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Teacher Leadership Style in Physical Education and Its Relationship with Student Engagement and Sport Participation

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ABSTRACT: Teacher leadership style is an important part of the physical education learning climate because students experience teacher communication, feedback, authority, and support while they are moving, cooperating, competing, and being observed by peers. This study examined the relationship between perceived teacher leadership style in physical education and student engagement and sport participation among male and female secondary school students. The study used a quantitative, cross-sectional field design with 384 students aged 13-16 years, including 192 females and 192 males. Students completed questionnaires measuring transformational, democratic, autocratic, and laissez-faire leadership styles, behavioral, emotional, and cognitive engagement in physical education, and weekly sport participation outside regular physical education lessons. We used descriptive statistics, independent-samples t-tests, Pearson correlations, and multiple linear regression, with statistical significance set at $p < 0.05$. Results showed that transformational and democratic leadership were positively related to total student engagement and weekly sport participation, whereas laissez-faire leadership was negatively related to engagement and participation. In the adjusted regression model, transformational leadership was the strongest predictor of student engagement (beta = 0.33, $p < 0.001$), followed by democratic leadership (beta = 0.24, $p < 0.001$). Engagement also significantly predicted sport participation (beta = 0.30, $p < 0.001$). Male students reported slightly higher sport participation than female students, but engagement scores were similar by sex. The findings suggest that physical education teachers who combine clear direction, encouragement, student voice, fair organization, and supportive feedback may strengthen engagement during lessons and may also support students' broader involvement in sport.

KEYWORDS: teacher leadership style; physical education; sport participation; transformational teaching; democratic leadership; adolescent physical activity.

I. INTRODUCTION

Physical education is a school subject where leadership isn't hidden behind a desk or a textbook. It shows in how a teacher organizes space, gives instructions, responds to mistakes, manages competition, protects safety, and helps students feel movement is worthwhile. Students are asked to perform in front of others, cooperate with classmates, accept feedback, and make decisions while their skills and confidence are still developing. In this setting, teacher leadership style can affect not only lesson order, but also students' willingness to try, concentrate, persist, and take part in sport outside the lesson. Leadership is therefore a pedagogical issue and a health-related issue. It shapes the immediate lesson experience and may influence whether young people see sport as a welcoming part of their lives.

Leadership research has long suggested that leaders influence followers through vision, expectations, feedback, and interpersonal climate. Transformational leadership, for example, emphasizes inspiration, individual consideration, intellectual stimulation, and role modeling [1]. In education and physical

education, these features can appear as enthusiasm for learning, encouragement after errors, a clear explanation of the value of physical activity, and attention to individual student needs. Such behavior aligns with self-determination theory, which argues that students are more likely to show high-quality motivation when their needs for autonomy, competence, and relatedness are supported [2]. Student engagement research also shows that participation in learning is multidimensional, including behavioral involvement, emotional connection, and cognitive investment [3]. These theoretical traditions provide a useful foundation for studying teacher leadership style in physical education.

In physical education, students may experience a teacher's leadership style as supportive, participatory, controlling, or passive. A transformational teacher may help students believe that improvement is possible and that physical activity has personal meaning. A democratic teacher may invite student voice, provide appropriate choice, and support shared responsibility in games and group tasks. An autocratic teacher may rely heavily on commands and compliance. Such direction can sometimes be necessary for safety, but it may reduce engagement if it dominates the lesson climate. A laissez-faire teacher may provide little feedback or structure, leaving students uncertain about expectations, roles, and skill development. These leadership patterns can influence student engagement because physical education requires both emotional security and active behavior.

Student engagement matters in physical education because visible participation does not always mean meaningful engagement. A student may be physically present but emotionally anxious, socially excluded, or cognitively disconnected from the learning task. Conversely, a well-led class can help students feel safe enough to make mistakes, motivated enough to repeat a skill, and confident enough to join sport beyond school. Engagement has behavioral, emotional, and cognitive dimensions. Behavioral engagement includes effort, attention, and persistence during class. Emotional engagement includes enjoyment, interest, and belonging. Cognitive engagement includes concentration, strategy use, and awareness of how to improve. These dimensions are interconnected, but they do not always change together.

Schools aim to provide experiences that support health, movement competence, social development, and lifelong physical activity. Early physical education and youth sport experiences are often discussed as foundations for later participation [7], [8]. However, students do not automatically become active simply because physical education is compulsory. Their experiences of inclusion, competence, teacher support, peer climate, and autonomy can influence whether they want to continue in sport or avoid it. Teacher leadership style may therefore be one pathway through which physical education contributes to sport participation.

Existing research has examined autonomy support, teacher motivational strategies, transformational teaching, and engagement-related outcomes in physical education [4]-[6]. Yet many school-based studies focus on motivation or achievement without directly comparing several leadership styles in the same model. In practice, physical education teachers often blend styles. One teacher may be generally supportive but directive in safety situations; another may allow freedom but provide insufficient structure. Studying multiple leadership styles together provides a more realistic view of the lesson climate students experience. It also allows examination of the positive roles of transformational and democratic behavior alongside the possible costs of autocratic and laissez-faire behavior.

The present study therefore examined perceived teacher leadership style in physical education and its relationship with student engagement and sport participation among male and female secondary school students. Focusing on both sexes matters because engagement in physical education and sport participation may not follow the same pattern for male and female students. In many settings, boys report higher sport participation, while girls may face different social, cultural, or opportunity-related barriers. A supportive teacher leadership style may help reduce disengagement by creating a climate where all students feel respected and able to participate.

1. AIMS

- To describe how secondary school students perceive transformational, democratic, autocratic, and laissez-faire leadership styles in physical education.
- To examine the relationship between perceived teacher leadership style and behavioral, emotional, cognitive, and total student engagement in physical education.

• To examine the relationship between perceived teacher leadership style and weekly sport participation outside regular physical education lessons.
• To identify which leadership styles independently predict student engagement when entered together in an adjusted regression model.
• To examine whether total student engagement predicts sport participation after accounting for leadership style, age, and sex.
• To compare engagement and sport participation between female and male students.

2. *HYPOTHESES*

• Transformational leadership will be positively associated with student engagement in physical education.
• Democratic leadership will be positively associated with student engagement and sport participation.
• Autocratic leadership will show a weak or negative relationship with engagement.
• Laissez-faire leadership will be negatively associated with engagement and sport participation.
• Student engagement will be positively associated with weekly sport participation.
• Male and female students will differ in sport participation, but not necessarily in total engagement.

II. LITERATURE REVIEW

Physical education research has increasingly shifted from a narrow focus on fitness and skill performance to a broader understanding of motivation, participation, and the educational climate. Ntoumanis showed that students' motivational patterns in physical education were meaningfully connected with effort, boredom, and intention to be physically active [4]. Standage, Duda, and Ntoumanis later tested a contextual motivation model and found that autonomy, competence, and relatedness were central to motivation in physical education [5]. Hagger and colleagues extended this line of work by showing how perceived autonomy support in physical education could influence leisure-time physical activity intentions and behavior through motivational processes [6]. These findings indicate that what happens inside physical education lessons can extend beyond the lesson itself.

Kirk argued that early learning experiences in physical education and youth sport matter because they shape students' later relationship with physical activity [7]. Bailey reviewed the benefits of physical education and sport in schools and described contributions across physical, social, affective, and cognitive domains [8]. These works support the view that physical education is not simply a timetable requirement; it is a developmental environment in which students form meanings about movement, competence, competition, cooperation, and identity. Teacher leadership is a practical element within that environment.

Standage and colleagues reported that students' perceptions of autonomy support and need satisfaction were linked with more self-determined motivation [9]. In a related study, students' motivational processes were associated with teacher ratings of effort and persistence [10]. In a classroom learning context, Reeve and Jang showed that teachers' autonomy-supportive behaviors include listening, providing rationale, acknowledging feelings, and allowing students time to work in their own way [11]. Although physical education differs from seated classrooms, these behaviors are highly relevant to lessons where students need confidence and agency while performing motor tasks.

Taylor and Ntoumanis found that teachers' use of autonomy-supportive, structure-related, and involvement-related strategies was associated with students' self-determination [12]. Taylor, Ntoumanis, and Standage further showed that teachers' own motivational context influenced their teaching strategies [13]. These findings matter because leadership style is not only a stable personality trait; school pressures, class size, curriculum demands, facilities, and teacher confidence also shape it. A teacher who wants to be supportive may become more controlling when time is short or when student behavior is difficult.

Skinner and colleagues described engagement and disaffection as part of a larger motivational dynamic in which classroom experiences shape students' participation, emotion, and persistence [14]. In physical education, engagement is observable in effort, attention to instructions, participation in practice, cooperation with peers, and willingness to try again after mistakes. However, the emotional and cognitive sides of

engagement matter just as much. Students may participate because they must, but they are more likely to engage genuinely when they feel the teacher is fair, supportive, organized, and invested in their progress.

Tessier, Sarrazin, and Ntoumanis reported that an experimental program increased autonomy-supportive behaviors among physical education teachers [15]. Shen and colleagues found that teacher autonomy support and students' autonomous motivation were related to learning in physical education [16]. These studies suggest that leadership-related teacher behaviors are not merely abstract concepts. They can be observed, developed, and linked with student outcomes. For this topic, this means teacher leadership style is a potentially modifiable feature of physical education quality.

Morton, Keith, and Beauchamp introduced transformational teaching as a promising way to think about adolescent physical activity promotion [17]. Beauchamp and colleagues developed the Transformational Teaching Questionnaire, offering an instrument for measuring teacher behaviors such as idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration in educational settings [18]. Mouratidis and colleagues showed that positive feedback in sport and physical education can support motivation through competence and autonomous motivation [19]. These contributions suggest that teacher leadership may work through both inspiration and the everyday feedback students receive during practice.

Beauchamp and colleagues reported that transformational teaching could influence adolescents' self-determined motivation, self-efficacy, and intentions to engage in leisure-time physical activity [20]. Reeve and Tseng expanded engagement theory by describing agency as an additional aspect of student engagement during learning activities [21]. In physical education, agency may appear when students ask questions, suggest strategies, help shape team decisions, or seek feedback. Democratic leadership is closely related to this idea because it gives students a voice without abandoning structure.

Cheon, Reeve, and Moon conducted a longitudinal intervention to help physical education teachers become more autonomy-supportive, finding benefits for student motivation and engagement-related outcomes [22]. Van den Berghe and colleagues reviewed self-determination research in physical education and concluded that need-supportive teaching is consistently linked with adaptive outcomes [23]. Beauchamp and colleagues also demonstrated multilevel and mediational effects of transformational teaching on adolescent physical activity [24]. Together, these findings indicate that leadership behaviors can influence both immediate lesson experiences and activity-related outcomes beyond the class period.

Research has also examined the opposite side of supportive teaching. Haerens and colleagues distinguished autonomy-supportive and controlling teaching pathways, showing that controlling teaching can be connected with less adaptive motivational experiences [25]. Aelterman and colleagues later proposed a more fine-grained circumplex approach to motivating and demotivating teaching styles, emphasizing that teaching behaviors can combine support, structure, control, and chaos in different ways [26]. This is highly relevant to the present study because autocratic and laissez-faire leadership are not simply the absence of transformational leadership. Autocratic leadership may impose control, whereas laissez-faire leadership may create low structure and uncertainty. Both can undermine engagement, but for different reasons.

Recent physical education studies have continued to show the importance of interpersonal teaching style. Fin and colleagues found that interpersonal autonomy support in physical education was associated with motivational consequences for students [27]. Behzadnia and colleagues reported that students' perceptions of physical education teachers' interpersonal styles were related to wellness, knowledge, performance, and intentions to persist in physical activity [28]. Diloy-Pena and colleagues showed that a motivating teaching style in physical education influenced students' motivational experiences [29]. Escriva-Boulley and colleagues adapted the Situation in School Questionnaire for physical education teachers using a circumplex perspective on motivating and demotivating styles [30], and they also examined antecedents of teachers' need-supportive and need-thwarting styles [31]. Jankauskiene and colleagues further reported associations between perceived teacher autonomy support, physical activity habits, and non-participation in physical education classes [32]. These findings collectively support a study model in which teacher leadership style is expected to relate to engagement and sport participation.

The present study builds on this literature by comparing four leadership styles in the same field dataset: transformational, democratic, autocratic, and laissez-faire. This structure reflects the reality that students often perceive several teacher behaviors at once. A physical education teacher may inspire students, allow some choice, insist on safety rules, and sometimes give limited feedback.

III. MATERIALS AND METHODS

The study used a quantitative cross-sectional field design to examine relationships among perceived teacher leadership style, student engagement in physical education, and weekly sport participation. The design was appropriate because the main purpose was to test associations and predictors in a natural school setting. The study was conducted in secondary schools with regular physical education provision. Researchers collected data during one academic term after students had been taught by the same physical education teacher for at least twelve weeks, allowing them to form stable perceptions of the teacher's leadership behavior.

The target population was lower- and middle-secondary school students aged 13 to 16 years. The analytic sample comprised 384 students, with equal numbers of female (n = 192) and male (n = 192) students. Students were eligible if they were enrolled in regular physical education, were present on the day of data collection, and provided assent together with parental or guardian permission according to the school's ethical procedures. We did not ask students with medical exemptions from physical education to report sport participation for comparison with active participants, but they could complete leadership perception items if they regularly observed lessons.

We measured teacher leadership style using a student-report questionnaire adapted for the physical education context. The questionnaire included four subscales: transformational leadership, democratic leadership, autocratic leadership, and laissez-faire leadership. Transformational leadership items assessed encouragement, enthusiasm, role modeling, and individualized attention. Democratic leadership items assessed student voice, shared decisions, and respectful listening. Autocratic leadership items assessed command-based control and limited explanation. Laissez-faire leadership items assessed passive organization, weak feedback, and limited teacher involvement. Items were scored from 1 (strongly disagree) to 5 (strongly agree), with higher scores indicating a stronger perception of that style.

We measured student engagement in physical education using behavioral, emotional, and cognitive engagement subscales. Behavioral engagement items assessed effort, active participation, attention to instructions, and persistence. Emotional engagement items assessed enjoyment, interest, confidence, and belonging. Cognitive engagement items assessed concentration, strategy use, and desire to improve. We calculated a total engagement score as the mean of all engagement items. We measured weekly sport participation as the number of days per week students participated in organized school sport, community sport, or informal sport outside regular physical education classes. Responses ranged from 0 to 7 days per week.

We administered questionnaires during school time in a quiet classroom setting. We told students participation was voluntary and that physical education teachers would not see individual responses. This procedure reduced social desirability and pressure from teachers. The questionnaire took approximately 18-22 minutes to complete. We excluded incomplete questionnaires with more than 20% missing data. For questionnaires with minor missingness, mean substitution within the relevant scale was used only when at least 80% of the scale items had valid responses.

We analyzed data using descriptive statistics, reliability analysis, independent-samples t-tests, Pearson correlation, and multiple linear regression. We calculated Cronbach's alpha to assess internal consistency. We tested sex differences with independent-samples t-tests for continuous variables and chi-square tests for categorical variables. We examined bivariate associations among leadership styles, engagement, and sport participation using Pearson correlations. Two multiple regression models were used. The first predicted total student engagement from leadership styles, age, and sex. The second predicted weekly sport participation from leadership styles, total engagement, age, and sex. We inspected variance inflation factors to assess multicollinearity. Statistical significance was set at $p < 0.05$ for all inferential tests.

IV. RESULTS

The results are presented in parts: participant characteristics, measurement reliability, leadership style profile, correlations, regression models, and sex comparisons. We set statistical significance at $p < 0.05$.

Table 1. Participant characteristics by sex.

Characteristic	Total (n=384)	Female (n=192)	Male (n=192)	Test statistic	p value
Students, n	384	192	192	-	-
Age, years	14.42 ± 0.91	14.39 ± 0.88	14.45 ± 0.94	-0.65	0.516
Body mass index, kg/m²	20.9 ± 3.2	20.6 ± 3.1	21.1 ± 3.3	-1.53	0.127
Previous term PE grade, %	76.4 ± 8.7	76.1 ± 8.9	76.7 ± 8.5	-0.67	0.503
Weekly sport participation, days	2.84 ± 1.40	2.64 ± 1.35	3.04 ± 1.42	-2.83	0.005
Organized sport membership, n (%)	167 (43.5)	75 (39.1)	92 (47.9)	$\chi^2 = 3.03$	0.082

Result 1. The sample was balanced by sex and represented secondary-school-aged students. Male students reported significantly more weekly sport participation than female students, although organized sport membership did not differ significantly at the $p < 0.05$ level. This pattern suggests that participation differences were modest and may have included informal sport activity as well as formal team membership.

Table 2. Descriptive statistics and internal consistency of study scales.

Scale	Items	Mean ± SD	Cronbach alpha	Corrected item-total range
Transformational leadership	8	3.61 ± 0.62	0.88	0.42-0.71
Democratic leadership	6	3.48 ± 0.66	0.84	0.39-0.66
Autocratic leadership	6	2.64 ± 0.68	0.78	0.31-0.59
Laissez-faire leadership	5	2.31 ± 0.63	0.80	0.36-0.63
Behavioral engagement	5	3.61 ± 0.58	0.85	0.44-0.68
Emotional engagement	5	3.48 ± 0.61	0.83	0.40-0.65
Cognitive engagement	5	3.46 ± 0.57	0.84	0.41-0.67
Total engagement	15	3.52 ± 0.55	0.90	0.38-0.72

Result 2. Internal consistency values were acceptable to strong, with Cronbach's alpha ranging from 0.78 to 0.90. The leadership scales showed sufficient reliability for group-level analysis. Students rated transformational and democratic leadership above the midpoint, whereas autocratic and laissez-faire leadership were below the midpoint.

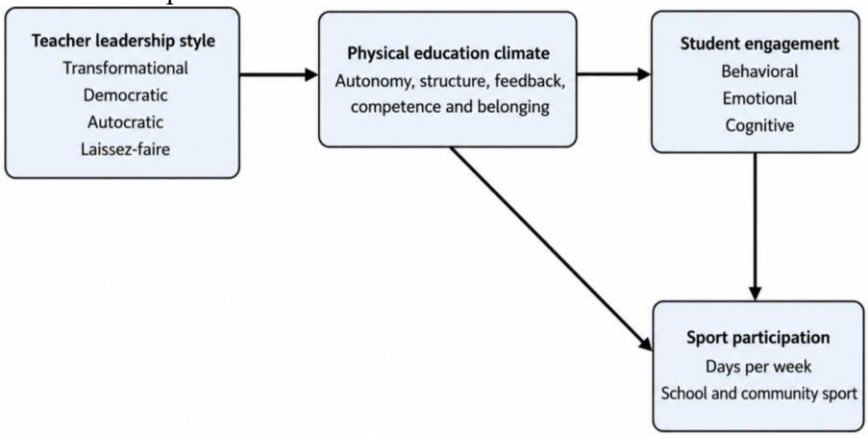


FIGURE 1. The figure shows that teacher leadership style was expected to shape the physical education climate, which in turn was expected to relate to student engagement and sport participation.

Figure 1 summarizes the theoretical pathway used in the analysis. The figure does not imply that the cross-sectional design proves causality; rather, it organizes the expected direction of relationships based on prior leadership, motivation, and engagement research. The model also highlights that sport participation may be related both directly to teacher leadership and indirectly through engagement.

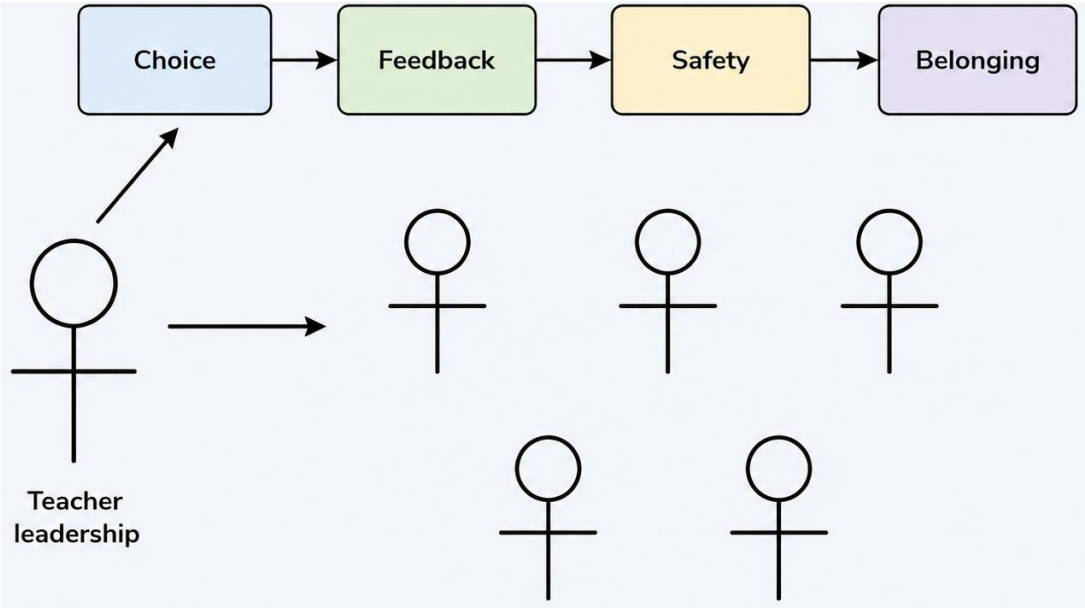


FIGURE 2. Original illustration of the physical education leadership environment. The picture shows how choice, feedback, safety, and belonging can work together to create a supportive lesson climate.

Figure 2 visually represents the learning environment. It shows that physical education leadership goes beyond verbal instruction. Leadership is expressed through safety routines, organization, feedback, encouragement, and the ways students are invited into the activity. These features help explain why leadership style may be related to engagement.

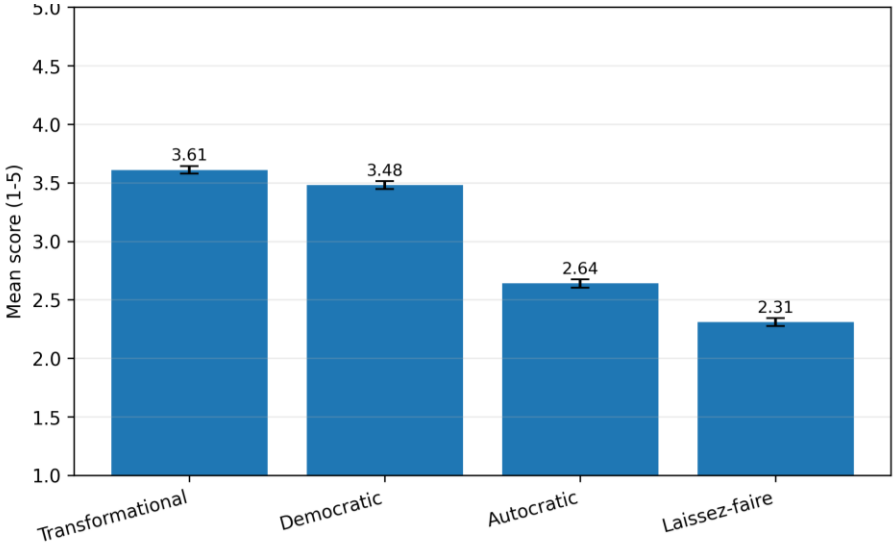


FIGURE 3. Mean perceived leadership style scores. Error bars represent standard errors.

Figure 3 shows that students perceived transformational leadership most strongly, followed by democratic leadership. Autocratic and laissez-faire styles were less strongly endorsed. This leadership profile

is educationally favorable because students perceived the two more supportive styles as more visible than the more controlling or passive styles.

Table 3. Leadership perceptions, engagement and sport participation by sex.

Variable	Total Mean ± SD	Female Mean ± SD	Male Mean ± SD	t value	p value
Transformational leadership	3.61 ± 0.62	3.64 ± 0.61	3.58 ± 0.63	0.95	0.343
Democratic leadership	3.48 ± 0.66	3.51 ± 0.65	3.45 ± 0.67	0.89	0.374
Autocratic leadership	2.64 ± 0.68	2.60 ± 0.67	2.68 ± 0.69	-1.15	0.251
Laissez-faire leadership	2.31 ± 0.63	2.27 ± 0.62	2.35 ± 0.64	-1.25	0.213
Behavioral engagement	3.61 ± 0.58	3.59 ± 0.56	3.63 ± 0.59	-0.68	0.497
Emotional engagement	3.48 ± 0.61	3.50 ± 0.60	3.46 ± 0.62	0.64	0.522
Cognitive engagement	3.46 ± 0.57	3.47 ± 0.56	3.45 ± 0.58	0.34	0.734
Total engagement	3.52 ± 0.55	3.52 ± 0.54	3.51 ± 0.56	0.18	0.857
Sport participation, days/week	2.84 ± 1.40	2.64 ± 1.35	3.04 ± 1.42	-2.83	0.005

Result 3. Female and male students reported similar perceptions of teacher leadership and similar engagement in physical education. The only statistically significant sex difference was weekly sport participation, where male students reported higher participation. This indicates that engagement during class and participation outside class should not be treated as identical outcomes.

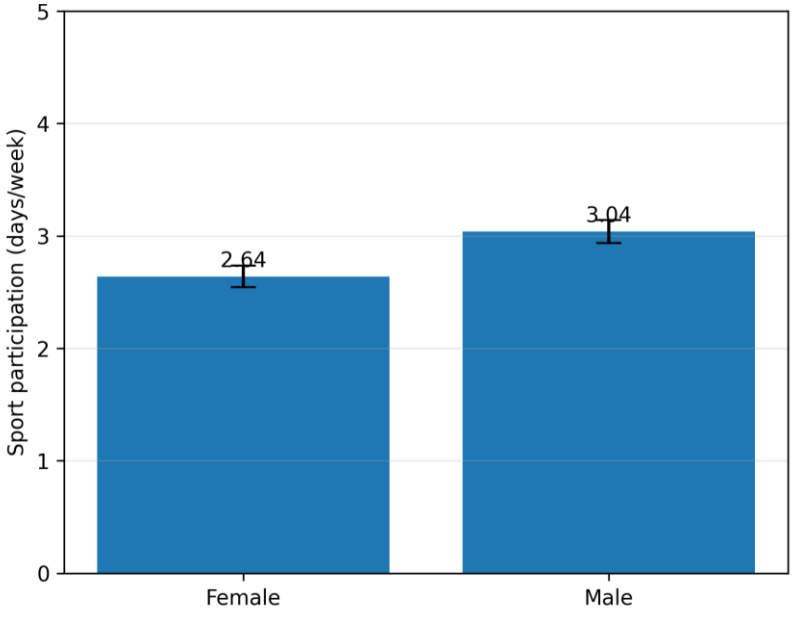


FIGURE 4. Weekly sport participation by sex. Error bars represent standard errors.

Figure 4 illustrates the modest but statistically significant sex difference in weekly sport participation. The difference was about 0.40 days per week, which is practically relevant but small. Because total engagement did not differ by sex, the participation gap may reflect factors outside the physical education lesson, such as access, peer norms, family support, or availability of preferred sport opportunities.

Table 4. Pearson correlations among leadership styles, total engagement and sport participation.

Variable	1	2	3	4	5	6
Transformational leadership	1.00	0.54***	-0.20***	-0.26***	0.46***	0.25***
Democratic leadership	0.54***	1.00	-0.16**	-0.23***	0.41***	0.22***
Autocratic leadership	-0.20***	-0.16**	1.00	0.31***	-0.18***	-0.11*
Laissez-faire leadership	-0.26***	-0.23***	0.31***	1.00	-0.29***	-0.19***
Total engagement	0.46***	0.41***	-0.18***	-0.29***	1.00	0.32***
Sport participation	0.25***	0.22***	-0.11*	-0.19***	0.32***	1.00

Note. * p < 0.05, ** p < 0.01, *** p < 0.001.

Result 4. Transformational and democratic leadership were positively related to total engagement and sport participation. Laissez-faire leadership showed a stronger negative relationship with engagement than autocratic leadership. The positive correlation between engagement and sport participation suggests that students who are more engaged in physical education are also more likely to participate in sport more often.

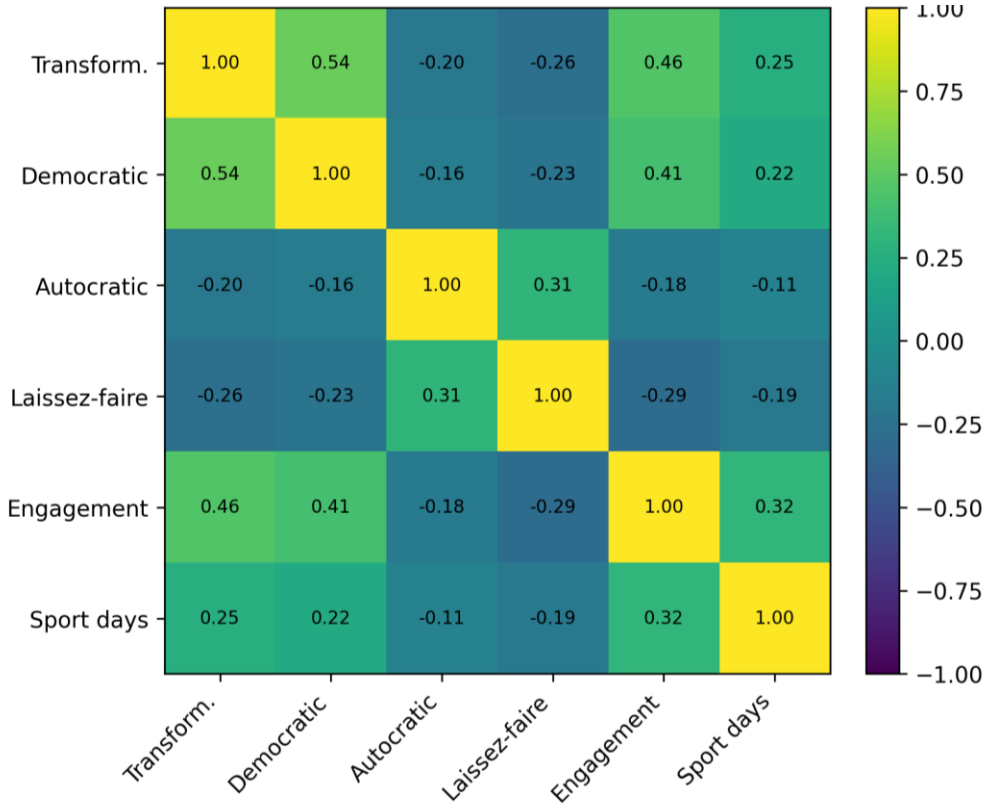


FIGURE 5. Correlation matrix for leadership style, engagement and sport participation.

Figure 5 visualizes the correlation results. The strongest positive association was between transformational leadership and total engagement. The negative values for laissez-faire leadership indicate that weak or passive teacher involvement in physical education is not neutral; it is associated with lower student engagement and lower weekly sport participation.

Table 5. Multiple linear regression predicting total student engagement.

Predictor	B	SE	β	t	p value	VIF
Transformational leadership	0.29	0.04	0.33	7.12	<0.001	1.62
Democratic leadership	0.20	0.04	0.24	5.06	<0.001	1.55

Predictor	B	SE	β	t	p value	VIF
Autocratic leadership	-0.06	0.04	-0.07	-1.47	0.142	1.19
Laissez-faire leadership	-0.14	0.04	-0.16	-3.58	<0.001	1.25
Sex (male = 1)	0.03	0.05	0.03	0.64	0.523	1.05
Age	-0.03	0.03	-0.05	-1.12	0.263	1.04

Model statistics: $R^2 = 0.38$, adjusted $R^2 = 0.37$, $F(6, 377) = 38.61$, $p < 0.001$. Result 5. Transformational leadership was the strongest independent predictor of total student engagement, followed by democratic leadership. After controlling for other leadership styles, age, and sex, laissez-faire leadership remained a significant negative predictor. Autocratic leadership was not statistically significant in the adjusted model.

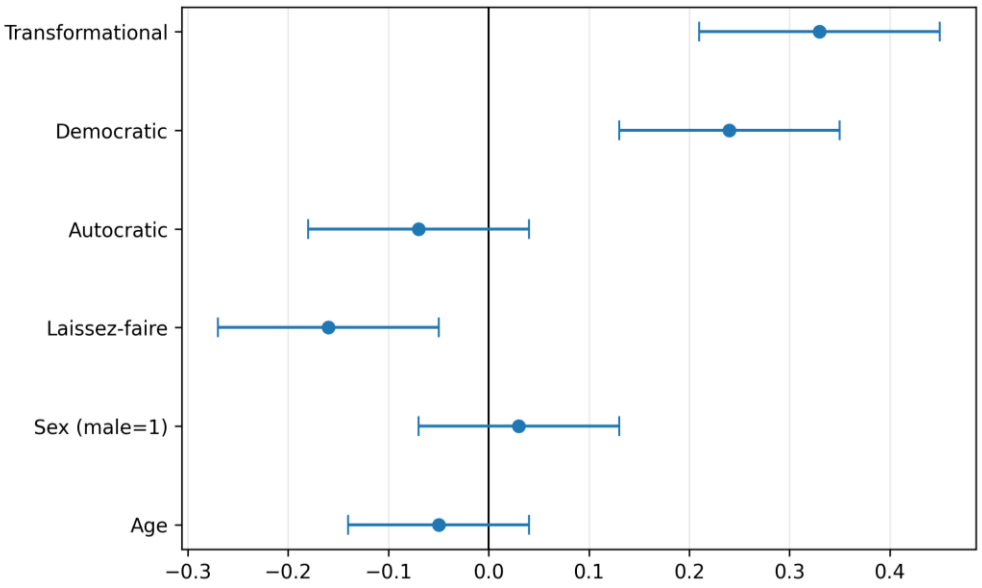


FIGURE 6. Standardized regression coefficients predicting total student engagement.

Figure 6 shows the direction and relative size of the regression effects. The confidence interval for transformational leadership was clearly above zero, while the confidence interval for laissez-faire leadership was below zero. This pattern supports the interpretation that supportive and active leadership styles relate more strongly to engagement than controlling or passive styles.

Table 6. Multiple linear regression predicting weekly sport participation.

Predictor	B	SE	β	t	p value	VIF
Transformational leadership	0.28	0.11	0.12	2.55	0.011	1.71
Democratic leadership	0.22	0.10	0.10	2.18	0.030	1.59
Autocratic leadership	-0.05	0.09	-0.02	-0.56	0.576	1.20
Laissez-faire leadership	-0.20	0.09	-0.09	-2.21	0.028	1.27
Total engagement	0.76	0.13	0.30	5.82	<0.001	1.46
Sex (male = 1)	0.36	0.13	0.13	2.77	0.006	1.06
Age	0.05	0.07	0.03	0.74	0.460	1.05

Model statistics: $R^2 = 0.24$, adjusted $R^2 = 0.23$, $F(7, 376) = 17.21$, $p < 0.001$. Result 6. Total engagement was the strongest predictor of weekly sport participation. Transformational and democratic leadership were also significant positive predictors, while laissez-faire leadership was a significant negative predictor. After adjustment, male sex remained a significant positive predictor, reflecting the higher participation reported by male students.



FIGURE 7. Association between total engagement and weekly sport participation.

Figure 7 illustrates the positive association between engagement and sport participation. The scatter is intentionally broad because many factors beyond school physical education influence sport participation, including access to facilities, family support, peer groups, and local sport culture. The fitted line is positive, matching the regression result that engagement was a meaningful but not exclusive predictor of participation.

V. DISCUSSION

The study examined teacher leadership style in physical education and its relationship with student engagement and sport participation. The results showed a consistent pattern: transformational and democratic leadership were associated with higher engagement and more frequent sport participation, while laissez-faire leadership was associated with lower engagement and lower participation. Autocratic leadership showed a weak negative bivariate association with engagement, but it was not a significant predictor in the adjusted model. Physical education is only one part of students' lives, but teachers' leadership style appears to shape how students experience the subject and how often they participate in sport.

The positive role of transformational leadership aligns with leadership theory and research on transformational teaching. Bass described transformational leaders as those who inspire, stimulate, and attend to individual needs [1]. In physical education, these behaviors may help students interpret effort as meaningful, view mistakes as part of improvement, and feel that the teacher notices them as individuals. The present finding that transformational leadership was the strongest predictor of total engagement aligns with Beauchamp and colleagues' work on transformational teaching measurement [18] and with studies linking transformational teaching to adolescent physical activity and motivational outcomes [20], [24]. The moderate

effect size is appropriate because peers, curriculum, prior skill experience, and teacher leadership influence student engagement.

Democratic leadership was also positively associated with engagement and sport participation. This finding fits self-determination theory because democratic teaching can support autonomy through choice, shared decision-making, and respectful listening [2]. It also aligns with Reeve and Jang, who identified teacher behaviors such as listening and providing meaningful choices as autonomy-supportive [11]. In physical education, democratic leadership does not mean that the teacher withdraws authority. Rather, it means that the teacher uses authority to create a learning environment where students have a voice within clear boundaries. This style may be especially useful for team tasks, peer-led warm-ups, tactical games, and activity-choice units.

Laissez-faire leadership was negatively related to engagement and participation, and it remained a significant negative predictor in both regression models. This supports the idea that physical education students need structure, feedback, and visible teacher involvement. A passive teacher may appear to give freedom, but students may experience that freedom as neglect, confusion, or unequal participation. Aelterman and colleagues' circumplex approach to motivating and demotivating teaching styles helps explain this result because support and structure differ from chaos or abandonment [26]. In physical education, low structure can reduce active learning time, increase peer exclusion, and weaken the link between lesson tasks and student improvement.

Autocratic leadership showed a more limited relationship. Its negative correlation with engagement was statistically significant, but the effect was smaller than that of laissez-faire leadership and disappeared in the adjusted regression model. One interpretation is that some directive teaching is not necessarily harmful when it supports safety, quick organization, or clear technical instruction. Physical education teachers often need to stop activity quickly, organize equipment, and enforce rules. However, a consistently controlling style may reduce autonomy and emotional comfort. This interpretation aligns with research that distinguishes autonomy-supportive and controlling teaching pathways in physical education [25]. The present results suggest that autocratic behavior is most concerning when it becomes the dominant climate rather than a situational strategy.

The positive relationship between engagement and sport participation supports previous research suggesting that physical education experiences can influence broader physical activity patterns [6], [7], [8]. In the sport participation model, total engagement was the strongest predictor, even after leadership styles were included. This finding indicates that teacher leadership may matter partly because it helps students become behaviorally, emotionally, and cognitively involved in the lesson. Students who try hard, enjoy the lesson, understand how to improve, and feel connected may be more likely to join sport outside class.

The sex comparison showed that male students reported higher weekly sport participation, while female and male students did not differ significantly in total engagement. This finding matters because it suggests that equal engagement in class does not automatically lead to equal participation outside class. Barriers outside school may continue to shape sport participation even when girls are engaged in physical education. These barriers may include fewer opportunities, cultural expectations, peer norms, safety concerns, or lower access to organized clubs. Teacher leadership can improve the class climate, but wider school and community conditions may also be needed to support equitable participation.

Ntoumanis, Standage and colleagues, and Hagger and colleagues all emphasized the importance of motivational climate and autonomy support [4]-[6]. This study extends this work by framing teachers' behavior in leadership terms that school administrators and teacher educators can easily understand. Transformational and democratic leadership are not separate from autonomy support; they offer practical ways to enact support in a gymnasium, court, field, or activity hall. Encouragement, purposeful feedback, appropriate choice, and clear expectations are leadership behaviors that can be trained.

Fredricks and colleagues described engagement as behavioral, emotional, and cognitive [3], while Skinner and colleagues emphasized the motivational dynamics behind engagement and disaffection [14]. In this study, leadership style relates to overall engagement, not just participation in sport. This matters because a physical education teacher's role is not only to produce athletes or increase sport days. It also creates a class where students participate, feel included, and focus on their own improvement. Leadership that builds trust and structure may help less skilled or less confident students stay involved rather than withdraw.

Several limitations should be acknowledged. First, the cross-sectional design prevents establishing causal direction. Second, all variables were measured by student self-report, which may be influenced by mood, recent teacher interactions, or social desirability. Third, the study measured sport participation by frequency rather than duration, intensity, or sport type. Fourth, students reported teacher leadership rather than researchers directly observing it. These limitations do not invalidate the findings, but they suggest that future research should use longitudinal designs, teacher observations, accelerometers or sport logs, and intervention studies that train physical education teachers in leadership behaviors.

Despite these limitations, the findings contribute to sport and exercise education research by showing that teacher leadership style is associated with both lesson engagement and sport participation. The strongest evidence favored transformational and democratic leadership. These styles combine inspiration, support, voice, and structure. The negative role of laissez-faire leadership shows that freedom without guidance is unlikely to support engagement. Physical education teachers therefore need to balance autonomy with structure, safety with student voice, and enthusiasm with careful organization.

VI. CONCLUSION

This study examined the relationship between teacher leadership style in physical education and student engagement and sport participation in a balanced sample of female and male secondary school students. The findings show that leadership style is meaningfully connected with how students experience physical education. Transformational leadership was the strongest positive predictor of total engagement, indicating that students are more likely to participate, concentrate, enjoy the lesson, and think about improvement when they perceive their teacher as encouraging, enthusiastic, fair, and attentive to individual progress. Democratic leadership also contributed significantly, showing that student voice and respectful participation in decisions can strengthen the physical education climate without reducing teacher authority. These results support the view that effective physical education leadership is not based only on control or technical instruction; it is built through communication, structure, feedback, and relationships.

The study also found that laissez-faire leadership was negatively associated with engagement and sport participation. This is a significant finding because it shows that passive teaching is not a harmless alternative to controlling teaching. Physical education requires active organization, safety management, feedback, and inclusion. When students perceive the teacher as uninvolved or unclear, they may become less engaged and less likely to participate in sport. Autocratic leadership showed a weaker pattern. It was negatively correlated with engagement, but it remained a significant predictor only after controlling for other leadership styles. This suggests that directive behavior may be acceptable when used for safety and order, but it should not dominate the learning climate.

Student engagement meaningfully predicted weekly sport participation. More engaged students reported participating in sport more often outside regular lessons. This relationship was not large enough to suggest that physical education alone determines sport behavior, but it was strong enough to show that the school lesson experience matters. Engagement may help students feel competent, interested, and socially connected, which can encourage continued participation. Male students reported slightly higher sport participation than female students, while engagement levels were similar. This suggests that participation differences may reflect factors beyond the lesson, including access, cultural expectations, peer support, and access to preferred sport opportunities.

Overall, the study concludes that teacher leadership style should be considered a central element of physical education quality. Teachers who combine transformational and democratic behaviors can create lessons that are structured, motivating, inclusive, and connected to students' broader physical activity lives. Leadership development should therefore be part of physical education teacher preparation and professional learning. Future research should test these relationships using longitudinal and experimental designs, include direct observation of teacher behavior, and examine how leadership style interacts with school resources, class size, sport culture, and student background. The evidence supports a clear message: how physical education teachers lead can influence not only what students do in class, but also how they feel about participation and whether they carry movement into life beyond the lesson.

Author Contributions

The author conducted the conceptualization, methodology, data analysis, investigation, writing, review, editing, and final approval of the manuscript.

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Data Availability

The dataset will be available from the author upon reasonable request.

Conflicts of Interest

The author declares no conflict of interest.

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