



Effectiveness of the culminating event stage in a Gobak Sodor-Based Sport Education model on elementary students' learning enthusiasm

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Abstract: This study examined whether a celebration-festival format for the culminating event in a Gobak Sodor-based Sport Education Model produced greater learning enthusiasm than a regular competition format among elementary school students. Design: A quantitative quasi-experimental counterbalanced design was used. Methods: Sixty fifth-grade students from two intact classes at SDN Jatirahayu IV, Bekasi, Indonesia, completed 12 physical education sessions. Each class experienced six regular-competition sessions and six celebration-festival sessions in opposite sequences. Learning enthusiasm was assessed after each session using a 25-item five-point Likert questionnaire covering affective, cognitive, behavioral, and persistence dimensions. Descriptive statistics, paired-samples t-test, Wilcoxon signed-rank test, normalized gain, and Cohen's d were used. Results: Festival scores were higher than regular-competition scores (108.12 vs. 96.10), with a mean difference of 12.02 points, $t(59)=9.07$, $p<.001$, $N\text{-Gain}=0.394$, and $d=1.17$. The largest effects occurred for behavioral and cognitive enthusiasm. Conclusion: A deliberately designed celebration-festival culminating event can strengthen students' enthusiasm and create a more participatory and meaningful physical education experience.

Keywords: learning enthusiasm; culminating event; Gobak Sodor; physical education; Sport Education Model; elementary school



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Introduction

Physical education is intended not only to develop movement skills and physical fitness but also to foster students' cognitive, social, and affective engagement. One affective indicator that helps determine the quality of the learning experience is enthusiasm. Enthusiasm is reflected in enjoyment, attention, active participation, and persistence when students face learning challenges. In physical education, enthusiasm is strategically important because students are expected to exert physical effort, interact with peers, and make decisions in dynamic situations. When enthusiasm is low, physical activity may be perceived as a burden; when enthusiasm grows,

students are more likely to participate voluntarily and enjoy the learning process (Stringfellow et al., 2024; Wang & Chen, 2022).

School physical education is still frequently dominated by teacher-centered approaches, repetitive technique drills, and one-way instruction. Although these practices can simplify classroom management, they may restrict autonomy, opportunities to assume meaningful roles, and social interaction. Consequently, some students may participate only procedurally without strong emotional involvement. Critical reviews of physical education pedagogy indicate that overly teacher-centered practices can contribute to boredom, passivity, and declining motivation, particularly when learning tasks provide little choice or meaningful challenge (Zhang et al., 2023).

One pedagogical approach that can reconstruct this learning experience is the Sport Education Model. The model organizes instruction to resemble an authentic sport experience through a season, persistent team affiliation, formal competition, role allocation, record keeping, festivity, and a culminating event. Its purpose is not merely to produce students who are motorically competent, but also students who are literate and enthusiastic participants in sport. The structure allows students to serve as players, coaches, referees, scorekeepers, or event organizers, thereby distributing learning responsibility beyond the teacher alone (Siedentop et al., 2021).

Evidence supports the effectiveness of the Sport Education Model for affective outcomes. Manninen and Campbell (2022) reported in a meta-analysis that the model contributes to basic psychological need satisfaction, intrinsic motivation, and prosocial attitudes. Bores-García et al. (2021) likewise concluded that Sport Education is feasible in elementary physical education and can improve participation, responsibility, and the quality of students' learning experiences. More recent evidence shows that student-centered pedagogical models have positive effects on motivation and social outcomes in physical education (Gil-Arias et al., 2024; Yao et al., 2025).

Within Sport Education, the culminating event is the final phase that integrates competition, celebration, recognition, and reflection. It is not simply a championship match but a pedagogical environment that gives meaning to the preceding learning process. Knowing that the season is

moving toward a culminating event can create anticipation, strengthen team belonging, and clarify the purpose of practice. When the event is designed as an inclusive festival, success is not defined only by winning but also by sportsmanship, effort, creativity, and successful fulfillment of assigned roles. Such a climate can support more autonomous motivation and stronger engagement (Albaloul et al., 2024; Burgueño et al., 2021).

The potential influence of a culminating event can also be explained through Self-Determination Theory. Enthusiasm is more likely to develop when students' needs for autonomy, competence, and relatedness are supported. Role delegation provides opportunities for autonomy; varied forms of recognition allow more students to experience competence; and stable team affiliation strengthens social relatedness. Satisfaction of these needs can foster more autonomous motivation and meaningful engagement (Burgueño et al., 2022; Guo et al., 2025; Ryan & Deci, 2022). In addition, varied challenges and roles in a festival may increase the likelihood of flow, a state in which task demands are balanced with individual skills and attention and enjoyment are heightened (Oliveira et al., 2023).

The learning content used within Sport Education is also important. Traditional games have flexible rules, can be modified easily, and are culturally familiar to students. Gobak Sodor is a traditional invasion game without a ball that requires agility, spatial awareness, communication, and teamwork. Its communal nature is compatible with the principles of affiliation and role distribution in Sport Education. Research on traditional games has reported positive effects on children's emotional experiences, motor competence, and social interaction (Lavega-Burgués et al., 2021; Pic et al., 2021). In Indonesia, Gobak Sodor has also been associated with physical fitness and cooperation among elementary school students (Hidayat et al., 2023; Pratama et al., 2022).

Although the benefits of Sport Education have been widely reported, research that isolates the contribution of different culminating-event formats remains limited. Most studies evaluate the model as a complete instructional season, making it difficult to determine whether regular competition and a celebration-festival format generate different affective experiences. In addition,

few studies have positioned learning enthusiasm as the primary outcome when integrating Sport Education and Gobak Sodor in elementary school physical education.

Distinguishing between culminating-event formats is pedagogically relevant because the same instructional model can be implemented with very different levels of festivity, role involvement, and recognition. A format that offers several pathways for meaningful contribution may be particularly important in elementary school, where motor proficiency and confidence vary considerably within one class. Examining the culminating event as a specific design component can therefore help teachers identify which features of Sport Education are most closely associated with enthusiasm, rather than attributing all affective outcomes to the model as an undifferentiated whole.

The study aimed to describe students' learning enthusiasm under two culminating-event formats, test the difference between the formats, and estimate the practical effectiveness of the celebration-festival format. The hypothesis was that the celebration-festival format would produce higher learning enthusiasm than the regular-competition format.

Materials and Methods

Design

This study used a quantitative quasi-experimental approach with a counterbalanced design. The design was selected because participants were already organized into administratively established classes, making individual randomization impractical. Through the counterbalanced sequence, the two classes received both treatment formats in opposite orders. Each student therefore experienced both regular competition and the celebration festival and served as their own control, which helped reduce between-participant variation (Fraenkel et al., 2022).

Sample

The population comprised all fifth-grade students at SDN Jatirahayu IV, Bekasi City, during the 2025/2026 academic year. Purposive sampling based on intact groups was used with consideration of physical education schedules, facility availability, and relatively comparable initial characteristics. The sample consisted of 60 students: 30 students in class VB and 30 in class VC.

The study was conducted from April to May 2026 across 12 instructional sessions. Each class completed six regular-competition sessions and six celebration-festival sessions in opposite sequences. The counterbalanced arrangement is summarized in Table 1.

Table 1. Counterbalanced treatment schedule

Group	Odd sessions	Even sessions	Total sessions	Measurement
Class VB	Regular competition (X_1)	Celebration festival (X_2)	12	End of each session
Class VC	Celebration festival (X_2)	Regular competition (X_1)	12	End of each session

Data collection

Learning enthusiasm was measured using a 25-item five-point Likert questionnaire. The instrument was developed from the construct of learning engagement and covered four dimensions: affective, cognitive, behavioral, and persistence. The affective dimension assessed enjoyment and interest; the cognitive dimension assessed attention, concentration, and strategic thinking; the behavioral dimension assessed active participation and willingness to assume roles; and persistence assessed perseverance and sustained effort. Item development adapted principles from the Student Course Engagement Questionnaire and was contextualized for fifth-grade physical education (Handelsman et al., 2005; Reeve & Cheon, 2021).

Each item was scored from 1 (strongly inconsistent) to 5 (strongly consistent). Total scores ranged from 25 to 125 and were categorized as very high (≥ 101), high (76–100), moderate (51–75), and low (25–50). Before use, the instrument underwent content review by experts in physical education and educational evaluation, followed by a limited pilot assessment of readability, item-total correlations, and internal consistency. Students completed the questionnaire at the end of each session so that scores reflected their experience of the treatment format they had just completed.

In the regular-competition format, students played Gobak Sodor using standard rules, score recording, and winner-loser determination, with emphasis on match performance and inter-team strategy. In the celebration-festival format, the matches were enriched by team identities, chants, delegated roles, multiple recognition categories, sportsmanship reflection, and a festive atmosphere emphasizing a mastery climate. The teacher, time allocation, game type, facilities, and learning environment were kept as similar as possible so that score differences primarily reflected the culminating-event format.

Data analysis

For each student, session scores were averaged within each treatment format to obtain one regular-competition score and one celebration-festival score. Analysis began with descriptive statistics including mean, standard deviation, minimum, maximum, and category distribution. Normality of the paired difference scores was examined using the Shapiro-Wilk and Kolmogorov-Smirnov tests. Because the observations were paired, differences between formats were tested using a paired-samples t-test, with the Wilcoxon signed-rank test used as a confirmatory nonparametric analysis. Practical effectiveness was estimated using normalized gain (N-Gain) and Cohen's d for paired data. Differences in improvement between classes VB and VC were also examined to explore a possible order effect. Statistical significance was set at $\alpha=.05$.

Results

Descriptive statistics

Learning enthusiasm was higher under the celebration-festival format than under regular competition. The mean regular-competition score was 96.10, categorized as high, whereas the celebration-festival mean was 108.12, categorized as very high. The mean difference was 12.02 points. The minimum score was also higher during the festival format, indicating that the festival did not merely raise the group average but also improved the scores of students with relatively lower enthusiasm. Descriptive results are presented in Table 2.

Table 2. Descriptive statistics for learning enthusiasm by treatment format

Treatment format	n	Mean	SD	Minimum	Maximum
Regular competition	60	96.10	7.91	63.00	111.50
Celebration festival	60	108.12	7.54	89.00	120.50
Festival — regular difference	60	12.02	10.27	—	—

The category distribution shifted markedly toward the very-high category. Under regular competition, 37.8% of observations were categorized as very high, 59.4% as high, and 2.8% as moderate. Under the celebration-festival format, 91.1% of observations were very high and 8.9% were high, with no observations in the moderate or low categories. This pattern suggests that the festival format produced a more consistently high level of enthusiasm across students.

The advantage of the celebration festival was evident across all enthusiasm dimensions. The largest increase occurred in the behavioral dimension, with a 3.90-point difference and Cohen's $d=1.37$, followed by the cognitive dimension, with a 3.26-point difference and $d=1.27$. Persistence showed $d=1.00$, whereas the affective dimension showed $d=0.65$. Dimension-level results are shown in Table 3.

Table 3. Comparison of learning-enthusiasm dimensions

Dimension	Maximum score	Regular	Festival	Difference	Cohen's d
Affective	30	23.73	25.23	1.50	0.65
Cognitive	30	22.65	25.91	3.26	1.27
Behavioral	30	22.50	26.40	3.90	1.37
Persistence	35	27.23	30.49	3.26	1.00

Hypothesis testing and effectiveness

The Shapiro-Wilk test for the paired difference scores produced $W=.973$, $p=.201$, while the Kolmogorov-Smirnov test yielded $p=.480$; therefore, the difference scores met the normality assumption. A Levene test, reported as supplementary information, yielded $p=.944$. The paired-samples t-test showed a statistically significant difference between formats, $t(59)=9.07$, $p<.001$. This conclusion was confirmed by the Wilcoxon signed-rank test, which also yielded $p<.001$. The

null hypothesis was therefore rejected, indicating that the celebration-festival format produced significantly higher learning enthusiasm than regular competition.

The mean N-Gain was 0.394 (39.4%), which was categorized as moderate. Ten percent of students were in the high N-Gain category, 60% in the moderate category, and 30% in the low category. Cohen's d was 1.17, indicating a large effect. Taken together, the statistical significance, normalized gain, and effect size show that the difference between formats was not only statistically detectable but also practically substantial. The inferential results are summarized in Table 4.

Table 4. Hypothesis testing and practical effectiveness

Analysis	Statistic	p	Interpretation
Shapiro–Wilk difference score	$W = .973$	.201	Normality supported
Kolmogorov–Smirnov difference score	—	.480	Normality supported
Levene test	—	.944	Supplementary information
Paired-samples t-test	$t(59) = 9.07$	$< .001$	Significant difference
Wilcoxon signed-rank	$W = 79.5$	$< .001$	Confirms difference
N-Gain / Cohen's d	0.394 / 1.17	—	Moderate gain / large effect

Order effect analysis

Both classes showed the same direction of change, with festival scores exceeding regular-competition scores. However, class VB improved by 18.95 points, whereas class VC improved by 5.09 points. The difference in improvement between classes was statistically significant, $t=7.08$, $p<.001$. Class VB had a lower regular-competition mean and therefore more room for improvement, whereas class VC already had a relatively high regular-competition score. These findings indicate that the direction of the festival benefit was consistent, although its magnitude varied according to initial conditions and possibly the order of exposure. Summary data are provided in Table 5.

Table 5. Comparison of learning-enthusiasm improvement by class

Class	n	Regular mean	Festival mean	Improvement
VB	30	93.15	112.10	18.95
VC	30	99.06	104.15	5.09

Discussion

The findings show that a celebration-festival format for the culminating event produced higher learning enthusiasm than a regular-competition format. The festival mean reached the very-high category, and the 12.02-point difference was supported by a large effect size. This indicates that the culminating event is not merely a decorative feature of Sport Education; its design can shape the quality of students' affective experience. When competition was combined with team identity, role allocation, inclusive recognition, and collective reflection, students had more reasons to become involved than when the culminating event focused primarily on winning and losing.

The result is consistent with Self-Determination Theory. The festival created choice and responsibility through roles such as player, referee, scorekeeper, journalist, or coach, thereby providing stronger support for autonomy. Recognition was not limited to champions, allowing more students to experience competence. Persistent team affiliation, chants, and collective goals strengthened relatedness. These needs underpin autonomous motivation and sustained engagement (Ryan & Deci, 2022). This explanation is consistent with Burgueño et al. (2022), who linked need-supportive teaching to student engagement in physical education, and Guo et al. (2025), who identified autonomous motivation as a mechanism connecting learning experiences and engagement.

The largest effect occurred in the behavioral dimension, suggesting that the festival particularly encouraged students to act: responding to instructions, proposing strategies, taking roles, and participating in collective evaluation. The similarly large increase in cognitive enthusiasm indicates that festivity did not reduce learning focus; instead, it may have encouraged attention and tactical thinking. When students have clear roles and perceive that their actions contribute to

the team, they are more likely to process game information in greater depth. This pattern supports findings by Gil-Arias et al. (2024) that student-centered pedagogical models can improve motivational quality and social outcomes rather than simply increase physical activity.

The improvement in persistence suggests that students were more willing to continue when facing difficulty. The festival offered varied challenges and did not restrict success to motor performance. Students who were less dominant as players could still succeed through other roles. This differentiation can help balance challenge and skill, increasing the possibility of flow (Oliveira et al., 2023). Under these conditions, students may maintain attention, enjoy the activity, and sustain effort even when their team is behind or an initial strategy fails.

The affective dimension showed a more moderate effect than the other dimensions. This does not necessarily mean that the festival had little influence on enjoyment. Rather, affective scores during regular competition were already relatively high, leaving less room for improvement. Gobak Sodor is inherently exciting and enjoyable, so regular competition may already generate positive emotions. The festival then appears to add more strongly to action, focus, and persistence. This pattern is compatible with a ceiling effect in a dimension that began at a relatively high level.

The results also reinforce the relevance of traditional games within contemporary pedagogy. Gobak Sodor requires little expensive equipment, can be modified easily, and allows many students to participate. Attackers must read space, defenders must coordinate, and the whole team must communicate rapidly. These characteristics support affiliation, problem solving, and responsibility, all of which are central to Sport Education. The findings are consistent with Lavega-Burgués et al. (2021) and Pic et al. (2021) regarding the educational potential of traditional games for emotional experience and motor competence, as well as Hidayat et al. (2023) regarding the contribution of Gobak Sodor to fitness and cooperation.

The shift from predominantly high ratings in regular competition to predominantly very-high ratings in the festival indicates that the benefit was not confined to a small subgroup. The higher minimum score during the festival suggests that students with the lowest enthusiasm also received

support. This may reflect a shift from a more ego-oriented climate toward a mastery climate in which effort, progress, sportsmanship, and contribution are recognized. Students do not need to be the fastest or most skilled player to receive recognition, potentially improving psychological safety and willingness to participate (Braithwaite et al., 2022).

Consistency with the meta-analytic findings of Manninen and Campbell (2022) and Yao et al. (2025) strengthens the argument that Sport Education can produce meaningful affective outcomes. The present study adds a more specific implication: the quality of the culminating event should be designed intentionally. Competition alone may not provide an optimal learning experience. Festival elements, delegated roles, and multidimensional recognition may widen students' access to successful experiences and a sense of belonging.

The order-effect analysis showed that the magnitude of improvement was not identical in the two classes. The class with the lower regular-competition baseline demonstrated a larger absolute improvement, whereas the class with the higher baseline had less room to increase. This finding requires caution. Although the counterbalanced design ensured that both groups experienced both formats, it could not fully remove the influence of initial conditions and exposure order. The strongest conclusion is therefore that the direction of the festival effect was consistent and the overall mean was higher, while the size of improvement in a particular group may depend on baseline status and prior experience.

In practice, physical education teachers can apply several principles. The culminating event should be planned early in the season to create anticipation. Teams should remain stable, heterogeneous, and identifiable. Non-player roles should be treated as meaningful learning responsibilities rather than peripheral tasks. Recognition should include sportsmanship, cooperation, strategy, responsibility, and creativity. Brief reflection at the end of the event is also important so that the festive atmosphere remains connected to educational goals.

This study has limitations. The sample came from a single school and consisted of pre-existing class groups, so generalization should be cautious. Learning enthusiasm was measured through self-report and may therefore be affected by socially desirable responses. Baseline

differences and unequal class-level improvement indicate that order effects were not fully neutralized. The study also did not measure motor-skill outcomes, objective physical activity, or retention of enthusiasm after the intervention. Future research should involve multiple schools, use behavioral observation or activity sensors, and apply mixed-effects analysis to distinguish student, class, session, and treatment-order effects.

Conclusion

A celebration-festival culminating event within a Gobak Sodor-based Sport Education Model produced significantly higher learning enthusiasm than regular competition. The difference was statistically significant, the normalized gain was moderate, and the effect size was large. Improvements occurred across affective, cognitive, behavioral, and persistence dimensions, with the strongest effects for behavioral and cognitive engagement. A culminating event emphasizing team affiliation, meaningful role delegation, inclusive recognition, and a mastery climate can therefore be used to make elementary physical education more participatory and meaningful. However, variation in improvement between classes indicates that baseline conditions and exposure order should be considered. Teachers should adapt the festival format to their students' characteristics, while future studies should test the approach in larger samples and with multimodal measures.

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