

The Effect of Choice in Physical Education on Time on Task for Students with Emotional and Behavioral Disorders

Shawna Young

(Department of Kinesiology, California State University, Stanislaus, USA)

Abstract: Research indicates that exercise has a positive effect on the behavior of individuals with emotional and behavioral disorders (EBDs). In order to realize this benefit, the students must be engaged in the physical activity, maintaining high time on task (TOT). Management of students with EBDs, especially large groups of these students, maintaining high TOT and engagement, can be challenging in the physical education (PE) environment. Given the research indicating the positive influence choice in PE has on student engagement, a study examining the effect of choice in PE on TOT among students with emotional and behavioral disorders was conducted. The research question examined was the following: *Is there a difference in mean TOT scores for students with EBDs in a PE class in a choice setting compared to a no-choice setting?* Results of the independent samples t-test indicated a statistically significant difference in mean TOT scores among students with EBDs in a choice PE setting compared to a no-choice PE setting. Examples of ways choice can be incorporated in PE are provided.

Key words: choice; time on task; emotional and behavioral disorders

1. Background and Rationale

Research suggests that providing a choice-based environment in physical education (PE) influences students' commitment to becoming and remaining physically active (Thompson & Wankel, 1980). Choice in the PE setting means the opportunity to select the mode of physical activity in which an individual engages. Choice increases motivation, and individuals are more likely to engage in activities for which they feel autonomously motivated to participate in rather than being controlled to do so (Deci & Ryan, 1985). Prusak, Treasure, Darst, and Pangrazi (2004) examined the effect of choice on outcomes in PE, and found that students who were given choice in PE reported more motivation to engage in physical activity than students who were not given choice. How, Whipp, Dimmock, and Jackson (2013) found that providing choice in PE resulted in increased motivation and greater in-class physical activity levels. Research even further suggests that students who feel autonomy in PE are more likely to engage in physical activity in their leisure time (Hagger, Chatzisarantis, Hein, Soos, Karsai, Lintunen, & Leemans, 2009).

Research indicates that exercise has a positive effect on the behavior of individuals with emotional disturbances, and intellectual and learning disabilities (Eichstaedt & Lavay, 1992; Elliot, Dobbin, Rose, & Soper,

Shawna Young, Professor, Department of Kinesiology, California State University; research areas/interests: curriculum and instruction. E-mail: syoung@csustan.edu.

1994; Medcalf, Marshall, & Rhoden, 2006; Tantillo, Kesick, Hynd, & Dishman, 2002). In order to realize this benefit, the students must be engaged in the physical activity, maintaining high time on task (TOT). Management of students with EBDs, especially large groups of these students, maintaining high TOT and engagement, can be challenging in the PE environment. Given the research indicating the positive influence choice in PE has on student engagement, a study examining the effect of choice on TOT among students with EBDs in a PE setting was conducted.

2. Purpose

An action research study was conducted over the course of a 3-year pilot PE program at a nonpublic, special education school predominantly serving students with emotional and behavioral disorders, and who were wards of the state living in group homes and foster care homes. The action research study was conducted continuously since the implementation of the program, with different dimensions of the program being examined over time. The overarching purpose of the action research study was to determine the most effective way to teach PE to this group of students with EBDs. The purpose of this specific sub-study was to determine if there is a difference in TOT for students with EBDs in a PE class in a choice setting compared to a no-choice setting.

3. Research Question

The research question examined in this specific sub-study was the following:

Is there a difference in mean TOT scores for students with EBDs in a PE class in a choice setting compared to a no-choice setting? The corresponding null hypothesis was the following: $TOT M_{choice} = TOT M_{no-choice}$.

4. Methods

4.1 School Site

The study was conducted at a nonpublic school in Northern California that serves as a special education placement site for surrounding school districts. The school is a middle and high school campus. At the time of the study, the school had five fulltime teachers and 22 other staff members.

4.2 Student Profile

At the time of this specific sub-study, 57 students were enrolled in the school and were participants in the PE program. All of the students were identified as having EBDs. Of the 57 students, 47 were male and 10 were female. Over 59% of the students were wards of the state, living in group homes or foster homes.

4.3 Data Collection

Physical education class was 45 minutes per session. At the beginning of the second academic year of the 3-year action research study, 60 days were randomly selected for data collection specifically related to this research question. Thirty of the 60 days were randomly assigned as choice, and 30 were assigned as no-choice. On the choice days, the students were given the opportunity to choose between two fitness activities (deemed reasonably equivalent in purpose and effect) at each station in a fitness circuit. On no-choice days, students were given only one option for fitness activities at each station in the fitness circuit. An On-Task (OT) Student Behavior Analysis Form (see Figure 1) was used to track the number of students that were on-task at each minute interval of

the 20-minute fitness component of the PE class. The form was filled out by an instructional aide who was trained in identifying TOT in PE. For the purpose of this study, TOT was defined as engaging appropriately in assigned activity, and not displaying inappropriate behavior.

On-Task (OT) Student Behavior Analysis Form																					
Class # _____			Choice _____ No Choice _____												# Students in Class _____						
Minute Intervals																					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Student OT Rate Calculation
# Students On-Task																					
Total Student OT Observations (sum of observations at each interval)																					
Total Possible Student OT Events (# students in class X # intervals)																					
Overall Student OT Rate (OT Observations/Possible OT Events)																					

Figure 1 On-Task (OT) Student Behavior Analysis Form

4.4 Data Analysis

To examine the research question, an independent samples t test was conducted to study differences in mean TOT scores of students with EBDs in a PE class in a choice setting compared to a no-choice setting. An alpha level was set at .05. The t-test for independent groups was used without appreciable error, despite moderate violations of normality and homogeneity of variance assumptions, because the sample sizes were equal and both at least 30 (Pagano, 2004, p. 339). However, because the sample was selected purposively, using the researcher’s class in this action research study, the assumption of random sample was violated, thus should be considered a limitation, which reduces the generalizability of these results.

5. Results

Results of the independent samples t test, ($t_{(58)} = 7.73, p < 0.0001$) led to rejection of the null hypothesis, indicating a statistically significant difference in mean TOT scores among students with EBDs in a choice PE setting compared to a no-choice PE setting. The choice setting had a significantly greater mean score (73.0620) than the no-choice setting mean score (62.0550). The effect size, $d = 2.00$ for the difference in mean TOT scores, is large, which suggests that choice plays a significant role in TOT in the PE setting. See Table 1 for mean TOT scores according to choice/no-choice settings.

Table 1 Mean TOT Scores According to Settings

Setting	N	Mean	SD
Choice	30	73.0620	6.4712
No-Choice	30	62.0550	4.3585

6. Discussion and Recommendations

Research indicates that exercise has a positive effect on the behavior of individuals with EBDs. In order to realize this benefit, the students must be engaged in the physical activity, maintaining high TOT. Maintaining high TOT in the PE setting among students with EBDs can be challenging. Collectively, research suggests that providing opportunities for students to make choices about the physical activities in which they engage improves

their motivation, resulting in increased engagement in physical activity — which may be extremely beneficial in a class with students with EBDs.

There are several ways in which choice can be incorporated in the PE curriculum and individual lessons. Some examples include the following. Circuits can be designed to offer choices that have similar demands and yield similar effects at each station. Learning centers can be designed to provide alternative activities with similar goals. And individualized fitness plans can be designed according to individual needs and interests. While every lesson does not lend itself to the same degree of choice as others, with some thought, opportunity for student choice can be incorporated into every lesson. It is a worthwhile investment to design a curriculum and lessons that include at least some choice, given both the short-term and long-term benefits it can yield.

References

- Deci E. L. and Ryan R. M. (1985). *Intrinsic Motivation and Self-Determination in Human Behavior* (2nd ed.), New York, NY: Plenum Press.
- Eichstaedt C. and Lavay B. (1992). *Physical Activity for Individuals with Mental Retardation*, Champaign, IL: Human Kinetics.
- Elliot R., Dobbin A., Rose G. and Soper H. (1994). “Vigorous, aerobic exercise versus general motor training activities: Effects on maladaptive and stereotypic behaviors of adults with both autism and mental retardation”, *Journal of Autism and Developmental Disorders*, Vol. 24, pp. 565–576.
- Hagger M., Chatzisarantis N. L. D., Hein V., Soos I., Karsai I., Lintunen T. and Leemans S. (2009). “Teacher, peer and parent autonomy support in physical education and leisure-time physical activity: A trans-contextual model of motivation in four nations”, *Psychology & Health*, Vol. 24, pp. 689–711.
- How Y. M., Whipp P., Dimmock J. and Jackson B. (2013). “The effects of choice on autonomous motivation, perceived autonomy support, and physical activity levels in high school physical education”, *Journal of Teaching in Physical Education*, Vol. 32, pp. 131–148.
- Medcalf R., Marshall J. and Rhoden C. (2006). “Exploring the relationship between physical education and enhancing behaviour in pupils with emotional behavioral difficulties”, *Support for Learning*, Vol. 21, No. 4, pp. 169–174.
- Pagano R. R. (2004). *Understanding Statistics in the Behavioral Sciences* (7th ed.), Belmont, CA: Thompson/Wadsworth.
- Prusak K. A., Treasure D. C., Darst P. W. and Pangrazi R. P. (2004). “The effects of choice on the motivation of adolescent girls in physical education”, *Journal of Teaching in Physical Education*, Vol. 23, pp. 19–29.
- Tantillo M., Kesick C., Hynd G. and Dishman R. (2002). “The effects of exercise on children with attention-deficit hyperactivity disorder”, *Medicine and Science in Sport and Exercise*, Vol. 34, pp. 203–213.
- Thompson C. E. and Wankel L. M. (1980). “The effects of perceived activity choice upon frequency of exercise behavior”, *Journal of Applied Social Psychology*, Vol. 10, No. 5, pp. 436–443.