

Chasing rainbows: An interview study of middle school principals' whole-of-school physical activity beliefs

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Abstract

Despite the central importance of school leadership in the successful implementation of new programs, little research has explored administrators' views concerning whole-of-school physical activity (PA) initiatives, which can support students' academic performance and healthy development. A critical knowledge gap exists in the context of secondary education, where whole-of-school PA implementation may face nuanced challenges. The purpose of this U.S.-based study was to examine middle school principals' beliefs about whole-of-school PA. A convenience sample of 19 principals from six states participated in individual, semi-structured interviews. The data were thematically analyzed in NVivo. Findings spanned three themes: (a) *PA benefits the whole child, but who is in charge?*, (b) *school- and system-level resources that matter*, and (c) *the gap between verbal support and administrative action*. Collectively, these themes revealed principals' nearly universal philosophical support for school-based PA programming but also demonstrated how such convictions often operate within structures that deprioritize it. Although principals expressed a desire to foster more active school cultures, they often perceived such efforts as idealistic and instead conformed to the accountability systems that govern their work. This study provides a key empirical lens from the perspective of school leadership to understand potential barriers and facilitators to whole-of-school PA implementation in middle schools.

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Introduction

School leadership is a critical factor in student achievement (Grissom et al., 2021; Özdemir et al., 2022). In the United States, the professional standards for educational leaders include the support of students' academic, social, emotional, and physical needs (National Policy Board for Educational Administration, 2015). It is well established that engagement in physical activity (PA) contributes to each of these dimensions of holistic development in children and adolescents (U.S. Department of Health and Human Services, 2018). Yet the national standards for the preparation of educational leaders in the United States lack an explicit focus on developing leadership competencies specific to school-based PA promotion for youth (Young et al., 2017).

Currently, only 20–28% of U.S. children and adolescents ages 6–17 meet the national guideline of 60 minutes of daily PA (Carlson et al., 2025). Therefore, most school-aged youth are not reaping the numerous benefits of regular PA engagement. While schools are identified as a key setting for PA promotion, they have received a grade of D– in this area of performance due to limitations in physical education (PE) programming and a lack of other school-based opportunities for students to participate in PA (Carlson et al., 2025). The U.S. school system includes elementary and secondary education. Although configurations vary, elementary schools generally include kindergarten for children ages 5–6 and grades one to five for children ages 6–11. Secondary education is typically divided into middle (or “junior high”) school and high school. Middle schools accommodate students who are approximately 11–14 years old, while high schools cater to students who are approximately 14–18 years old. The middle school years mark a critical developmental period when children experience major physical, psychological, emotional, and social changes (Waters et al., 2012). Although PA may help students adjust to secondary school (Liu et al., 2025) and promote mental health in youth (Goldfield et al., 2011; Reid et al., 2015; Savina et al., 2016), children's PA begins to decline in the elementary school years and continues to drop during adolescence (Farooq et al., 2020), as do school-based PA opportunities (Killian et al., 2025).

In the last several decades, the field has shifted from a relatively exclusive emphasis on PE in school-based PA promotion (Sallis and McKenzie, 1991) to a more holistic view of the school system (e.g. Pate et al., 2006; Webster, 2022). “Whole-of-school” approaches are recommended as an evidence-based solution to children and adolescents' PA deficits (Institute of Medicine [IOM], 2013; Milton et al., 2021). Such approaches, which draw upon systems thinking and social-ecological models, encompass multiple components and levels of support to increase students' PA (Carson et al., 2014; Webster, 2024). School-based interventions that fail to take a systems view of children's and adolescents' PA do not account for the full school day, wherein myriad factors, such as compensatory effects of engaging in different PA opportunities in and out of school, influence total daily activity (Love et al., 2019).

The Centers for Disease Control and Prevention adopted a comprehensive school PA program (CSPAP) as the national framework for whole-of-school PA (Centers for Disease Control and Prevention, 2019). The CSPAP framework includes five components: (a) PE, (b) PA during school, (c) PA before and after school, (d) staff involvement, and (e) family and community engagement.

This approach, including further conceptualizations of the framework (e.g. Active Schools, 2022; Webster et al., 2020c), emphasizes the need for PE as a strong foundational component, the expansion of PA programming across other parts of the school day, and layered support from different levels of the school system. However, only 37% of CSPAP best practices are being implemented in U.S. schools (Dauenhauer, 2026).

Effective school leadership is an important factor in the successful implementation of whole-of-school PA programs (Carson et al., 2014; Dauenhauer et al., 2022; Deslatte and Carson, 2014; Doolittle and Rukavina, 2014; Egan et al., 2019; Kulinna et al., 2012; Lee and Welk, 2021; Stoepker et al., 2020; Webster et al., 2020b). Principals play key roles in CSPAP implementation, such as helping with program planning, evaluation, partnership building, and advocacy (Orendorff et al., 2021). However, principals' CSPAP involvement varies depending on their beliefs, perceptions, and experiences (Orendorff et al., 2021, 2024). For example, Orendorff et al. (2021) found that when principals believed that CSPAPs foster desirable student outcomes, they reported higher levels of CSPAP involvement. Other research has shown that principals believe that CSPAP implementation is influenced by the availability of resources (e.g. time, funding, equipment, qualified personnel, professional development training; Abel-Berei et al., 2021; Goh et al., 2016; Jones et al., 2014).

The idea that principals' beliefs are integral to whole-of-school PA implementation aligns with numerous theoretical perspectives. Thurstone's (1928) foundational work on the study of beliefs, which particularly focused on attitude as a construct, provided conceptual grounding for the present investigation. We initially drew upon his assertion that an attitude consists of "the sum total of [an individual's] inclinations and feelings, prejudice or bias, preconceived notions, ideas, fears, threats, and convictions about any specified topic" (p. 531). However, we also broadened our conceptualization of beliefs using statements from additional theories, including Diffusion of Innovations Theory, the Social Ecological Model, the Health Belief Model, and the capability, opportunity, and motivation lead to behavior (COM-B) model. Diffusion of Innovations Theory emphasizes the importance of perceived attributes (e.g. relative advantage, compatibility, observability) in the adoption of an innovation, such as a CSPAP (Rogers, 2003). Additionally, the Social Ecological Model illustrates how beliefs in reference to multiple levels (e.g. individual, interpersonal, organizational) of a system (e.g. a school system) influence a targeted outcome (e.g. PA promotion; Sallis et al., 2008). The Health Belief Model provides another lens, specifically considering the role of perceived benefits and barriers to the implementation of initiatives such as whole-of-school PA (Alyafei and Easton-Carr, 2024). Finally, the COM-B Model highlights how beliefs about capability, opportunity, and motivation relate to behavior (e.g. how a principal's beliefs about a school's capability for whole-of-school PA affect the implementation of such an initiative; Michie et al., 2011).

Despite the clear importance of school leadership in whole-of-school PA, there continues to be a gap in understanding best practices for program implementation in secondary school contexts (Webster, 2022). U.S. data indicate that secondary schools implement fewer overall CSPAP best practices than elementary schools (Dauenhauer, 2026). The present study investigates whole-of-school PA implementation within middle school settings. Evidence from a national survey indicates that middle school students attending schools with more whole-of-school PA opportunities met the recommended 60-minutes of PA on more days than students attending schools with fewer PA opportunities (Colabianchi et al., 2015). The purpose of this study was to examine middle school principals' beliefs about whole-of-school PA. The overarching research questions guiding this study were: (a) What are principals' beliefs about PA and PA promotion?, (b) What do principals believe are factors that either enable or hinder PA promotion in middle schools?, and (c) What

does principals' involvement in whole-of-school PA entail? Findings from this study may help advance whole-of-school PA research within secondary school settings and contribute to the empirical foundation for leveraging whole-of-school PA implementation in middle-level education through the support of school leadership.

Methods

A qualitative interpretivist approach using individual interviews was selected for this study. Interviews are ideal for exploring a topic in depth and understanding the perspectives of key stakeholders (Atkins and Wallace, 2012). As little previous research has investigated middle school principals' beliefs about whole-of-school PA, the present study was designed to probe principals' beliefs related to PA and PA promotion, particularly considering the contextual nuances of the middle school environment. This study aligns with the Standards for Reporting Qualitative Research (O'Brien et al., 2014).

The authors of this study represent varied disciplinary backgrounds broadly spanning PE, health promotion, and implementation science. Our shared concern for the lack of PA among children and adolescents drove our involvement and collaboration in this research. We maintain strong agendas of advocacy for youth PA and school-based PA promotion, and we acknowledge that our biases may have influenced this interpretive study.

Participants

Convenience and purposive sampling techniques were used to recruit participants. The authors, who over the course of this study were based in the different states shown in Table 1, sent email invitations to 36 principals within established professional networks (e.g. school–university partnerships) and at schools within close proximity to the researchers' universities. To be eligible for participation, participants had to be currently employed as a middle school principal in the United States. While not intentional within the participant selection process, it is noteworthy that the final study sample reflects diverse professional settings and backgrounds. This study was not funded and principals were not given any incentives to participate. The first author's university Institutional Review Board approved the study (TAMU-CC-IRB-2023-0890) and written informed consent was obtained from all participants prior to data collection.

Nineteen middle school principals from six U.S. states participated in the study (Table 1). Most participants worked in urban or suburban settings at medium-sized schools with a high percentage of students eligible for free or reduced-price lunch. Additionally, most participants had five or more years of experience as a principal and had coached sports, while approximately half had received professional training related to school-based PA promotion. Only three of the principals had experience teaching PE, but nearly all participants characterized themselves as being physically active.

Interview protocol and procedures

A semi-structured, individual interview protocol was developed for the study (see Supplemental File 1 for the full interview protocol). The semi-structured format allowed for flexibility in flow, length, and direction within each interview while maintaining consistency in overall structure and focus (Patton, 2014). Prior to commencing the interview, participants were read a preamble explaining the study's purpose, defining key concepts and noting the terms of the interview. Key

Table 1. Participants' self-reported background and school context information.

Participant	Age	Gender	Race or ethnic origin	State of school	School location	School size	% Free or reduced lunch	Years in education	Years as principal	PE teaching experience	Sports coaching experience	Trained for school-based PA promotion	Characterizes self as physically active
Juan	54	Male	Hispanic	TX	Suburban	Large	Moderate	29	24	No	No	Yes	Yes
Roberto	37	Female	Hispanic	TX	Suburban	Large	Moderate	15	3	No	Yes	Yes	Yes
Brandon	46	Male	White	WY	Suburban	Medium	Moderate	20	13	No	Yes	No	Yes
Sophia	57	Female	White or Greek	CO	Rural	Small	High	26	6	No	Yes	No	No
Michelle	48	Female	White	KY	Suburban	Medium	Moderate	25	4	Yes	Yes	Yes	Yes
Fatima	43	Female	Middle Eastern	MI	Suburban	Small	High	17	10	No	No	Yes	Yes
Tanisha	40	Female	African American	MI	Rural	Small	High	16	2	No	No	No	Yes
Josh	44	Male	White	MI	Suburban	Small	High	19	8	Yes	Yes	No	Yes
Daniel	52	Male	White	MI	Suburban	Medium	High	29	10	No	No	No	No
Albin	46	Male	Polish or Hungarian	MI	Rural	Medium	High	20	2	No	Yes	Yes	Yes
Zach	42	Male	White	MI	Rural	Small	High	20	1	No	Yes	Yes	Yes
Tyler	43	Male	White	MI	Suburban	Medium	Low	19	16	No	Yes	No	Yes
Angela	55	Female	African American	NJ	Urban	Medium	High	30	15	No	No	No	Yes
Cristina	48	Female	Hispanic	NJ	Urban	Medium	High	23	1	No	No	No	Yes
Monique	40	Female	African American	NJ	Urban	Medium	High	19	3	No	Yes	Yes	Yes
Anthony	54	Male	Italian	NJ	Suburban	Medium	Low	32	10	Yes	Yes	No	No
Kevin	57	Male	Guyanese-American	NJ	Urban	Medium	High	34	25	No	Yes	Yes	Yes
Carlos	47	Male	Dominican-American	NJ	Urban	Large	High	20	10	No	Yes	Yes	Yes
Victor	51	Male	Peruvian	NJ	Urban	Medium	High	27	16	No	Yes	Yes	Yes

Note: PE: physical education; PA: physical activity.

School size categories were defined as small (<500 students), medium (500–800 students), and large (>800 students). School socioeconomic status was represented by the percentage of students eligible for free or reduced-price lunch and categorized as low (<30%), moderate (30–49%), and high (≥50%).

definitions of PA and whole-of-school PA were adapted to suit a lay audience from Caspersen et al. (1985) and the IOM (2013).

Interview questions were arranged into questions about participants' backgrounds and school contexts (demographic information, professional experience, training for school-based PA promotion, personal PA behavior), followed by four main areas of focus, based on the research questions: (a) beliefs about PA and PA promotion (benefits of PA for middle school students, whether middle school students meet PA guidelines, whether middle school students are learning the knowledge and skills to pursue a physically active lifestyle, who is responsible for promoting youth PA, distinctions between PE and other school-based PA opportunities), (b) current school PA program characteristics (PE, PA incorporated into classroom time for other subjects, recess, PA programming before and after school), (c) factors influencing the school's PA programming (biggest assets, biggest challenges), and (d) personal involvement in PA promotion (examples of involvement, factors influencing involvement). Prompts were used to encourage elaboration and expansion upon responses that were brief, unclear, or lacked depth.

Literature informing the questions included conceptualizations of whole-of-school PA (e.g. Active Schools, 2022; Centers for Disease Control and Prevention, 2019; Webster et al., 2020c), previous research on school administrators' involvement in PA promotion (e.g. Orendorff et al., 2021, 2024; Webster et al., 2020a), and studies of school leaders' perceptions and experiences related to whole-of-school PA (Abel-Berei et al., 2021; Goh et al., 2016; Jones et al., 2014). Additionally, questions drew from several established theories, including Diffusion of Innovations Theory (perceived attributes of whole-of-school PA; Rogers, 2003), the Social Ecological Model (beliefs about individual, interpersonal, organizational, community, and public policy factors that influence middle school students' PA; Sallis et al., 2008), the Health Belief Model (perceived benefits of whole-of-school PA, perceived barriers to whole-of-school PA; Alyafei and Easton-Carr, 2024), and the COM-B Model (beliefs about the school's capability and opportunities related to PA promotion; Michie et al., 2011). These various perspectives, building from Thurstone's (1928) foundational work, were selected to explore multiple constructs that could be relevant to middle school principals' beliefs about whole-of-school PA.

The first, second, third, fifth, and sixth authors of this study, all of whom are trained and experienced qualitative researchers, conducted the interviews between 23 April 2024 and 14 March 2025. Interviews were held in person or virtually via Zoom, depending on participants' preferences. This flexibility was essential to securing principals for the study and completing data collection, given they had busy schedules and often needed to reschedule interviews. All interviews were audio recorded using either a smartphone or Zoom. Multiple steps were taken during the interviews to reduce social desirability bias (Bispo Júnior, 2022). These included emphasizing that there were no right or wrong responses to the interview questions, beginning the interviews with comprehensive and familiar questions (e.g. participant background) to alleviate tension, conducting the interviews in private, and assuring participants that their names and school names would be kept confidential.

Data analysis and trustworthiness

The recorded interviews ranged from 27 to 61 minutes and averaged 38.6 minutes per interview. Three graduate assistants transcribed the interviews verbatim. Participants' names and school names were removed from the transcripts and replaced with pseudonyms. The transcripts were uploaded to NVivo (version 15) for data analysis.

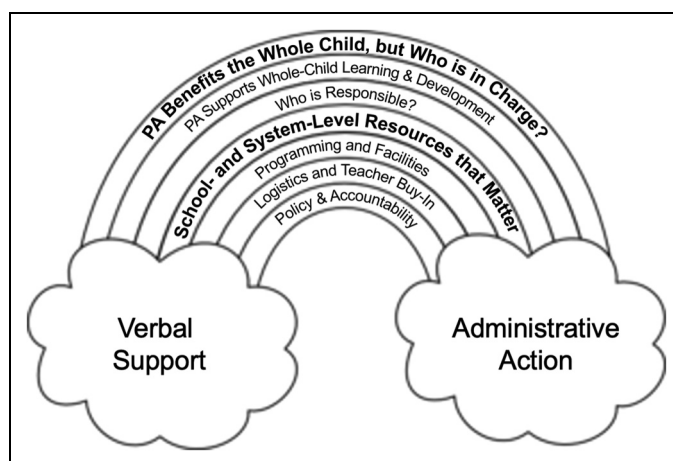


Figure 1. Themes and subthemes in middle school principals' beliefs about whole-of-school PA. PA: physical activity.

Thematic analysis was used to synthesize the data and develop themes (Braun et al., 2016; Braun and Clarke, 2006; Naeem et al., 2023). Following multiple reads to gain familiarity with the data, participants' responses were initially analyzed under the four main areas of focus from the interview protocol (i.e. beliefs about PA and PA promotion, current school PA program characteristics, factors influencing school PA programming, personal involvement in PA promotion) and summarized into key ideas, concepts, or perspectives. Subcategories within each area of focus were added and continually revised as the analysis progressed. The categorized codes were then examined for commonalities and consistencies to develop broader, cross-cutting themes and subthemes in the data.

To help ensure trustworthiness, three of the authors conducted the analysis (Carter et al., 2014). The first, third, and fourth authors independently analyzed the first participant's (Juan's) transcript and then met for discussion and to reach agreement about how to categorize and summarize the responses. Subsequently, the first and third authors separately analyzed the remaining transcripts, meeting periodically to compare their analyses. The fourth author served as a peer debriefer to allow discussion of nuanced perspectives between the first and third authors during the analysis. This process ensured that the analysis was true to the interpretivist lens adopted in this study.

Findings

Analysis of the 19 principal interviews revealed a complex picture of how school leaders perceive, value, and operationalize PA within their educational contexts. The accounts reflected both deep personal beliefs in the benefits of PA and an ongoing struggle to reconcile those beliefs with the realities of policy, scheduling, and accountability demands. Three major themes were developed from the data: (a) *PA benefits the whole child, but who is in charge?*, (b) *school- and system-level resources that matter*, and (c) *the gap between verbal support and administrative action*. The data indicated principals believed PA is valuable for middle school children's holistic learning and development but held mixed views about who is responsible for PA promotion. Participants also believed certain resources are key to whole-of-school PA programming, but perceived obstacles to using many of these resources as levers for program implementation. Ultimately, principals'

convictions about the value of PA often operated within systems that deprioritized it, resulting in inconsistent implementation despite data suggesting strong philosophical support. The themes, as well as supporting subthemes, are described below and presented graphically in Figure 1.

PA benefits the whole child, but who is in charge?

The first theme consisted of two subthemes: (a) PA supports whole-child learning and development and (b) Who is responsible? While there was a consensus view that PA plays an important role in multiple facets of middle school children's personal and academic growth, principals' shared beliefs about PA leading to positive outcomes for students did not necessarily translate to participants feeling an onus of responsibility for children's PA promotion.

PA supports whole-child learning and development. Across nearly every interview, it was evident that principals viewed PA as fundamentally beneficial to students' physical health, mental well-being, and academic readiness. Principals spoke confidently and often personally about the role of movement in helping children manage energy, regulate emotion, and sustain focus during learning. Tyler remarked that "a more active student leads to a more active brain," emphasizing the link between physical engagement and cognitive alertness. Anthony stated that middle school children "need time to play" because "they're loaded with energy," and without outlets for that energy, "it becomes disruptive in classrooms."

The perceived benefits extended well beyond the physical domain. Principals routinely described PA as a pathway to emotional stability, improved mood, and social growth. As Sophia explained, movement "lets kids burn energy so they can focus when they sit," while Roberto emphasized that "students who are active tend to have better relationships and can work through frustration." Many participants framed PA as a necessary mechanism for maintaining behavioral equilibrium and a classroom climate that is supportive of learning. It was common for principals to assert that PA "clears the mind and the spirit" (Juan), producing calmer classrooms and fewer disciplinary incidents.

Several principals explicitly connected these perceived benefits to broader academic outcomes, suggesting that PA complements rather than competes with learning. Michelle noted that the most physically active students "seem to be more confident, more willing to participate," adding that "they carry that sense of accomplishment back into the classroom." Yet many also lamented that school systems do not recognize this reciprocal relationship. As Daniel summarized, "Our biggest thing right now is academics and standardized testing ... but we know that kids who move perform better. The irony is we push it aside for the very thing it actually supports." In this way, principals' descriptions of benefits reflected both personal conviction and professional frustration. They understood and often articulated that PA serves as an engine for learning, behavior, and wellness, but indicated that the institutional structures in which they worked rarely reflected that understanding.

Who is responsible? While agreement on the benefits of PA was near universal, principals were far less unified about who bears responsibility for ensuring students are active. Some described responsibility as collective and shared among families, schools, and communities. "It takes everybody," said Kevin, "parents, teachers, principals ... anyone who works with kids has to support and endorse physical activity." This view positioned schools as one part of a broader social ecosystem influencing youth health. Others, however, leaned toward more individual or family-based responsibility. "The onus is on families," asserted Tyler. "Schools can provide access, but parents have to model what an active life looks like." These principals tended to self-characterize as physically

active (see Table 1) and frequently referenced the growing sedentary nature of home life, citing screen time, parental work schedules, and community safety as limiting factors. Several participants lamented that “kids just don’t go outside anymore,” explaining that patterns of inactivity begin long before children reach middle school (Tyler). A smaller number acknowledged their own uncertainty about where PA fits within their administrative role. Juan reflected, “It probably should be higher on my list, but between academic and social priorities, we don’t always talk about the physical.” This sentiment captured a broader ambivalence observed throughout the dataset in that principals recognized that PA mattered but were unsure whether it was, or should be, their direct responsibility to promote it.

Overall, principals consistently described PA as an essential element of healthy development that benefits students physically, emotionally, and academically. Yet the sense of ownership for promoting PA varied widely. While many viewed it as a shared societal duty, others delegated it to families or to PE teachers specifically. Even among advocates, PA remained conceptually important but practically peripheral within the hierarchy of school priorities.

School- and system-level resources that matter

The second theme consisted of three subthemes: (a) Programming and facilities, (b) Logistics and teacher buy-in, and (c) Policy and accountability. Although principals’ individual beliefs were generally positive, their reported capacity to enact those beliefs was largely shaped by available resources and system-wide realities.

Programming and facilities. Principals working at schools with robust PE programs or strong community partnerships described these as anchors for student activity. “Our PE teacher is phenomenal,” explained Fatima. “It’s not just playtime; there’s a full curriculum, and kids actually learn skills they can use.” Others praised school-based programs that allowed flexibility, such as movement breaks, intramural sports, or access to community facilities. Yet, disparities in resources were striking. Some principals described gyms “over 50 years old” that limited class sizes and curricular diversity (Juan), while others noted that their students lacked even basic access to outdoor space. “Our kids don’t have fields or green space,” said Victor. “They live in apartments, and they don’t have lawns or safe places to play.” Urban schools in particular were constrained by facility limitations, safety concerns, and transportation barriers that inhibited partnerships with external recreation programs. Access to qualified staff also shaped opportunities. Schools fortunate to have multiple certified PE teachers were able to sustain diverse programming, whereas others relied on substitutes or non-specialist teachers to fill those roles. “We’ve had five different long-term subs in two years,” shared Daniel. “There’s no continuity ... it’s just whoever we can find.”

Logistics and teacher buy-in. Nearly every principal identified time as the most significant barrier to expanding PA opportunities at their school. Academic scheduling pressures, standardized testing requirements, and limited minutes in the instructional day frequently displaced PE and recess. “It’s all about the master schedule,” noted Sophia. “Every minute is spoken for, and PE is where we can pull from.” Some administrators expressed a sense of defeat, recognizing that state mandates and accountability systems implicitly devalue PE. Daniel remarked, “They [state department of education] are not checking our 40-yard dash times. They’re checking our test scores,” capturing the systemic imbalance between educational rhetoric and accountability practice.

Scheduling barriers were compounded by supervision and staffing concerns. Schools with only one PE teacher struggled to manage large class sizes or offer additional programs. Several

principals explained that providing daily PE for all students was logistically impossible without sacrificing other core offerings, noting that rigid schedules and academic mandates often forced zero-sum decisions in which additional PE time would come at the expense of instructional time in other subjects. As Tanisha explained, “We could do it, but it would create electives that people would lose. We’d have to make up space and schedules to make it work and with the size of our school, that’s just not realistic.” This constraint was echoed by Anthony, who noted more broadly that “there are only so many minutes in a day, and every mandate pushes something else out,” adding that under such conditions, “Art, Music, and PE are always the first things to get cut.” In smaller schools, resource allocation decisions often pitted art, PE, and other elective subjects against each other for limited time and staffing.

A related challenge, though discussed less frequently than scheduling and staffing, involved teacher buy-in and staff engagement, particularly when PA promotion depended on classroom teachers incorporating movement opportunities in the classroom. In these cases, principals suggested that even when the value of movement was recognized, implementation was not always easy to secure across the broader faculty. Josh explained that the barrier was “trying to get buy-in from all the teachers,” noting that some teachers may not feel comfortable leading movement because “if you’re not comfortable or you don’t exercise much, you might not feel comfortable or think it’s important.” Kevin echoed this concern, stating plainly, “It’s the buy-in. You want to get the buy-in from first the students and then the staff.” Similarly, it was acknowledged by one principal that although some teachers were supportive of movement opportunities, “not all my teachers are on board for it either,” particularly when classroom time felt constrained by other demands (Roberto). Collectively, these responses suggest that beyond structural barriers, the successful expansion of school-based PA may also depend on staff willingness, comfort, and perceived capacity to support it.

Policy and accountability. Principals frequently referenced the influence of policy, or the lack thereof, in shaping their school’s approach to PA. “Nothing gets done unless it’s mandated,” said Michelle, noting that voluntary guidelines rarely produce change. Others similarly argued that state or federal policy would need to explicitly require PE in order to ensure equitable access across schools. “If it’s not mandated, it’s too easy not to do it,” Sophia explained, emphasizing that without a requirement, “PE is always what gets pushed aside.” However, principals were equally cautious about unfunded mandates. As Anthony explained, “It’s easy for policymakers to say ‘add recess,’ but they’re not looking at schedules, supervision, or facilities. You can’t just legislate more minutes without resources.” Several principals emphasized that meaningful change depends not merely on mandates but on how accountability systems define success. “If test scores are the measure, then that’s what we’ll chase,” said Daniel. “If PA mattered to the state, we’d find a way to make it happen.” This sentiment illustrated a recurring dynamic across the dataset: school leaders recognize the importance of PA, but without policy alignment and structural support, implementation remains inconsistent.

Based on the analysis, it is evident that the structural context in which principals operate can be both enabling and constraining. When sufficient resources, space, and personnel existed for principals in this study, participants reported that PA thrived as part of school culture. More often, however, academic scheduling, staffing shortages, and policy neglect left PA marginalized. Principals’ willingness to prioritize movement was clear, but their capacity to act was largely dictated by systemic conditions beyond their control.

The gap between verbal support and administrative action

Despite nearly unanimous verbal support for PA, a striking incongruence emerged between principals' expressed beliefs and their administrative behaviors, a phenomenon which seemed to be inextricably connected with the systemic barriers and role ambiguity highlighted in the first two themes. Many participants openly acknowledged that while they valued PA in principle, they rarely elevated it in practice. "If I'm being honest," admitted Sophia, "it's a low priority with everything else we have going on." Albin echoed this sentiment: "It's not high on my list right now. I know the value of it, but my focus has to be on safety and academics." This dissonance was often explained as a function of competing institutional demands rather than a lack of conviction. "I believe in it," said Josh, "but if we're talking about what I'm held accountable for – test scores, attendance, discipline – PE isn't on that list." Some principals described this as a persistent tension between personal values and professional metrics. Even those with PE backgrounds felt constrained. "I know firsthand what it does for kids," reflected Michelle, "but unless the system holds us accountable for it, it's hard to keep it front and center."

The incongruence was also evident in how principals viewed their own activity levels. "I used to be very active," said Anthony, "but now, with all the mandates, meetings, and demands, I'm lucky if I can get a walk in after school." Such statements underscored the parallel between principals' personal and professional experiences, with both being shaped by the same systemic pressures that deprioritize PA. Nevertheless, principals were not entirely passive in this process. Some described grassroots or symbolic efforts such as encouraging teachers to take students outside, supporting staff wellness calendars, or approving short recess periods when time allowed. "It's not systematic," admitted Daniel, "but there are pockets of people doing the right thing." These localized efforts indicated a genuine belief in the value of movement but also revealed the absence of institutional mechanisms to sustain it.

Principals' philosophical support for PA appeared genuine but was inconsistently enacted. The gap between what they believed and what they were able to implement reflected a broader systemic dissonance in U.S. schooling such that PA is understood as valuable yet rarely treated as essential. Without policy reinforcement, structural capacity, or dedicated accountability measures, principals' advocacy remains largely rhetorical.

Discussion

The support of school leaders is essential to program implementation and student achievement (Durlak and DuPre, 2008; Özdemir et al., 2022), but there is a dearth of research that investigates school administrators' beliefs about whole-of-school PA, especially within secondary school settings (Webster, 2022). The purpose of this study was to examine middle school principals' beliefs about whole-of-school PA, including their beliefs about PA and PA promotion, the factors that enable or hinder PA promotion in middle schools, and their personal involvement in whole-of-school PA. The findings illustrate how the data overlap and intertwine in relation to these areas of focus, revealing a complex web of beliefs, actions, and broader systemic factors, and echoing previous research in which U.S. principals' CSPAP involvement was associated with perceived social-ecological factors within intrapersonal, interpersonal, and environmental levels of the school system (Orendorff et al., 2021).

The narratives offered by the principals in this study depict a profile of school leadership that intrinsically endorses PA for middle school students yet struggles with its implementation. Participants recognized the multifaceted benefits of PA for students' health, mood, behavior, and

academic readiness. This finding resonates with other U.S.-based research in which secondary PE teachers (Stoepker and Dauenhauer, 2020) and classroom teachers (Finn and McInnis, 2014) also asserted that PA is valuable for adolescents. From a Diffusion of Innovations Theory perspective (Rogers, 2003), the adoption rate for an innovation (e.g. whole-of-school PA) should be faster if potential adopters (e.g. principals) perceive that the innovation has advantages (e.g. positive outcomes for children). Furthermore, the Health Belief Model posits that individuals are more likely to enact health-related behaviors (e.g. health promotion) if they believe that doing so will have benefits (Alyafei and Easton-Carr, 2024).

Despite sharing positive beliefs about the benefits of PA for middle school children, the principals in this study lacked a consensus understanding of who is responsible for implementing whole-of-school PA. While recommendations call for the collective involvement of all school staff, families, and community partners (Centers for Disease Control and Prevention, 2019; IOM, 2013; Milton et al., 2021), principals in this study often identified a single group of stakeholders (e.g. PE teachers, parents, or others in the community) as solely or mostly responsible for PA programming. Helping principals understand that PA promotion should be a shared responsibility across the school system is critical. In the United States, for instance, secondary PE teachers often coach interscholastic sports teams after school and this can lead to a teacher–coach role conflict that prioritizes coaching duties over teaching assignments (Kwon et al., 2010; Richards et al., 2013). This can diminish the quality of PE and usurp PE teachers' time and energy that might be used for championing and leading whole-of-school PA initiatives. There are also policy limitations, loopholes, and implementation practices in many states that leave many secondary students lacking high-quality, or even any, PE (Dauenhauer et al., 2019; Kern et al., 2025a, 2025b; Michael et al., 2019). Previous studies show that PE teachers deem school administrator support as essential to the success of whole-of-school PA (Deslatte and Carson, 2014; Doolittle and Rukavina, 2014; Egan et al., 2019; Kulinna et al., 2012; Lee and Welk, 2021). While continually working to capitalize on PE teachers and programs as a central component of whole-of-school initiatives (e.g. Carson et al., 2014; Stoepker et al., 2020), expanded efforts must also be made to garner implementation support from principals and other key stakeholders in the school system (e.g. classroom teachers, parents, community partners).

One notable omission in principals' responses was a clear perspective about the role of school leaders in promoting youth PA. Although previous research has established numerous ways in which school leaders can be involved in whole-of-school PA (e.g. helping with program planning, facilitating strong relationships among members of the school system, providing professional development for such programming, and ensuring PE is firmly integrated within school priorities; Orendorff et al., 2021; Webster et al., 2020a), participants in this study largely neglected to identify themselves as key levers in implementation efforts. This may help to explain the incongruity in this study between participants' positive beliefs about PA and limited actions to support PA promotion. From a social-ecological perspective, principals' beliefs about CSPAP outcomes for students have been shown to have the strongest and most direct influence on their self-reported CSPAP involvement (Orendorff et al., 2021), but previous studies have not closely examined principals' beliefs about their role and responsibilities regarding youth PA promotion or how these beliefs relate to personal involvement in whole-of-school PA. Similar to the present study, Eklund et al. (2025) found that while elementary classroom teachers had favorable attitudes about school-based PA for children, they were ambivalent about their role in providing PA to students as part of the school day. Eklund et al. further found that classroom teachers who promoted more PA with students had more favorable attitudes overall compared to teachers who promoted PA less. It could be that attitude is an important construct that mediates school professionals' role clarity concerning PA

promotion. Additionally, in research with a wide range of organizational managers, associations were found between participants' control beliefs (e.g. perceived behavioral control, self-efficacy) and role clarity (Kaupila, 2014). School leaders' role clarity and acceptance in whole-of-school PA should be a focus of future inquiry and may need increased attention in administrator preparation programs and continuing professional development.

Beyond their beliefs about the benefits of PA for children and who is responsible for promoting children's PA, principals in this study perceived environmental factors as relevant to their ability to support whole-of-school PA programming. Specifically, they identified structural, temporal, and political aspects of their school system that either enabled or limited consistent implementation of PA opportunities. When assets such as strong PE staff, community partnerships, supportive scheduling, and teacher buy-in existed, principals described tangible benefits and improved student engagement. More commonly, however, they reported working within systems that reduced PA to a peripheral concern, a "nice to have" rather than a non-negotiable component of schooling. Principals in previous studies have also identified resources and accountability (e.g. equipment, full-time PE teachers, professional development training, district-level involvement) as critical elements of whole-of-school PA initiatives (Abel-Berei et al., 2021; Goh et al., 2016; Jones et al., 2014). Taken together, these previous studies and the present investigation reinforce the relevance of the multiple layers of influence within a social-ecological perspective of whole-of-school PA efforts (Orendorff et al., 2021; Sallis et al., 2008), as well as the COM-B Model, which highlights capability as a key driver of behavior change (Michie et al., 2011). Whole-of-school PA research directed toward identifying effective strategies for garnering support from higher levels of the school system (e.g. community stakeholders, district offices, state legislators) and increasing principals' capability as change agents must be a priority for future investigations.

Strengths and limitations

This is one of the first studies to document middle school principals' beliefs about whole-of-school PA. The in-depth, qualitative approach via interviews helped to uncover the complex interplay of social-ecological factors that may be influential in whole-of-school PA programming within middle school settings. Given the scant empirical literature on principals' perspectives of whole-of-school PA, we approached our study as an opportunity to explore a wide range of potential variables that middle school principals identify as important to program implementation. Although further research is needed, the study's findings hold practical value for educational leadership programs, continuing professional development for school principals, and whole-of-school PA interventions.

While this study provides key insights, future investigations should consider additional theoretical perspectives that may further advance the knowledge base. For example, established theories such as the Theory of Planned Behavior (Ajzen, 1991), which considers the role of attitude, perceived behavioral control, subjective norm, and intentionality in predicting behavior, and Social Cognitive Theory (Bandura, 1997), which includes key motivational constructs such as self-efficacy and collective efficacy, could be useful in strengthening proposed links between principals' beliefs and actions related to whole-of-school PA. Additionally, the use of a small convenience sample in this study precludes generalizability, although the findings may be transferable to similar school contexts (Lincoln and Guba, 1985). It should also be noted that while steps were taken to reduce social desirability bias, participants may still have skewed their responses to align with the researchers' beliefs in favor of youth PA and school-based PA promotion. Another possibility is that principals with whom the authors already had a pre-established relationship may have been more inclined to provide favorable views of whole-of-school PA, given previous or ongoing

collaborations with the researchers. Finally, though the qualitative data in this study offer insights into factors that may be influential and inter-related in whole-of-school PA within middle schools, additional approaches, such as quantitative research examining associations between these factors, as well as combining interviews with other data sources (e.g. observations, policy documents), are recommended for future investigation.

Conclusion

This study addresses critical gaps in the knowledge base related to whole-of-school PA by focusing on middle school contexts and drawing upon principals' beliefs to better understand program implementation opportunities. The findings reflect a paradox familiar in education policy: strong consensus on the value of PA, paired with weak accountability and inconsistent enactment. Yet school leaders' role clarity related to youth PA promotion also emerged as an important construct warranting further investigation. Overall, principals' voices make visible the enduring chasm between understanding and implementation, this divide being sustained not by a lack of conviction, but by the very structures designed to define educational success. If youth PA is ever to find footing within schools, administrator preparation and continuing professional development may need to more firmly embed whole-of-school evidence and best practice recommendations for school leadership, and future research must more diligently pursue answers from leaders at higher tiers of the education system. Until then, trying to make PA a priority within the existing structures of the secondary school system may be like chasing rainbows.

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Ethical considerations

The first author's university Institutional Review Board approved the study (TAMU-CC-IRB-2023-0890).

Consent to participate

Written informed consent was obtained from all participants prior to data collection.

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Data availability statement

The datasets generated and/or analyzed during the current study are not publicly available due to requirements to protect participant confidentiality but are available from the corresponding author on request.

Supplemental material

Supplemental material for this article is available online.

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