

## A study of a karate trial teaching class in a teacher training course – based on students' formative assessment

Kentaro TAI\*<sup>1</sup>, Shutaro JINNO<sup>2</sup>, Namika MOTOSHIMA<sup>2</sup>, Toshiyuki MIYARA<sup>2</sup>, Takeru SHIMA<sup>1</sup>, Miki SUETSUGU<sup>3</sup>, Masaki FUMOTO<sup>4</sup>, & Hiroyuki IMAMURA<sup>2</sup>

<sup>1</sup>Gunma University (Japan)

<sup>2</sup>Nagasaki International University (Japan)

<sup>3</sup>Komazawa University (Japan)

<sup>4</sup>Tokyo International University (Japan)

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### Abstract

The purpose of this study was to examine the effectiveness of a karate trial teaching class in an initial teacher training course, through students' formative assessment. It involved two case studies of trial teaching classes of karate and that of two other activities, taught by the students of an initial teacher training course. The results were assessed using the Students' Formative Assessment of Physical Education (P.E.) Classes scale. Results showed significant differences between groups in "New discovery" ( $p < .05$ ) and a trend toward statistical significance in "Skill growth", "Fun Exercise" and "Learning friendly" ( $p < .10$ ) based on the classes provided by karate and other teaching materials. This implies that karate might have different acute effects on students' learning process in the context of school-level physical education.

**Keywords:** Martial arts; combat sports; karate; physical education; teacher education; formative assessment.

### 1. Introduction

In Japan, learning budo (martial arts) is compulsory in health and physical education classes starting from junior high up to the high school level (MEXT, 2008). At the junior high school level, all first and second graders are required to take budo classes as a way to inculcate the understanding of traditional culture. Several studies have suggested making karate-do a part of teaching material for school classes (Koyama, 2011; Imamura, 2012). However, in pedagogical research, there are few studies using class settings and students' assessment in physical education compared to those for other areas, and studies focused on pre-service teachers learning karate-do are even rarer.

### 2. Objectives

The purpose of this study was to examine the effects of two karate lessons in a sample of students of a physical education initial teacher education course.

### 3. Methodology

Table 1 shows the participants' characteristics. Those playing high school students' roles were all university students of a teacher training course who have already experienced high school students' roles in many simulated lessons. The students playing the teachers' role for the three contents were different, all third graders who had also experienced simulated classes more than twice. The participants took simulated lessons held at University 'N' in June 2019, aimed at training physical education teachers in junior high school under the perspective of formative assessment. The contents of the classes included (1) Volleyball: ball game, net type, (2) Karate: kumite, and (3) Mat exercise: gymnastics.

\* Email: [tai@gunma-u.ac.jp](mailto:tai@gunma-u.ac.jp)

**Table1** the participants of the mock classes

teaching materials		①volleyball	②Karate	③mat exercise
teacher's role	Grade	3rd (21yo)	3rd (21yo)	3rd (21yo)
student's role	number	22	22	20
	4th Grade	4	5	4
	3rd Grade	6	6	7
	2nd Grade	12	11	9
	1st Grade	0	0	0

At the end of each class, those who had taken the simulated lesson assessed it by using the Students' Formative Class Assessment Scale (Takahashi et al., 1994), modified from previous studies. This scale is composed of nine items and four factors, namely: "Outcome", "Motivation", "Ways of learning" and "Cooperation".

Two groups were considered: karate and volleyball/mat exercises. SPSS statistical software 25.0J (Chicago, IL) was used for data analysis. The descriptive statistics included means and standard deviation. Differences in the mean values of the karate class and the classes using other teaching materials were analyzed using a *t*-test. Two-sided  $p < .05$  was considered to be statistically significant.

#### 4. Results

Table 2 shows the result of the *t*-test. Significant differences were found in "New discovery", with karate group achieving higher scores, and a trend towards statistical significance was found in "Skill growth" (higher scores in karate group), and "Fun Exercise" and "Learning friendly" (volleyball/mat exercises achieving higher scores).

**Table2** the results of Karate classes and other materials

Lower factor	Factor	Whole(N=64)		Karate(N=22)		Other(N=42)		<i>t</i> Value	<i>p</i>
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
1 Impressive experience	Outcome	3.66	( 0.76 )	3.73	( 0.70 )	3.62	( 0.79 )	-0.54	n.s.
2 Skill growth	Outcome	3.83	( 0.79 )	4.09	( 0.75 )	3.69	( 0.78 )	-1.98	†
3 New discovery	Outcome	3.75	( 0.82 )	4.05	( 0.79 )	3.60	( 0.80 )	-2.15	*
4 Best exercise	Motivation	4.64	( 0.60 )	4.68	( 0.48 )	4.62	( 0.66 )	-0.39	n.s.
5 Fun experience	Motivation	4.66	( 0.60 )	4.45	( 0.74 )	4.76	( 0.48 )	1.76	†
6 Voluntary learning	Ways of learning	4.33	( 0.80 )	4.14	( 0.89 )	4.43	( 0.74 )	1.40	n.s.
7 Learning with good faith	Ways of learning	3.78	( 1.03 )	3.73	( 1.12 )	3.81	( 0.99 )	0.30	n.s.
8 Learning friendly	Cooperation	4.47	( 0.69 )	4.23	( 0.87 )	4.60	( 0.54 )	1.81	†
9 Collaborative learning	Cooperation	4.31	( 0.79 )	4.09	( 1.02 )	4.43	( 0.63 )	1.64	n.s.
Comprehensive evaluation		3.92	( 0.74 )	3.82	( 0.80 )	3.98	( 0.72 )	0.81	n.s.

\* :  $p < .05$  †:  $p < .10$

#### 5. Discussion and Conclusion

Kobayashi (2018) points out that for situations where physical strength and awareness of movement are polarized, karate may be an effective teaching material, making exercise a joy even for students who are not good at exercising. In our study, the karate lesson was highly evaluated under the three 'outcome' factors, although only differences on "skill growth" were significant. As all the students in the karate lesson experienced karate for the first time, it is assumed that they saw the outcome in terms of learning new physical movements and specific karate skills. For students with little experience in karate or martial arts, the acute effect of such lesson made them feel that their skills grew, compared to other exercises they had already experienced before such as volleyball or mat exercises. The results of the study thus suggest that karate classes in school-level physical education teacher education might have different acute effects on the perception of learning outcomes of students compared to other activities. Further studies should evaluate the effects of karate or martial arts lessons in longer periods of practice.

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