ON DANCE PERFORMANCE

|                | Sum of Squares | df   | Mean Square | F      | Sig. |
|----------------|----------------|------|-------------|--------|------|
| Between Groups | 1897.767       | 2    | 948.883     | 45.968 | .000 |
| Within Groups  | 28135.223      | 1363 | 20.642      |        |      |
| Total          | 30032.990      | 1365 |             |        |      |

Table V showed the results of Post hoc comparison analysis using Scheffé Test. The results on Table V revealed that senior high level students' performances were higher than the junior high levels significantly, however, there were no difference between the 10<sup>th</sup> grade and 11<sup>th</sup> grade student.

TABLE V  
THE RESULTS OF POST HOC COMPARISON ANALYSIS

| (I)                    | (J)                    | Mean Difference | SE     | Sig.  |
|------------------------|------------------------|-----------------|--------|-------|
| 9 <sup>th</sup> grade  | 10 <sup>th</sup> grade | -2.54807*       | .29379 | .000  |
|                        | 11 <sup>th</sup> grade | -2.55502*       | .31871 | .000  |
| 10 <sup>th</sup> grade | 9 <sup>th</sup> grade  | 2.54807*        | .29379 | .000  |
|                        | 11 <sup>th</sup> grade | -.00695         | .30009 | 1.000 |
| 11 <sup>th</sup> grade | 9 <sup>th</sup> grade  | 2.55502*        | .31871 | .000  |
|                        | 10 <sup>th</sup> grade | .00695          | .30009 | 1.000 |

\*. The mean difference is significant at the .05 level

##### D. Areas Differences

One-Way ANOVA was used in this study to analyze the differences between the different areas in Taiwan. The descriptive results appeared in Table VI, and the result of ANOVA showed in Table VII.

TABLE VI  
DESCRIPTIONS OF DIFFERENT AREAS

|          | N   | Mean    | SD      | SE     | Minimum | Maximum |
|----------|-----|---------|---------|--------|---------|---------|
| Northern | 695 | 27.1741 | 4.70452 | .17845 | 11.0    | 39.0    |
| Central  | 494 | 26.9636 | 4.69157 | .21108 | 11.0    | 40.0    |
| Southern | 124 | 24.8387 | 4.29291 | .38551 | 10.0    | 34.0    |
| Eastern  | 53  | 24.4906 | 3.63012 | .49864 | 14.0    | 32.0    |

Table VI showed the total number (53-695), mean scores ( $M = 24.4906-27.1741$ ), standard deviation ( $SD = 3.63012-4.29291$ ), and standard error ( $SE = .17845-.49864$ ), minimum and maximum score (10-40) of the four different areas.

TABLE VII  
AREAS DIFFERENCES ON DANCE PERFORMANCE

|                | Sum of Squares | df   | Mean Square | F      | Sig. |
|----------------|----------------|------|-------------|--------|------|
| Between Groups | 869.692        | 2    | 289.897     | 13.539 | .000 |
| Within Groups  | 29163.297      | 1363 | 21.412      |        |      |
| Total          | 30032.990      | 1365 |             |        |      |

The F value of ANOVA in Table VII showed that there were significantly performances differences between the four different areas ( $F = 13.539$ ,  $p = .000$ ) in Taiwan.

Table VIII showed the results of Post hoc comparison analysis using Scheffé Test. The results on Table VIII revealed that the performances of northern and central areas were

higher than the performances in southern and eastern areas significantly; however, there were no differences between the results in northern and central areas and southern and eastern areas respectively.

TABLE VIII  
THE RESULTS OF POST HOC COMPARISON ANALYSIS

| (I)      | (J)      | Mean Difference | SE     | Sig. |
|----------|----------|-----------------|--------|------|
| Northern | Central  | .21054          | .27231 | .897 |
|          | Southern | 2.33539*        | .45110 | .000 |
|          | Eastern  | 2.68353*        | .65940 | .001 |
| Central  | Northern | -.21054         | .27231 | .897 |
|          | Southern | 2.12485*        | .46478 | .000 |
|          | Eastern  | 2.47300*        | .66884 | .003 |
| Southern | Northern | -2.33539*       | .45110 | .000 |
|          | Central  | -2.12485*       | .46478 | .000 |
|          | Eastern  | .34814          | .75939 | .976 |
| Eastern  | Northern | -2.68353*       | .65940 | .001 |
|          | Central  | -2.47300*       | .66884 | .003 |
|          | Southern | -.34814         | .75939 | .976 |

\*. The mean difference is significant at the .05 level

## V. DISCUSSION

A long-term phenomenon existing in Taiwan is that most of the dance talented students are females. This study's finding indicated that the dance performances of the female students were higher than the males which were very consistent with the above existing phenomenon. The result might call for the questions i.e., did females possess more competence on body movement than males? Are there some limitations for male to perform better in dance naturally? The above questions are worthy to explore in future studies.

In addition, the findings on dance talented students performing better than those of the regular students indicated that the self-designed dance test used in this study could actually discriminate the dance talented students from regular students. Therefore, this dance test could be used as a valid screening instrument for identification of dance talented students.

Through this study, we found dance performances of senior high level students were higher than junior high students. This finding confirmed that designing different curriculum for different grade level students was very important in arts education. From the junior high level Art and Humanity Curriculum Guidelines, we could see that its objectives emphasized on the basic knowledge and skills of arts education whereas the objectives of Art Life Curriculum for the senior high level put more focus on the relationships of arts and life. The result verifies that current curriculum objectives for these two different level students are going in the correct directions. In another point of view, this result also might be caused by the physical maturity degree. So we needed to explore it more deeply in the future.

Finally, the results of this study also revealed that secondary students from the northern and central areas in Taiwan performed better than those from southern and eastern parts

which also reflected the facts that the former areas were much easier to get resources than the latter ones. In Taiwan, arts education information and participation opportunities of arts related activities in northern and central areas are much more than those of the southern and eastern areas. Therefore, the Ministry of Education and the administrations of local governments should balance these area differences by providing more arts activities and information to southern and eastern cities and counties as soon as possible.

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