

# Experimental Study on Field Leadership Intervention in Dancesport Courses

Dingfeng Wu<sup>1, a</sup>, Norita Encisa Manly<sup>1, \*</sup>

<sup>1</sup>Adamson University, Manila, Philippines

<sup>a</sup>309447394@qq.com, <sup>\*</sup> Corresponding author: norita.manly@adamson.edu.ph

**Abstract:** To evaluate the effectiveness of field leadership theory in Dance sport course, we conducted an experiment of field leadership intervention in teaching. In the experiment, the students are randomly divided into the experimental group and the control group, using the same teaching content, field leadership intervention is carried out in the experimental group to evaluate which teaching method of field leadership is better than the traditional teaching method. The experience lasted for 12 weeks. According to the pre test and post test of leadership and the ranking of the same competition in the final competition, it was found that the final performance and leadership of the experimental group were significantly better than that of the control group. That is, field leadership intervention in Dance sport course has a significant effect on improving students' leadership and semester performance.

**Keywords:** Leadership, Field Leadership, Dance Sport.

## 1. Introduction

We have found ourselves perplexed: many individuals invest years in learning Dance sport, dedicating significant efforts to master basic skills and memorizing numerical combinations. However, their performance and competition results remain unremarkable. The question arises: why do the "high input" of learning and training yield a "low efficiency" outcome? This can be particularly disheartening for dance enthusiasts aspiring to achieve highly competitive levels. Is it a matter of ineffective teaching, or are students not learning effectively?

The atmosphere of different classes is very different, some teachers are very involved in teaching, while students are passively forced to learn, while in some classes, students take the initiative to practice and show themselves. To interact with others, the students feel full of achievement when the class is over. According to the Feynman theory, learners' "active input" is much more effective than "passive input," requiring active participation. We, teachers, as course designers and classroom leaders, need to actively create an environment conducive to active learning.

Field leadership is a leadership theory suggesting that leaders should choose the most appropriate leadership style based on their environment and circles. To examine which field leadership intervention in courses can enhance learning outcomes, an experiment is proposed, evaluating the practical effectiveness of field leadership theory in classroom teaching.

## 2. Background of The Study

### 2.1. Field leadership

Field leadership is a new leadership theory aiming to address the shortfalls of traditional leadership methods. It argues that leaders should choose the most appropriate leadership style based on their environment and circumstances. The background of field leadership arises from dissatisfaction with traditional leadership methods and the demand for a more flexible and adaptive leadership approach. In recent decades, traditional leadership methods have

proven flexible and ineffective in some situations. For example, in certain cases, a teacher's enforcement of a command style leadership may reduce team creativity and innovation, leading to student negativity and attrition. Rote style dance exam oriented education renders students' dance expressions number, hinting the harmony of emotion and movement. Similarly, relying solely on a collaborative leadership style is insufficient for optimal results in every situation.

Hence, the study of field leadership emerged to provide a more flexible, adaptable leadership approach, allowing leaders to choose the most appropriate style based on their environment and circumstances. Field leadership research has garnered increasing attention and has received significant results in various fields, including education, business, and healthcare.

### 2.2. Statement of The Problem

The study will explore the following aspects: after field leadership intervention, has students' interest in learning increased? Are students more actively engaged? Has the students' team work improved? Does it affect students' learning outcomes? Does it impact the implementation of teacher teaching? How do students provide feedback and evaluations?

Specifically, it answered the following problems:

1. What is the level of performance of the student responses before the conduct of the field leadership in DanceSport course?
2. What is the level of performance of student responses in conducting the field leadership in DanceSport after 12 weeks?
3. Is there a significant difference in the performance of student performance before and after conducting field leadership?
4. What are the insights of the teachers and immediate supervisors on student interest before and after intervention of field leadership?
5. Based on the result, what model framework on field leadership may be proposed for improved performance in DanceSport?

### 3. Research Method and Process

#### 3.1. Theoretical Framework

This study is based on Feynman learning method and NASA-4D theory

##### 3.1.1. Charles Pellerin's NASA-4D Guidance for Individual and Team Analysis and Improvement Planning

Four Different Types (NASA-4D) provides convention for conducting individual field development assessments and team field development assessments Through measurement, it benefits clear about the other party's nature, understanding what methods are most effective for communication It helps to formulate improvement plans for both individuals and teams

#### 3.2. Research Design

The research design is based on the nature of investment employed a quasi experimental study or a semi experimental Randomly select two classes, designing them as the experimental group and the control group, with 30 participants in each with a gender ratio of 1:1 The experimental group undergoes field leadership intervention, while the control group did not receive any intervention

Pre tests and post tests for leadership will be conducted in the first week and the two weeks, respectively A learning effectiveness test will be administered in the two weeks (due to the zero foundation in sports dance, a pre test is not feasible) Data analysis will be performed to examine the relationship between independent and dependent variables

#### 3.3. Data collection and analysis

##### 3.3.1. Data collection

The data involved in this study includes leadership data, final exam score data and other surveys, observation and interview data collection. a. Questionnaire survey: And the questionnaire survey is used to collect the information of the participants.

b. Sports dance course performance evaluation form:

researchers can use a standardized evaluation form to evaluate the participants' sports dance skills in order to compare the performance differences between the experimental group and the control group. c. Video recording: researchers can use cameras to record the performance of participants in sports dance classes for subsequence analysis and evaluation.

d. Statistical software: use statistical analysis software (such as SPSS) to process and analyze the collected data in order to draw conclusions and negotiations

##### 3.3.2. Data analysis

Firstly, the pre test data is examined to ensure that there is

no significant difference between the two groups, guaranteeing the credibility of the experimental results Subsequently, data analysis is conducted on the post test data to study where there are significant differences in the final scores and leadership between the two groups Additionally, the leadership levels of individual members in the experimental group are compared before and after the intervention to detect any significant changes

For each differential test, a normality test is conducted on the data If both sets of data meet the normality assumption, a t-test is performed; Otherwise, a non parametric test is employed

In this study, a comparison between the experimental group and the control group is conducted, utilizing both an independent samples t-test or a non parametric independent samples test The examination of the differences in leadership levels between pre test and post test within the experimental group is carried out using a paid t-test or a non parametric related samples test

### 4. Results

#### 4.1. Field leadership intervention changes the communication channels of students and increases the opportunities for interaction among students

The first step in the process of field leadership organization is to form a team, which invisibly brings about changes in communication channels, creating an output field

Traditional forms of teaching organization mostly involve teachers reporting while students listen, resulting in limited communication channels, a singular format, and poor interactive effects

From the traditional way, we can see that in the Dance sport class with 30 students and 15 male female pairs, there are 15 communication paths Adding the communication paths between the teacher and each student, the total communication paths for all the mentioned patterns are  $15+30=45$  Due to the significant difference in the number of teachers and students, a teacher fixing 30 students has limited opportunities for individualized guidance

However, adapting a team communication model, in addition to the basic 45 paths mentioned above (30 between the teacher and each student, and 15 between male female dance partners), we further organize the 30-person class Five students volunteer to present, and then randomly form five teams Each team consists of 6 members (3 males and 3 females) We can observe the communication channels for each group in the following diagram:

As table 1, the list of communication paths between the control group and the experimental group is as follows:

**Table 1.** Comparison of communication paths

Serial number	Communication Path	Control group communication path	Communication Path for the Experimental Group
one	Between the teacher and each student	Third	thirty
two	Between dance partners	Fifteen	fifteen
three	Within a 6-person team	—	seventy-five
four	Between 5 teams	—	ten
	Total	forty-five	one hundred and thirty

From the 45 communication paths in the control group to the 130 communication paths after grouping in the experimental group, there are more communication channels,

higher communication frequency and effectiveness, providing more opportunities for discussion, sharing, and mutual teaching This accelerates understanding, enhances

retention rates, and promotes the improvement of leadership and learning effectiveness

## 4.2. Differences in the Level of Performance of two groups of Respondents - set up

### 4.2.1. There is no significant difference in leadership between the two groups of students before intervention

Analyze the leadership and learning efficiency data of the

experimental group and the control group, and conduct independent sample t-tests on the leadership data of the two groups before intervention. The data results are as table 2:

### 4.2.2. There is no significant difference in learning efficiency between the two groups of students before intervention

Perform a non parametric double independent sample test on the pre-test data of learning efficiency for two groups, and the data results are as Table 3:

**Table 2.** Leadership Differences between the Experimental and Control Groups (Pre test)

		Independent sample testing (leadership pre-test)								
		Levin's test for homogeneity of variance		Mean isotropy t-test						
		F	Significance	T	degree of freedom	Significance (Double tailed)	Mean value difference	Standard error difference	95% confidence interval for difference	
									lower limit	upper limit
Total Leadership	Assuming equal variance	three point eight eight two	.054	.524	fifty-eight	.602	five point nine zero zero	eleven point two six six	-16.651	twenty-eight point four five one
	Not assuming equal variance			.524	fifty-one point zero two one	.603	five point nine zero zero	eleven point two six six	-16.717	twenty-eight point five one seven

Due to significance > 0.05, we do not reject the assumption of equal variance, where the t-value falls within the 95% confidence interval. Therefore, we do not reject the

assumption that there is no significant difference in the pre-test leadership between the two groups.

**Table 3.** Differences in learning efficiency between the experimental group and the control group (pre test)

	learning efficiency
Man Whitney U	four hundred and four
Wilcoxon W	eight hundred and sixty-nine
Z	-.778
Asymptotic significance (two tailed)	.437

a. Group variable: 1. Your selected sports dance class

From the data on the graph, it can be seen that due to significance > 0.05, the null hypothesis is not rejected, that is,

there is no significant difference in learning efficiency between the two groups in the pre-test.

**Table 4.** Differences in final grades between the experimental group and the control group (post test)

	group	Number of cases	Rank mean	The sum of ranks
Final exam	0	thirty	twenty-one	six hundred and thirty
	one	thirty	forty	one thousand and two hundred
	total	sixty		

**Table 5.** Differences in final grades between the experimental group and the control group (Inspection statistics a)

	Final exam
Man Whitney U	one hundred and sixty-five
Wilcoxon W	six hundred and thirty
Z	-4.269
Asymptotic significance (two tailed)	.000

a. Grouping variables: Group

## 4.3. Field leadership intervention can significantly improve students' leadership and learning efficiency

### 4.3.1. Significant difference in final grades between the experimental group and the control group

Perform a single sample K-S test on the final grades of the experimental group and the control group, and then perform a non parametric double independent sample test on the two sets of data. The data results are as Table 4 and Table 5:

Due to significance < 0.05, the null hypothesis is rejected, which assumes that there is a significant difference in the final grades between the control group and the experimental group.

As the rank mean of the experimental group is greater than that of the control group, it is considered that the final grades of the experimental group are significantly better than those of the control group.

### 4.3.2. Significant difference in leadership between the experimental group and the control group after intervention

Conduct a single sample K-S test on the leadership data of the experimental group and the control group after intervention, and then perform a non parametric test and double independent sample test on the two groups of data. The data results are as Table 6 and Table 7:

**Table 6.** Differences in leadership between the experimental group and the control group (post test)

	group	Number of cases	Rank mean	The sum of ranks
Total Leadership	0	thirty	twenty-three point four seven	seven hundred and four
	one	thirty	thirty-seven point five three	one thousand one hundred and twenty-six
	total	sixty		

**Table 7.** Differences in leadership between the experimental group and the control group (Inspection statistics a)

	Total Leadership
Man Whitney U	two hundred and thirty-nine
Wilcoxon W	seven hundred and four
Z	-3.121
Asymptotic significance (two tailed)	.002

a. Grouping variables: Group

Due to significance $<0.05$ , the null hypothesis is rejected, which suggests that there is a significant difference in leadership between the control group and the experimental group. Due to the fact that the average value of the experimental group is higher than that of the control group, it is considered that the leadership of the experimental group is significantly better than that of the control group.

## 5. Conclusion and Recommendations

Sixty undergraduate students who took the elective sports dance course in the spring semester of 2023 at XX University were selected as the research subjects and divided into two classes. One class was randomly selected as the experimental group and the other as the control group. There was no significant difference in leadership and learning efficiency between the two groups. Field leadership was used to intervene in the experimental group for 12 weeks.

The results showed that the final grades and leadership of the experimental group were significantly better than those of the control group, indicating that using field leadership intervention in sports dance courses can significantly improve students' semester grades and leadership levels.

### 5.1. Field leadership: By creating an output field, changing communication channels, increasing interaction opportunities, promoting student leadership and learning efficiency improvement

In sports dance teaching, different teaching strategies are adopted when using field leadership intervention, team communication mode is adopted, communication channels and frequency are increased, and opportunities for students to discuss and share are increased, thereby promoting the improvement of student leadership and learning efficiency.

### 5.2. Following Feynman's theory in teaching, changing passive input to active input, and improving retention rate

Unlike traditional teaching methods, the experimental group is divided into groups of 6 people, with 3 male and 3 female dance partners, and a total of 30 people divided into 5 groups. Through group discussions, practice, and mutual teaching among classmates, students actively learn. This creates conditions for adopting the Feynman learning method. Why replace learning with education? Replacing learning with education is the core of Feynman's learning method. In Feynman learning, input can help output, and output can force input. The most direct benefit of forcing input to conform to the principles of memory is that it enhances the retention rate for specific content. Replacing learning with education requires concise and in-depth analysis in a language that everyone can understand. The Feynman learning method should provide more authorization for teaching teachers,

allowing students to participate in discussions, practice, and mutual teaching guidance,

### 5.3. Field leadership adopts NASA-4D to improve communication effectiveness and enhance leadership

The two dimensions of collecting information and the two tendencies of making decisions are what we call 4D

The communication between dance partners can achieve "knowing oneself and the other", better understand each other, reduce the awkward situation of "chicken talking with duck", and optimize internal communication. And analyze the personal leadership field, diagnose the team's current situation, and develop improvement plans separately.

### 5.4. Through continuous efforts to create a field, leadership and teaching effectiveness have been improved

Charlie Pelerin's NASA-4D guides us on our personal tendencies when collecting information and making decisions in discussions and mutual teaching activities. With this foundation, we have a basic judgment on the nature of people, teams, and things (referring to learning tasks) in my classroom environment, which facilitates optimal matching and coordination. Through a series of practical learning and intervention methods, we can achieve the goal of improving learning effectiveness. Due to early efforts, the team had good interaction, cleared obstacles, fully mobilized teachers and classmates, and improved learning efficiency and leadership.

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