The Effects of Group Contingency Strategy on Students' Behaviors in Physical Education Classes in Korea Using Multiple Baseline Design

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The purpose of this study was to examine the effects of a group contingency strategy on student behaviors in elementary physical education classes. The study was conducted in an elementary school within metropolitan Korea. Eighty 6th-grade students (2 classes) and one teacher participated in this study. To investigate the effects of group contingency (intervention), two classes were separately designated as the experimental group (n=40) and control group (n=40). A multiple-baseline design across student target behaviors was used to determine the effects of exposure to behavioral intervention on student behaviors. Comparison was also made with the absence of the intervention. Data collected through each class observation and videotaping of 17 lessons of ball game and gymnastics showed that a group contingency strategy was effective in increasing the percentage of on-task behavior (motor activity) and reducing student waiting time and off-task in the experimental group. Compared to the experimental group, the control group showed no significant behavioral changes. Results also showed that the strategy was effective in decreasing inappropriate behavior and increasing appropriate behavior, which consequently builds on new forms of behavior by applying these contingencies consistently with effective consequences.

Keywords: Good behavior game, intervention, management, multiple-baseline design, group contingency.

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1. Introduction

Classroom management skills are essential to effective teaching (Metzer, 2000; Siedentop, 1983). The possession of group management skills allows the teacher to accomplish his teaching goals (Kounin, 1970). Emmer and Evertson (1981) also found that effective classroom management produces high levels of student involvement in classroom activities, minimizes student behaviors that interfere with the teacher's or other student's work, and efficient use of instructional time. In addition, research by Takahashi (2000) showed that students are more engaged in motor learning as teachers spend

lesser time in managerial task.

For effective teaching to take place, teachers must be competent in managing student misbehavior so that maximum time is spent on learning (Levin, Nolan, & Nolan 1999). Emmer and Evertson (1981) determined that most of this management structure is taught during the first three weeks of the school year. This involves the teaching of rules for behavior, consistent reminders of these rules, and contingencies for complying with or flouting rules, and routines that enable students to get about the business of the class without disrupting the ongoing educational focus.

Managerial and organizational skills are the largest part of the explanation for small amounts of learning

time (Metzler, 1980; Rate, 1980; Birdwell, 1980). To increase allocated student learning time, teachers need to maximize student time-on-task. When students are on task, they are engaged in learning and are less apt to disrupt the learning of others. Levin et al. (1999) claimed the effective teacher uses these guidelines as instrument to increase student learning and to minimize disruptive student behaviors. There are several techniques in applied behavior analysis that have been used to monitor behavior change in students and athletes in physical education/sport settings (Paese, 1982). Some of the successful techniques are the token economy system (Huber, 1973; Kazdin, 1977; Metzler, 2000; Siedentop, 1983), individual contingency system (Birdsong & McCune, 1977), and group oriented contingency system (Paese, 1982; Metzler, 2000; Siedentop, 1983).

A particularly successful strategy utilized with behaviorally disordered students in classroom settings is the group-oriented contingency management system. This system is commonly referred to as group contingency plan (Medland & Stachnik, 1972; Harris & Sherman, 1973; Vogler & French, 1983). The plan is one of the most basic strategies for changing behavior. Since reward is given on the basis of the group's performance, the underlying premise of this contingency is that desirable reinforcement will be provided to the group as a unit if they first demonstrate an appropriate set of behaviors (Siedentop, 1983). Contingency management in classroom is based on behavior modification techniques that have been shown to be highly effective (Alberto & Troutman, 1999).

Many teachers use the traditional reactive approach when dealing with behavioral problems in their classes. A predator waiting to pounce on its prey best illustrates this approach. Specifically, teachers waiting for inappropriate behaviors to occur and then reacting to such behaviors with various non-specific forms of negative reinforcement, such as scolding or punishment, are deemed to have reduced academic learning time in PE. Active behavior management programs such as positive reinforcement have greater potential for alleviating these types of problem (Downing, 1996).

Extensive research by Siedentop (1983) argues that teachers could not expect to build good behavior

and have a warm, nurturing climate without first focusing on good behaviors and finding ways to recognize and reinforce it. He also suggested that high levels of achievement and on-task behavior, and a warm nurturing learning climate are not only compatible but dependable on one another. Another research with Siedentop and Dawson (1978) showed them using an independent contingency system to increase team skill performance and team attitude. In 1974, McKenzie and Rushall used an interdependent group contingency system to decrease inappropriate behavior during swimming practice. Results from the above studies showed success in creating behavior change in their subjects through the use of group-oriented contingency systems.

According to Paese (1982), the group contingency strategy would be very useful in attempting to influence behavior or performance change in a high school PE setting. Since most of what we do is team oriented, the contingency is effective as it involves all members and spear them towards a particular behavior. When the group contingency is implemented in a game form (pattern), it is referred to as "Good behavior game" (Metzler, 2000; Siedentop, 1983; Vogler & French, 1983). During the game, students can earn free physical activity time or other rewards. Sherrill indicated that "Good behavior game" which uses democratic principles to establish rules, consequences and rewards are excellent sources of reinforcement for positive group behaviors.

In the last 20 years, many researchers has been advocated the consequence of group contingency in general classroom education setting. However, while several researchers have addressed the theme in PE setting, there has been little effort to empirically examine efforts to pertaining to PE setting. Also, most of the researchers were interested in increasing the on-task behaviors while reducing inappropriate behaviors. In recent studies, on-task definition involved not only Academic Learning Time in PE (ALT), motor engagement /motor activity but also managerial tasks or sometimes cognitive task like listening or reading about specific subject matter, information and knowledge. One of most important effective teaching style in PE class setting is being competent in managing student misbehavior so as to maximize the time spent in motor activity and motor

learning. However, there is a lack of data focusing on motor activity time. That is to say, despite the established importance of teacher using group contingency strategy, little research has been done to support these recommendations in PE settings. In addition, there is also lack of data to determine whether the effects were maintained after the intervention (reinforcement) period. It is not known whether the effects of the contingency are maintained when eliminating the rewards or contingencies.

The purpose of this study was to examine the effectiveness of group contingency strategy using good behavior game in a PE class setting. In addition, this study was also conducted to determine if the effects of intervention were maintained.

2. Methods

2.1. Participants and Setting

The purpose of this study was to accompany the pilot study which was implemented to investigate the possibility of group contingency strategy. Thereafter, the main study was designed with students' three target behaviors being redefined as waiting time, off-task and motor activity. The study was implemented for 12 weeks from March to June, 2003 toward PE classes in a public elementary school within metropolitan Korea. Prior to the study, all participants were informed about the purpose of the study. Then, written consent was obtained not only from both the class teachers and the one experimental teacher, but also from student participants and their parents.

Eighty 6th-grade students (2 classes) and the experimental teacher (male), with 8 years teaching experience participated in this study. The classes were divided into two groups with one class designated as the experimental group ($n=40$) and the other serving as the control group ($n=40$). Each group (class) was observed while participating in a 17 lesson ballgame and gymnastics units. The breakdowns of the lessons are as follows: 10 lessons on ballgame (1-10th) and 7 lessons on gymnastics (11-17th). The lessons were conducted in the school gymnasium. The size of

the activity area was approximately the size of one handball court (38m $\times$ 25m).

2.2. Pilot Study

The study was conducted to examine the possibility of group contingency strategy. Data on class assembling time was collected during the second semester in 2002. PE classes were conducted in an elementary school within metropolitan Korea. Forty 5th-grade students and their teacher (male), with 5 years teaching experience participated in this study. Students' behaviors were observed directly by an assistant teacher who had been trained as an observer while participating in a 18 lesson ballgame unit of volleyball and basketball.

The experiment used a multiple baseline design (Tawney, & Gast, 1984) across the students' three target behaviors on class assembly which was used to assess the effectiveness of the intervention and maintenance. Data collection across subjects during maintenance period following all intervention was carried out. However, there was a 2-week break which was followed by further invention to check for maintenance.

A good behavior game based on group contingency was conducted during the intervention period. The reward was to allow students to use computers during lunch time. The teacher explained the rules of the target behaviors and the meaning of assembling time to all students. The rules and definition of target behaviors as follows:

- Target behavior 1 (TB-1): Class assembly within 5 minutes in a designated area at the beginning of class; this time was measured from a definite time during the beginning of class.
- Target behavior 2 (TB-2): Self-assembly within 30 seconds from the time of the teacher's directions; this time begins when the teacher calls the class assembly and ends when all the students are assembled.
- Target behavior 3 (TB-3): Pupil to be punctual for subsequent class after PE class.

The results¹ from the pilot study revealed that class assembling time decreased remarkably in all target

1 In detail, the means of TB-1 across assembling time, respectively, scored 18.8%, 10.3%, and 10.5% per class time in the baseline, intervention and maintenance period. The means of TB-2, severally, showed 4.1%, 0.9%, 0.9% and those of TB-3 were 10.8%, 1.3%, 1.3% at each period.

Table 1 Behavior Rules

Behavior Rules	Target Behavior
1. Class assembly within 3 minutes in a designated at the beginning of class and self-assembly within 30 seconds from the time of the teacher's directions during class. 2. Complies with teacher's directions within 10 seconds from the time the directions are stated.	Waiting (TB-A)
3. Attention to teacher's explanations and demonstrations and using equipment properly. 4. Must not disturb the class or interfere with practice of others and not use verbal or physical violence to fellows.	Off-task (TB-B)
5. Students should try their best when participate in the activities in appropriate manner. 6. During games, students should behave in accordance with rules and provide praises to groups that win.	Motor Activity (TB-C)

behaviors across baseline. Based on the results of the pilot study, the main study was thus designed, implemented.

2.3. Research Design and Intervention

The experiment used a multiple baseline design which also included measuring the effectiveness of the intervention and maintenance. This design consisted of 3-phases which was baseline, intervention and maintenance period. Each period varied with the target behaviors. The multiple baseline design allows a claim of causality to be made because of the change of the dependent variable in the desired direction at the designated time across interventions. This design has gained popularity since its inception into education-based studies (Baer, Wolf, & Risley, 1968; Tawney, & Gast, 1984).

In this study, the design across students' three target behaviors, waiting, off-task and motor activity, were used to assess the effectiveness of the intervention in the treatment group, as it were, to analyze the functional relationship between the treatment class and changes in these three target behaviors. To facilitate this, 3-phases across experimental group were introduced. A-phase was the baseline period before any intervention (treatment variable) was employed. Following this baseline, the intervention was implemented on the first target behavior (waiting) -the one with the highest

percentage of management time in the beginning of class. In the B-phase, intervention on the first target behavior and baseline measurement continued on to the other two target behaviors (off-task & motor activity). After a behavior change was generated on the first target behavior, the second intervention was applied to the second target behavior, and so on until all three target behaviors have been intervened with the independent variables. Causality is demonstrated when the first target behavior change has occurred on the subjects behaviors and the intervention creates change in the second target behavior, following the intervention on it. Cooper (1974), adds that the greater the number of changes, the greater confidence that a functional relationship can be established. Finally, the C-phase was the maintenance period. In this phase, the experimental group had no points and no contingency rewards.

2.4. Instructional Program Procedures

In the first three lessons during the class, behaviors standards were set. Behavior management strategy such as discipline and rules were established by the teacher. Expectations of standards were explained to both the treatment group and control group via the teacher's instruction. Thereafter, it was introduced and reinforced to the treatment group with specified behavior rules (**Table 1**) posted on bulletin boards. The group contingency behavior management strategy using "Good behavior game" was implemented during all intervention. On the other side, the control group had only the teacher's verbal statements as behavior direction (**Table1**).

2.5. Target Behaviors

The target behavior or dependent variable used in this study was the standard ALT-PE coding sheet used for supervision (Wilkinson & Taggart, 1984). It had been modified by experimenter (Yoon,1991; Yoon & Kim, 1998) to collect students' target behaviors which includes interval recording (10-second intervals) of students behaviors. This supervision program also was used to collect students waiting time, off-task time and motor activity time. In this study three target behaviors were measured at the same time

Table 2 Reward system for good behavior game

No.	Points	Reward
1	10	Posting photos on a bulletin board in the hall
2	12	Playing badminton freely
3	15	Entry into one dodgeball game
4	20	Entry into baseball game for 3 rounds
5	25	Using computer during lunch time

during each baseline period before any intervention strategy was employed.

In this study, students' three target behaviors were defined as:

- Target behavior A (TB-A; Waiting): Waiting time for beginning of class and when a teacher signals a halt in activity to provide quarter instructions during class or spending time on transition for class assembling.
- Target behavior B (TB-B; Off-task): Student behavior was taken to mean any activity that deviated from the one in which they should have been engaged in, such as class disruptions, misbehavior, equipment misuse, or general fooling around.
- Target behavior C (TB-C; Motor Activity): Student's motor engagement in the subject matter. This includes skill practice, drills, scrimmages, games, fitness activities, warm-up and cool-down.

The off-task behavior was involved in any passive behavior unrelated to classroom activities or not engaged in the next activity immediately (Sharpe & Lounsbury, 1998; Sharpe, Lounsbury, Golden, & Deibler, 1999; Sharpe, So, Mavi, & Brown, 2002)

2.6. Group Contingency Strategy

2.6.1. Common Format of Good Behavior Games

The common format of good behavior games shown in a few previous studies (Downing, 1996; Patrick, Ward, & Crouch, 1998; Siedentop, 1983; Siedentop, Rife, & Boehm, 1974) may be summarized as follows.

- (1) Divide the class into 4-5 teams.
- (2) Set 4-6 rules for the good behavior game.
- (3) Set the rewards most members of the class

(students) like.

- (4) Record, preserve, and make public postings of group points of each team participating in the good behavior games throughout all classes. In other words, the teacher posts for the public (to the students) the group points and accumulated points of each team obtained by that time and every time when the class starts and finishes. Make sure that the points are also posted on the white board or bulletin board of the gym so that all students can check the points of their group easily at any time.

Moreover, Siedentop (1983) insisted that teachers should strictly keep the following items via their instructions.

- (1) State the rules of the game clearly and post them or remind students of the game regularly.
- (2) State the rewards to be earned and their precise relationship to the game.
- (3) Emphasize that each team can win the game.
- (4) Be absolutely consistent in applying the rules of the game.

The good behavior games of this study were performed in the manner and in the procedures suggested in 2.6.2 and 2.6.3, with reference to a common format and with precautions for good behavior games shown in the previous studies stated above.

2.6.2. Manner of Good Behavior Games

The good behavior game for group contingency strategy was employed in the PE setting of the treatment class. At the end of a specified period, each group could earn the rewards by the reward system established in class (**Table 2**). The group contingency behavior management strategy was employed in the following manner:

- (1) The class was divided into four groups (each group with 10 students).
- (2) Groups were allowed to wear one color vest for their teams (red, blue, yellow, green vest).
- (3) Collect baseline data on the frequency of the target behaviors for 3 to 9 lessons, during the designated class periods.
- (4) All groups could win and that groups were competing against behavior rules rather than against each other.

- (5) The behavior rules were explained thoroughly with prints and posters on a bulletin board.
- (6) Rewards were discussed and decided by the students.
- (7) Points would be awarded each time a signal goes off (the students will not know when the signal will occur). The teacher will check each group when the signal occurs. If all the group members were behaving according to the rules, the group gets one point.
- (8) When a student engages in a disruptive incident or rule violation, one point will be docked from his group.
- (9) When the signal occurs, the teacher quickly glances at each group and makes a judgment on their behavior. Groups that win points are praised and told about their achievement.
- (10) At the end of each class, the teacher totals the points and posts the scores for the day—groups that win a point are posted on a mobile bulletin board by color cards (red, blue, yellow, green).

2.6.3. Reward System

A very profitable way of establishing a reward system is to use the naturally occurring rewards available in the school. Five reward activities were implemented during extra activity time or lunch time.

The teacher examined what students like to do to establish reward system. This technique was based on "Premack Principles" (Premack, 1959), which allows students to engage in a favorite activity to motivate them to learn another activity. The principles also states that a favored activity can be a motivating factor for a less favored activity (Mitchell & Stoffelmayr, 1973). An example of reward system was shown in **Table 2**.

2.7. Data Collection

Data was collected from 2 classes (treatment class & control class) in 12 weeks. Seventeen lessons in both classes were observed for baseline and intervention lessons during the 8 weeks (fourteen lessons). After 2-week break, the maintenance effect

was checked during last two weeks (four lessons).

This study applied the data collection method of Sharp et al. (2002) and Sharpe, Spies, Newman, and Spickelmier (1996). The randomized schedule they used when they selected subjects for observation targeted almost all the students of the class in order to grasp the general tendency of the entire class during the lessons. In the previous studies, the subject students were observed for two minutes and recorded, respectively and duration recording was used. Compared with those studies, this study used a 10-second interval recording method, although the observation time for each student was the same as two minutes. To explain in more detail, half of the class (about 20 students) was observed; each student for two minutes during the lesson which was performed for 40 minutes. For example, immediately after taking pictures of student A at the low level for two minutes, taking the pictures of student B in the middle level for two minutes. Move the focus to student C at the high level and take the pictures for two minutes. Then, take student D at the low level for two minutes. Repeat the procedures till the lesson is over. With two-minute intervals, each student at each level was videotaped in turn and the tapes were analyzed in the laboratory. Two minutes were given to each student to analyze the tape and the student recorded his/her target behavior with the 10-second interval recoding method, in which 5 seconds were used for observation and another 5 seconds were used for rest or recording.

Also, before starting the experiment, which was made by last year's PE teacher (or homeroom teacher), the experiment was classified into three levels by the evaluation² of the experimental teacher. The evaluation record was made targeting all students in two classes and mainly focused on motor-skills, cognition, and the attitude of the students in the form of descriptive evaluation by the PE teacher in the class. However, this classification was used in order to grasp a more reliable general tendency of the entire class by complementing objectivity of the random method. It was not intended to observe behavioral changes in the students at each level.

2 The recent evaluation method that has been made in the elementary schools in Korea is a descriptive evaluation by the teacher in charge of the class (in public schools, they are usually the homeroom teacher) based on criterion of evaluation provided in each school according to the subject evaluation of teachers. The evaluation is not made by points nor is it ranked. Such descriptive evaluation is positively made in most cases, which makes the correct and exact evaluation of students difficult.

Table 3 Means percentages (and ranges) for target behaviors each period per class time and changing rate

Target Behavior (TB)	Group	Baseline Mean (Range)	Intervention Mean (Range)	Changing Rate	Maintenance Mean (Range)	Changing Rate
A (Waiting)	Treatment	16.2	9.8	-39.5	10.6	-34.6
		(14.8-17.0)	(8.8-11.0)		(10.1-10.9)	
	Control	16.8	16.1	-4.2	15.5	-7.5
		(16.7-17.0)	(14.3-17.1)		(14.9-15.8)	
B (Off-task)	Treatment	18.2	8.9	-51.1	8.2	-54.9
		(16.2-19.8)	(6.9-11.0)		(7.6-9.0)	
	Control	18	17.9	-0.6	17	-5.6
		(17.0-18.7)	(16.4-19.8)		(15.6-18.7)	
C (Motor Activity)	Treatment	21.4	37.2	73.8	33.9	58.4
		(15.6-29.0)	(34.0-39.0)		(33.4-34.4)	
	Control	19.1	22.2	16.2	20.1	5.2
		(13.6-25.8)	(19.0-25.8)		(19.1-21.0)	

Note. Changing rate was the percentage which was comparing to baseline mean.

In analyzing the data, the following characteristics of behavioral data were considered: (a) the extent and type of variability or range in data point values, (b) the level change within the same condition, (c) the level change between baseline and intervention phases, and (d) the slope or trend direction of the data path across time. Although there were no formal rules for inspecting data, the confidence in intervention effectiveness is greater when the effect is replicated a number of times. Data collected on the target behaviors were plotted graphically for communicating

and analyzing the various aspects of behavioral change.

2.8. Observer Reliability

Prior to collecting data for this study, two observers were trained. Three periods from each class were randomly selected and recorded to determine interobserver agreement. Both observers were trained to predetermine of criterion 80% agreement based on S-I method (van der Mars, 1989b). Mean interobserver agreement percentage for the waiting behavior was 89% with a range of 87% to 90%. Mean interobserver agreement for the off-task behavior was 95% with a range of 92% to 98%. Mean interobserver agreement across the motor activity behavior data behavior was 90% with a range of 89% to 91%. All observations were then conducted by the observers.

3. Results

The mean rates of the three target behaviors (waiting, off-task and motor activity) for treatment and control classes at each phase are noted in **Table 3**. The percentages of all target behaviors for treatment and control classes at each phase are noted graphically in **Figure 1**. Those data also show the changes of the student behaviors at each period (baseline, intervention, and maintenance), for both groups.

In this study, student behaviors of treatment

Figure 1 Percentage of class time (student-time) used for three target behaviors (TB-A, waiting ; TB-B, off-task ; TB-C, motor activity) in treatment and control classes across main study.

group changed remarkably in the 3 target behaviors throughout the intervention. Comparison between the experimental group and control group in **Figure 1** showed that experimental group changed remarkably. Class time spent in waiting and off-task behaviors diminished while time in motor activity increased. This showed that the effects of intervention were maintained across all the target behaviors (**Figure 1**).

The treatment class had a mean of 16.2% of the TB-A during the baseline, and a mean of 9.8% during intervention period. Changing rate which was compared to baseline mean showed a decreased of 39.5%. The control class had a mean of 16.8% on TB-A during the baseline, and a mean of 16.1% during the intervention period and the stable decelerating-therapeutic trend was maintained during the intervention with a more variable trend during maintenance in the treatment group.

In the TB-B, treatment group had a mean of 18.2% of the off-task behavior during the baseline, and a mean of 8.9% during the intervention period, resulting in a decrease of 51.1% across the phases, while the control group had a mean of 18.0% in baseline, and 17.9% for intervention.

The data of off-task behavior (TB-B) provided a good replication of effect, as indicated by the level change between conditions in the treatment group, and the data of the control group. Two target behaviors of treatment class showed stable trends during the baseline and had descending trends during the intervention while the data of the control class had stable trends during the baseline and intervention phases.

The percentages of the TB-C (motor activity time) for both the treatment and control classes, respectively, scored 21.4%, 37.2%, 33.9% and 19.1%, 22.2%, 20.1% in the baseline, intervention and maintenance period. TB-C on treatment group had ascending trends during intervention phase of the study, except for the intervention in the control group, in which a stable trend resulted (**Table 3, Figure 1**).

Compared to the baseline data, in the control group, there was a trend that the TB-A and TB-B slightly decreased according to the process of each unit, while the TB-C increased and then slightly decreased. However, it can be said that all control groups showed little change in behavior, compared

with the experimental groups. In other words, the control group did not show significant changes in target behavior when the unit lesson was carried out without intervention. On the other hand, the experimental group which carried out good behavior games showed big changes in the target behavior of the students before and after applying intervention and such changes continued during the maintenance period. We found that the control group, without intervention, showed no notable changes in the target behavior of the students through the units.

4. Discussion

The purpose of this study was to determine the effect of group contingency strategy using good behavior game in an elementary school PE setting and to confirm whether the effects of intervention were maintained. In this study, a multiple baseline research design across target behavior was used to assess the effectiveness of the intervention. In this design, the start of the intervention to each target behavior was staggered over time. It started with different behaviors during the 4th, 7th, and 10th lessons. The results indicated that inappropriate behaviors (waiting and off-task) for treatment group decreased during intervention and it was maintained during the maintenance period. A marked level change was also to be evidence for the growth from the baseline to the intervention phase within the conditions. These level changes were similar to findings by van der Mars (1987; 1988).

Through visual inspection, the intervention appeared to be significantly effective in increasing motor activity time of the treatment class, while the control class had a stable trend across baseline, intervention and maintenance periods. Although the control group had only the teacher's verbal statements as behavior direction, results showed that the means of waiting and off-task behavior was less than prior intervention and it also increased motor activity waiting time. However, it revealed little change as compared with the treatment group.

The application of the group oriented contingency in this study was not only effective for changing student's inappropriate behavior, but also increase motor activity behavior. This study supported the

notion that group contingency can play an important role in changing student behaviors. The group contingency is referred to as "Good behavior game" is a useful strategy for a group of students or for the whole class (Alberto & Troutman, 1999; Harris & Sherman, 1973; Cipani, 1997). The results also support the findings of earlier research in PE/sport setting (McKenzie & Rushall, 1974; Siedentop & Dawson, 1978; Paese, 1982), which suggested the use of the group contingency strategy in modifying student's inappropriate behaviors. These findings also supports research by Siedentop (1983) and Metzler (2000) who suggested that for effective teaching to take place, teachers must be competent in managing student misbehavior so as to maximize the time spent on learning.

It appears that in PE setting, students are more apt to be disruptive one due to limited structure and a more open management of behavior. As students devote more time to activity behavior, less time is spent in inappropriate behaviors such as waiting and off-task. Managerial time was also reduced. Therefore, reduced time on managerial behavior should yield greater opportunities for content leaning.

Recommendation for future research on group contingency strategy are to further analyze on the relationship of student behavior and the effective teacher' instruction when applying "Good behavior game" based on group contingency strategy, especially on managerial interaction (Siedentop, 1983). Consequently, it is needed to consider teacher' s monitoring skill to make a judgment on students' performance, to give them point, and to react on their behaviors. Further efforts are also needed to examine teachers' use of effective instructions and monitoring when using group contingency strategy.

The findings of this study has indicated that the group contingency strategy is an effective method that has proven success in decreasing students inappropriate behavior quickly and increasing on-task behavior, which consequently can modify behavior and builds on new forms of behavior by applying these consequences consistently. In fact, it is difficult to solve behavioral problem with no teaching strategy for decreasing inappropriate student behavior. While only a few teachers apply this strategy, they seldom improve students who misbehave in PE teaching

settings. Therefore, "Good behavior game" based on group contingency strategy may be one of the most useful tools for teacher effective management strategy.

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 - Japan Society of Physical Education, Health and Sport Sciences
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