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The Playground Paradox: An Examination of Belonging and Victimization at Recess During the Playworks Relay Program

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Abstract

Positive interactions during recess enhance well-being, whereas social isolation can foster loneliness and victimization. We examined changes in 1,022 third- through fifth-grade students' belonging and victimization at recess in schools receiving Playworks coach support over one year. Latent growth curve modeling showed significant linear growth in belonging (b=.097, p=.003) and a quadratic trajectory for victimization (b=.029, p=.013). Subgroup analyses revealed a negative intercept–slope correlation, with greater gains among students starting lower. In focus groups, students described recess as a space for connection and a setting where conflict sometimes arises. They reported Playworks fostered a positive recess climate. Findings highlight importance of inclusive play environments to increase belonging and reduce victimization

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Schools play a vital role in human development by providing a structured and organized learning environment where children acquire knowledge, develop cognitive skills, and enhance academic performance (Eccles & Roeser, 2015). However, the significance of schooling in child development extends beyond academics, given the substantial time spent in school and the unique relationships formed there (Goldberg et al., 2019). For elementary school aged children, schools are especially crucial for learning and improving social, emotional, and psychological skills as they navigate key developmental milestones such as emotion regulation (Thümmler et al., 2022) and gain a deeper understanding of rules, values, relationships, and responsibilities (Birhan et al., 2021). Critically, much of this learning occurs on the school playground. Beyond a break from the classroom, recess is a crucial period within the school day where children typically have the opportunity to engage in unstructured play, fostering not only physical activity but also various facets of their holistic development (London, 2019). Research findings have demonstrated the positive impact of recess on the overall well-being and academic success of children with a specific emphasis on increased physical activity levels (Erwin et al., 2014), better classroom (Barros et al., 2009) and school (Massey et al., 2017) behavior, improved task performance (Stapp & Karr, 2018), and prosocial behaviors like problem solving, sharing, and conflict resolution (Fortson et al., 2013; Massey et al., 2021).

Recess plays a pivotal role in shaping children's social development and enhancing peer relationships by offering an unstructured environment where complex social dynamics can be navigated beyond the formal classroom setting. Baumeister and Leary (1995) emphasized that building and maintaining social connections is a fundamental human need that is essential to cultivating a sense of belonging and is associated with positive emotions and life satisfaction. Further, research consistently demonstrates that strong social bonds and a sense of inclusion are positively associated with mental and physical health across the life span (Lieberman, 2013). As it relates to the school environment, a strong sense of belonging plays a crucial role in students' emotional and academic outcomes (Phan, 2013), and the playground is an opportune place to foster belonging, as children have opportunities to build meaningful relationships with their peers, engage in group activities, and experience social acceptance (McNamara et al., 2018). Children who feel a strong sense of belonging in their school community are more likely to have positive attitudes toward learning, demonstrate higher levels of motivation, and exhibit better classroom behavior (Durlak et al., 2011) and school adjustment, including improved grades and academic competence (Pittman & Richmond, 2007). Moreover, children with a strong sense of belonging exhibit lower levels of stress and anxiety, experience fewer instances of loneliness and are more likely to develop a positive self-concept (Allen et al., 2018). A strong sense of belonging also promotes prosocial behaviors, such as sharing and cooperation (Demanet & Van Houtte, 2012). For children, experiencing a sense of belonging during recess may serve as a protective factor against feelings of isolation, anxiety, and other psychological challenges, which are particularly prevalent in the school context (Laursen et al., 2007; Matthews et al., 2015).

Conversely, the absence of social connections during recess can leave children feeling bored, lonely, and vulnerable to negative experiences such as bullying and exclusion (McNamara et al., 2018). Victimization, as defined by Olweus (1993), involves repeated and intentional verbal, physical, or social behaviors that aim to cause harm, discomfort, or

exclusion to another person. The prevalence of victimization during recess is particularly concerning given that one-third of students worldwide experience bullying, and research indicates school bullying is highest during unstructured times (Attawell, 2019; Vaillancourt et al., 2010). Children who experience victimization often have higher levels of depression and anxiety than their non victimized peers (Hawker & Boulton, 2000). Moreover, children who experience victimization often exhibit poor social adjustment, low self-esteem, reduced enjoyment of school, inadequate social skills, high rates of peer rejection, and both internalizing and externalizing behavioral challenges (Smith et al., 2004). However, researchers have demonstrated that positive peer relationships can buffer against victimization. Friends can act as protectors, discouraging bullies from targeting vulnerable individuals and negate negative outcomes associated with experiencing victimization such as by providing emotional support and coping resources (Kochel et al., 2017). On the other hand, children without friends and those experiencing victimization are at increased risk of social anxiety and fear, compromising their overall well-being and hindering their ability to engage positively during recess (Boulton et al., 2009).

Individual characteristics such as gender, age, relative standing in social hierarchies, and racial/ethnic identity can also impact children's experiences and peer relationships at recess (Doll et al., 2003). For example, studies show that the negative effects of victimization on school liking are most prevalent among older boys compared to younger students and girls (Lodewyk et al., 2020; Ridgers et al., 2012). Moreover, boys are more likely to engage in direct forms of bullying, such as physical aggression, while indirect bullying, including verbal and social tactics, occurs at similar rates among both genders (Boulton et al., 2009). Research on school belonging, in general, suggests that racial and ethnic group representation plays a crucial role in shaping students' experiences of inclusion. Graham et al. (2022) highlighted that students who perceive a strong presence of their racial or ethnic group within the school environment report higher belonging, whereas those in the numerical minority, particularly in academic settings, may experience lower belonging and greater social marginalization.

While individual characteristics affect belonging, researchers have shown that certain conditions during recess can also enhance this feeling, thereby supporting connection to school and its associated benefits. The framework outlined by Allen et al. (2021) highlights that belongingness is a dynamic and evolving feeling that arises from and is supported within the systems individuals inhabit and is shaped by four key components: competencies, opportunities, motivations, and perceptions. In the recess context, McNamara et al. (2015) specifically emphasized the need for further examination of four key areas: recess culture, adult guidance as opposed to passive supervision, opportunities for play and socializing, and the thoughtful design of play spaces. Together, these factors may shape the quality of children's experiences on the playground. For instance, a positive recess culture fosters inclusive norms that are likely to impact both opportunities and motivations on the playground. Further, engaged adults have been shown to increase engagement in play for children (Massey, Stellino, & Fraser, 2018), thereby providing opportunities for competence and changing children's perceptions of the playground via modeling and interaction (McNamara et al., 2015; Ramstetter et al., 2010). Inclusive and intentionally designed play spaces can also reduce conflict (Arnold et al., 2024; Massey et al., 2017), increase engagement (Massey et al., 2018), and signal to children that they are welcome and valued (McNamara et al., 2014).

Previous research on recess interventions have primarily focused on children's engagement in play and physical activity (Bundy et al., 2017), along with the effects of physical activity on health, cognitive performance, and behavior (Mayfield et al., 2017). Yet, to date, scant research has examined how belongingness and victimization at recess change over time and what factors affect perceptions of recess across a school year. To better understand these phenomena at recess, we partnered with Playworks (www.playworks.org) to conduct a large scale evaluation of a new service model following the return to in-person school after COVID-19 lockdowns. Playworks is a U.S.-based organization that aims to enhance the quality of recess at elementary schools across the country. Previous research has documented that Playworks creates inclusive recess environments that encourage active participation, positive peer interactions, and social-emotional learning (Bleeker et al., 2012; London, 2019; Massey et al., 2017). Through an emphasis on organized play, trained adult facilitation, and student leadership opportunities, previous research has also shown that Playworks increases social engagement on the playground (London et al., 2015; Massey et al., 2018). The purpose of this evaluation study was to understand students' perceived sense of belonging and victimization experiences during recess specifically in the context of recess environments shaped by key conditions promoted by Playworks, such as positive recess culture, active adult engagement, inclusive play spaces, and opportunities for social connection. Our primary aims were (1) to investigate the trajectories of change in students' perceived sense of belonging and experiences of victimization over the school year while participating in a new Playworks service model and (2) to determine whether these trajectories varied among student subgroups, including gender, race/ethnicity, and grade level. As a part of our evaluation, we also had a secondary aim to better understand children's experiences with Playworks and qualitatively assess changes at recess across the year, as voiced by participants themselves.

METHOD

This study was part of a year-long evaluation project in which we partnered with nine schools that were contracted to receive services from Playworks during the 2022–2023 academic year. Schools were recruited from a large metro-urban school district that had partnered with Playworks at the district level allowing any school to receive part-time support from a Playworks coach in a new service model called "Recess Relay." The Recess Relay model was designed so that a Playworks coach was on site at each school for 10 days a month to facilitate recess (typically 2–3 days per week). On the remaining days, recess was facilitated by school staff to continue the Playworks approach. This differs from the traditional Playworks model where a coach is full-time at a school across a year running multiple programs (recess, class game time, junior coach program) during the day. Recess facilitation mainly focused on providing and teaching organized games in which children could opt in (i.e., they were still autonomous to select their own activities), providing relational connection on the playground, and facilitating conflict resolution strategies to maintain a positive recess environment (e.g., rock-paper-scissors to resolve game disputes). As is common in collaborative research approaches, schools were selected with our community partner Playworks, and with agreement

from school and district leaders, to ensure the sample was representative of the district at large, and that stakeholder engagement with the research would be high (Eaton et al., 2022).

The study was designed using a mixed methods approach in which we conducted both an outcome evaluation and a process evaluation. The outcome evaluation utilized quantitative data collection and analysis and addressed the two primary aims of the study. The process evaluation utilized qualitative data and analysis and addressed children's perceptions of the recess climate across the year, as well as their experience with Playworks. Due to the absence of a control condition, the process evaluation allowed us to better understand the depth and breadth of students' experiences at recess, as well as assess whether Playworks services were reflective of conditions that promote belonging.

Outcome Evaluation

Participants

Students ($N = 1{,}022$) across nine schools in a large urban area in the Mountain West region of the United States participated in the present study. Participants were fifth ($N = 457$), fourth ($N = 516$), and third grade ($N = 40$) students. Forty-eight percent of the students identified as boys, 41% as girls, and 10% as gender non-conforming. Self-reports indicated 21% of the students identified as Hispanic, 22% of the students identified as Black, 19% of the students identified as White, and 37% of the students identified as having other racial backgrounds or being multi-racial. The survey was administered in both English and Spanish.

According to publically available district data, the population of the nine schools included 56.1% Hispanic students, 17.1% Black students, 14.3% White students, 5.9% of students representing two or more races, and 4.8% Asian students. Forty-two percent of students spoke English as a second language; of those, 77.8% were native Spanish speakers. On average, these schools had 71.3% of students eligible for free or reduced-price meals, with a range from 38.2% to 89.7%.

Procedure

Data collection took place during the 2022–2023 academic year. All procedures and materials were approved by the Institutional Review Boards of the authors' institutions, the school district, and principals at individual schools prior to data collection. At each school, parents were provided an informed consent form that was translated into nine languages (Spanish, French, Somali, Arabic, French, Vietnamese, Swahili, Dari, and Burmese) and sent home to all third through fifth-grade students. In addition to parental consent, verbal assent was also obtained from students before any study procedures. All students with signed parental consent and verbal assent were eligible to participate in survey data collection. The survey was conducted four times throughout the academic year, with all participants completing assessments during the same time periods that were spaced approximately two-and-a-half months apart: late September, early December, late February, and early May. Data collection procedures were conducted after the start of the academic year and following the initiation of the Playworks program. Members of the research team administered the survey to eligible students

in their classrooms using either paper-pencil or electronic (via iPad) formats. Each student received a unique identifier to facilitate tracking of their data across the different time points.

Instruments

Demographic Information. Students provided information on their school, classroom teacher, grade level, gender, racial identity, as well as their most and least favorite parts of the school day during each of the four time points of data collection.

Belongingness. We used five items to measure perceived belongingness at recess. Four items were from the Belongingness in Recess Scale (McNamara et al., 2018) peer connection subscale. A sample item was, "I feel that I have friends that I can turn to in times of need at recess." The fifth item assessed feelings of acceptance ("I can be myself at recess") with a question modified from the Need to Belong Scale (Leary et al., 2013). Wording was slightly modified for participants' comprehension level. Responses were rated along a five-point Likert scale ranging from 1 = never to 5 = all the time. Reliability of the belongingness scale was acceptable across waves ($\omega = .74$ to .85).

Victimization. To assess students' perceived victimization at recess, we used three items to measure the frequency of physical, verbal, and social forms of victimization experienced at recess. These items were adapted from a comprehensive six-item measure of school victimization by Volk and Lagzdins (2009), as modified for recess contexts by McNamara et al. (2018). A sample item was, "During recess, I have been teased (made fun of) because of what I believe, look like, or say." Participants responded using a five-point Likert scale, ranging from 1 = never to 5 = all the time. The victimization scale demonstrated acceptable internal consistency across waves ($\omega = .70$ to .73)

Data Analysis

Prior to analysis, all data were screened for patterns of missingness. At Time 1, 2.3% of the data were missing, at Time 2, 24% of the data were missing, at Time 3, 22.1% of the data were missing and at Time 4, 30.8% of the data were missing. The result of Little's MCAR test was significant ($p < .05$) suggesting data were not missing completely at random. As a result, we first examined if selective attrition occurred as a function of baseline score. The odds ratio for study attrition was not significant for belonging scores (OR = .974; 95% CI, 0.827, 1.146) or victimization scores (OR = 1.060; 95% CI, 0.917, 1.1225). Next, we examined if selective attrition occurred as a function of demographic variables. Race/ethnicity was treated as a nominal variable, represented through dummy codes with Hispanic as the reference group. Logistic regression indicated significant group differences (OR = 1.130; 95% CI, 1.000, 1.1225). Post-hoc contrasts showed that participants identifying as Other race/ethnicity (OR = 0.782, 95% CI = .613, .999) and Black (OR = 0.580, 95% CI = .389, .863) had lower odds of missing data compared to those identifying as Hispanic.

Given the results of the missing data analyses, we analyzed the data with MPlus (version 8.9) using full information maximum likelihood to handle missing data. Prior to primary analyses, two-level unconditional (null) models were estimated to assess whether data were

clustered at the grade level for each school. Results indicated a low to moderate clustering effect for both belonging (ICC = .035-.087) and victimization (ICC = .022-.060) across all four time points.

We next proceeded with primary analyses utilizing latent growth curve modeling. For each model, we first tested quadratic change across the four observations. A latent growth curve was modeled for the total sample to examine change in perceptions of belonging and victimization at recess across the school year. Sub-group analyses were then conducted and modeled the trajectory of change for (a) gender (boy, girl, non-gender conforming); (b) grade (third, fourth, fifth); and (c) race/ethnicity (Hispanic, Black, White, All others). Within the full group and sub-group models, we calculated correlations between the intercept and linear slope to examine the association between initial scores and change trajectories. For sub-group analyses, initial models indicated estimation problems in the latent variance–covariance matrix when the variance of the quadratic slope was freely estimated, likely due to limited inter-individual variability in curvature in each model. As a result, the variance of the quadratic slope was fixed at zero, allowing estimation of mean-level differences in quadratic change across groups while avoiding convergence issues. For all multi-group models, we also report tests of difference between the corresponding slopes and y-intercepts in the model.

Decisions about model fit were guided by a multi-method approach using the chi square (χ^2) statistic, the root mean square error of approximation (RMSEA), the comparative fit index (CFI), the Tucker-Lewis index (TLI), and the standard root mean square residual (SRMR; Marsh et al., 2004). Cut-off values > .90 for the CFI and TLI have traditionally been considered indicative of adequate model fit, while values ≥ .95 are preferred for an acceptable model fit, and cutoff values < .08 have traditionally been considered indicative of adequate model fit for the SRMR and RMSEA, while values of ≤.06 for the RMSEA are preferred for an acceptable model fit (Hu & Bentler, 1999; Marsh et al., 2004).

Process Evaluation

Participants

A total of 90 students were randomly selected across the nine schools to participate in focus groups. Eighteen focus group interviews were conducted, each consisted of five students in separate groups of third ($N = 2$), fourth ($N = 8$) and fifth ($N = 8$) grade students. All groups were heterogeneous in terms of gender and race/ethnicity, but homogeneous in terms of grade. Focus groups were conducted in English as that was the common language utilized in the school, as well as the competency of the research team.

Procedure

Semi-structured focus group interviews were used to gather data. A set of six open-ended questions and follow-up questions were used throughout the sessions. Topics of interest included students' thoughts about recess and their school playground, their perceptions of the Playworks program, and critiques of the current recess structure. The focus groups were conducted one time, during the final data collection phase, in a distraction-free, semi-public

area within the school. Two researchers from the team facilitated each focus group. The interviews were audio-recorded and later transcribed by team members. For each participating school, one classroom was randomly selected from the included grades (18 focus group interviews total). From each classroom, five students were randomly chosen to participate in the focus groups, with an additional two students listed as substitutes in case any primary participants chose not to participate. Verbal assent was obtained from all participating students.

Focus Group Guide. The protocol used for the focus groups with third, fourth, and fifth graders was created in such a way that students could elaborate on recess experiences targeted via the survey. The focus group guide incorporated a map exercise where students saw a satellite image of their recess area and spoke about where they play, with whom, where bullying may occur, and where adults/recess monitors tend to be. Additional questions were asked, including "What is the first word you think of when you hear the word recess?" and "What do you think about Playworks?"

Data Analysis

Data analysis was independently conducted by the first and third authors, who are, respectively, a PhD student with coursework in qualitative methods and a PhD trained qualitative researcher. A hybrid (i.e., inductive, then deductive coding) thematic analysis for a mixed-methods design was conducted (DeJonckheere et al., 2024). First, we familiarized ourselves with the data by reading each focus group transcript multiple times from beginning to end, highlighting significant text related to our research questions, and documenting initial reflections through notes and memos (Jackson et al., 2019). Then, we systematically coded the data using words, sentences, and phrases as units of analysis independently. This process was iterative, as each subsequent reading of the transcripts revealed new insights, allowing for continuous refinement of the codes. Any disagreements in coding were discussed among the coders until consensus was reached. The themes were generated during the coding process. We reviewed the coded transcripts several times, grouped those that reflected the same topics, and identified quotes that illustrated participants' experiences. As we identified and reviewed themes to ensure they accurately represented the data, we examined them in the context of the original transcripts to verify their relevance. Next, we refined the themes by naming and defining them, ensuring they accurately captured the essence of the data, and writing short summaries for each theme. We also created a thematic map to visually represent the final themes. Finally, we mapped themes, where applicable, to the four key areas of recess belonging: (1) recess culture, (2) adult guidance as opposed to passive supervision, (3) opportunities for play and socializing, and (4) the thoughtful design of play spaces. Throughout our analysis, we received regular feedback from research team members, and we visualized and recorded our analysis process with memos (Jackson et al., 2019).

To ensure the trustworthiness of our thematic analysis, we implemented several strategies. To enhance credibility, we dedicated significant time to thoroughly familiarize ourselves with the data through detailed reading and systematic coding, regularly seeking feedback from team members (Lincoln & Guba, 1985). We also utilized resources from the research team members who conducted the focus group interviews, such as the focus group guide, transcriptions, and research aims to ensure contextual accuracy. To establish dependability and confirmability, we

maintained an audit trail that documented each step of the coding process to ensure transparency and consistency (Creswell & Poth, 2016). We also kept detailed memos reflecting on our decisions and potential biases. For transferability, we provided comprehensive descriptions of the themes we developed, enabling others to assess the applicability of our findings in different contexts (Elo et al., 2014). Lastly, to ensure authenticity, we represented diverse perspectives within the data by including participants from a wide range of demographic groups and included direct quotes to accurately capture participants' experiences.

RESULTS

Outcome Evaluation

Sense of Belonging

Table 1 presents the sample sizes, means, and standard deviations for sense of belonging at each time point across all primary and subgroup analyses. The model fit indices for each latent growth curve analysis are provided in Table 2. The overall belonging model showed significant linear growth trajectory ($b = .097$, $p = .003$). The correlation between linear and quadratic slopes was large and negative ($r = -.823$, $p = .001$), suggesting that individuals with steeper initial growth increases tended to plateau over time. The correlation between the intercept and slope for belonging was not significant ($r = -.291$, $p = .272$).

We then tested group differences relative to various demographic factors. In terms of gender, males showed a significant positive linear slope ($b = .15$, $p = .002$) and a slight deceleration in growth (i.e., quadratic slope of $b = -.034$, $p = .021$). In contrast, females and the gender non-conforming groups showed non-significant quadratic and linear slope estimates ($p > .05$). Group

TABLE 1
Descriptive Data for Sense of Belonging Across the School Year

	Time 1			*Time 2*			*Time 3*			*Time 4*		
	N	*Mean*	*SD*	*N*	*Mean*	*SD*	*N*	*Mean*	*SD*	*N*	*Mean*	*SD*
Overall	998	3.648	0.876	777	3.757	0.876	795	3.773	0.867	706	3.778	0.902
Grade												
Third	39	3.455	0.965	28	3.512	1.015	30	3.528	0.942	29	3.85	0.866
Fourth	503	3.571	0.903	394	3.74	0.896	408	3.705	0.857	369	3.672	0.921
Fifth	453	3.75	0.827	353	3.796	0.841	355	3.873	0.862	307	3.897	0.866
Gender												
Boy	462	3.72	0.871	362	3.854	0.846	376	3.91	0.825	332	3.851	0.937
Girl	404	3.684	0.825	318	3.732	0.883	314	3.74	0.855	287	3.785	0.83
Non-conforming	97	3.232	0.95	75	3.44	0.899	78	3.318	0.946	61	3.382	0.913
Race/Ethnicity												
Hispanic	196	3.647	0.808	139	3.715	0.813	154	3.755	0.847	119	3.811	0.837
Black	205	3.682	0.904	164	3.742	0.892	156	3.749	0.941	139	3.822	0.887
White	175	3.771	0.827	143	3.876	0.84	146	3.815	0.809	130	3.805	0.83
Other	341	3.605	0.875	263	3.742	0.893	268	3.793	0.85	249	3.755	0.949

TABLE 2
Model Fit Indices for Sense of Belonging

	X^2	p	*CFI*	*TLI*	*RMSEA*	*SRMR*
Overall	0.947	.331	1.000	1.000	.000	.007
Grade	13.003	.369	.999	.998	.016	.040
Gender	10.219	.597	1.000	1.000	.000	.050
Race/Ethnicity	12.353	.719	1.000	1.000	.000	.040

comparisons revealed no significant differences in quadratic and linear growth across groups ($p > .05$), however the gender non-conforming group had a significantly lower baseline score when compared to both boys and girls ($p < .001$). There was a negative and significant correlation between the intercept and slope for boys ($r = -.296$, $p = .006$), girls ($r = -.308$, $p = .014$), and gender non-conforming students ($r = -.422$, $p = .007$), suggesting the highest rates of linear growth for those with low belonging scores at baseline.

In terms of race/ethnicity, only the Other race/ethnicity group showed a significant positive linear slope ($b = .162$, $p = .003$) with a slight deceleration in growth over time (i.e., quadratic slope of $b = -.041$, $p = .022$). Group comparisons revealed no significant differences in linear growth across groups ($ps > .05$). However, the quadratic slope differed significantly between the Other race/ethnicity group and Black students ($b = -.066$, $p = .027$). Further, examination of baseline differences relvealed those in the Other race/ethnicity category had significantly lower baseline scores than those who identified as White ($b = -.172$, $p = .026$). There was a negative and significant correlation between the intercept and slope for those in the Other race/ethnicity category ($r = -.290$, $p = .044$), those who identified as Black ($r = -.307$, $p = .05$), and those who identified as White ($r = -.327$, $p = .014$), suggesting the highest rates of growth for those with low belonging scores at baseline. The correlation between slope and intercept was not significant ($r = -.031$, $p = .913$) for the Hispanic group.

Finally, in terms of grade level, only students in fourth grade demonstrated significant linear growth over time ($b = .17$, $p = .001$) along with a slight deceleration (i.e., quadratic slope of ($b = -.046$, $p = .003$). Group comparisons revealed a significant difference in linear slopes between the fourth and fifth graders ($b = .142$, $p = .028$) and in quadratic slopes ($b = -.052$, $p = .012$) indicating faster initial growth but greater deceleration over time in the fourth grade group. Examinations of baseline scores revealed higher scores for fifth grade students relative to fourth grade students ($b = -.173$, $p = .002$). There was a negative and significant correlation between the intercept and slope for third grade students ($r = -.703$, $p = .002$), fourth ($r = -.703$, $p = .002$), and fifth grade students ($r = -.318$, $p < .001$) suggesting the highest rates of growth for those with high belonging scores at the baseline.

Victimization

Table 3 presents the sample sizes, means, and standard deviations for victimization scores at each time point across all primary and subgroup analyses. The model fit indices for each latent

growth curve analysis are provided in Table 4. The overall victimization model showed evidence of a non-linear growth trajectory (i.e., quadratic $b = .029$, $p = .013$). The correlation between linear and quadratic slopes was large and negative ($r = -.899$, $p < 001$), suggesting that individuals with steeper declines tended to exhibit flattening of the curve over time. The correlation between the intercept and the linear slope was also significant ($r = -.443$, $p < .001$), suggesting that those who started with higher baseline victimization scores tended to decline more steeply.

We then tested group differences relative to various demographic factors. In terms of gender, boys showed a significant negative linear slope ($b = -.107$, $p = .038$), indicating a decrease in victimization over time. However, there was no significant quadratic trend $p > .05$, suggesting this decline was roughly linear. For girls, the linear slope was also negative and significant ($b = -.176$, $p = .002$), with a slight upward curvature over time ($b = .042$, $p = .023$). The gender non-conforming group exhibited a non-significant slope estimate ($p > .05$). Despite non significant differences in quadratic and linear slopes across groups ($p > .05$), baseline victimization levels were significantly higher for gender non-conforming students compared to both boys and girls ($p < .001$). A negative and significant correlation was found between intercept and slope

TABLE 3
Descriptive Data for Victimization Across the School Year

	Time 1			*Time 2*			*Time 3*			*Time 4*		
	N	*Mean*	*SD*	*N*	*Mean*	*SD*	*N*	*Mean*	*SD*	*N*	*Mean*	*SD*
Overall	984	2.007	0.986	773	1.829	0.929	791	1.816	0.904	703	1.795	0.883
Grade												
Third	38	2.189	1.051	27	2.037	1.105	29	2.046	1.081	28	2.137	1.174
Fourth	494	2.04	1.012	392	1.913	0.974	405	1.881	0.9	369	1.865	0.911
Fifth	449	1.951	0.944	352	1.715	0.836	355	1.724	0.885	305	1.682	0.798
Gender												
Boy	457	1.942	0.942	359	1.786	0.888	375	1.77	0.846	332	1.771	0.87
Girl	402	1.956	0.95	318	1.797	0.887	312	1.771	0.872	285	1.796	0.877
Non-conforming	96	2.422	1.192	75	2.129	1.152	78	2.201	1.192	60	1.894	0.959
Race/Ethnicity												
Hispanic	194	1.985	0.946	138	1.646	0.77	154	1.719	0.85	119	1.648	0.823
Black	201	2.067	1.053	163	1.888	0.973	156	1.912	0.996	139	1.77	0.88
White	175	1.931	0.873	142	1.785	0.822	145	1.769	0.848	130	1.792	0.889
Other	338	1.993	0.994	263	1.916	0.996	267	1.838	0.924	247	1.857	0.894

TABLE 4
Model Fit Indices for Victimization

	X^2	p	*CFI*	*TLI*	*RMSEA*	*SRMR*
Overall	2.357	.125	.997	.983	.037	.009
Grade	24.477	.017	.979	.968	.056	.038
Gender	17.105	.145	.989	.984	.036	.035
Race/Ethnicity	25.577	.060	.981	.971	.051	.041.

estimates for boys ($r = -.485$, $p < .001$) and gender non-conforming students ($r = -.527$, $p < .001$), but not for girls ($r = -.149$, $p = .551$), indicating that boys and gender non-conforming students with higher initial levels of victimization tended to show the largest declines over time.

In terms of race/ethnicity, students who identified as White showed a significant negative linear slope ($b = -.131$, $p = .034$). Similarly, Hispanic students exhibited a significant negative linear slope ($b = -.273$, $p = .002$), with a slight deceleration in growth over time (i.e., a quadratic slope of $b = .062$, $p = .036$). Students who identified as Black and other race/ethnicity category showed non-significant slope estimates (ps both $> .05$). Group comparisons revealed no significant differences in quadratic and linear slopes across groups ($p > .05$). There was a negative and significant correlation between the intercept and slope for those in the Other race/ethnicity category ($r = -.405$, $p = .001$), those who identified as Black ($r = -.441$, $p = .02$), and those who identified as White ($r = -.376$, $p = .001$), suggesting the highest rates of decline for those with high victimization scores at baseline. The correlation between slope and intercept was not significant ($r = -.369$, $p = .137$) for the Hispanic group.

Finally, in terms of grade level, students in fifth grade showed a significant negative slope ($b = -.197$, $p < .001$) indicating initial decrease, then acceleration in sense of victimization over time (i.e., quadratic slope of $b = .041$, $p = .005$). Fourth grade students showed significant linear decrease over time ($b = -.112$, $p = .047$). However, the third graders exhibited a non-significant slope estimate ($p > .05$). Group comparisons revealed no significant differences in changes and initial standing across groups. There was a negative and significant correlation between the intercept and slope for third- ($r = -.473$, $p = .003$), fourth- ($r = -.407$, $p = .001$) and fifth-grade students ($r = -.375$, $p = .001$) suggesting the highest rates of decline for those with high victimization scores at baseline.

Process Evaluation

Using the focus group data, we constructed a visual representation of themes by following the steps for creating a thematic network as outlined by Attride Stirling (2001) in Figure 1. The results were organized into two global themes. The first theme was recess experiences, which included two subthemes: "Break for Joy and Bonding" and "Time for Complex Dynamics." The second theme was perceptions of Playworks, which encompassed four subthemes: "More Enjoyable," "Adult Guidance," "Safety and Fairness," and "Variety of Games and Inclusion."

Recess Experiences

While the majority of students viewed recess as a beneficial time to play with friends and recharge, we also identified nuances that indicated recess was not always a welcoming and inclusive space.

Break for Joy and Bonding. When asked to describe their experiences during recess, students consistently described recess as an enjoyable and exciting time of day, often filled with activities that allowed them to temporarily disconnect from the structured demands of the classroom. For example, one student shared, *"Playing soccer is really fun, doing activities."* Another added, *"Having fun and playing together."*

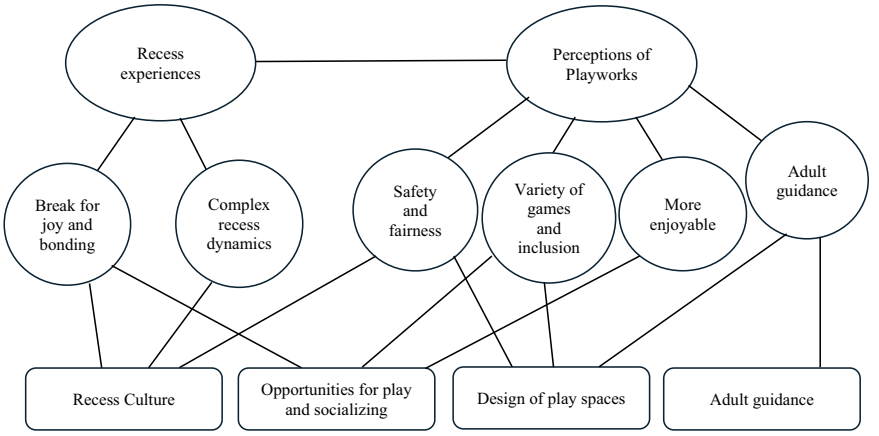

FIGURE 1 Thematic map.

Recess was also described as a vital opportunity to strengthen friendships and engage in meaningful social interactions. For many students, their relationships with peers were the foundation of their recess experiences. One student expressed, *"I usually play with my friends at recess"* while another said, *"Recess is having fun with your friends."* These interactions not only created a sense of community but also fulfilled fundamental human needs for connection.

Complex Recess Dynamics. While recess was described as a time for fun and connection, students also highlighted various challenges and conflicts that arise during this unstructured part of the school day. These dynamics included distinct gendered play patterns, conflicts during competitive games, and incidents of bullying and fights. The findings revealed that these issues often occurred in areas with less adult supervision, which further emphasized the complex nature of recess interactions.

During the focus groups, students were prompted to use a map of the school playground and describe where they typically played and in what activities they engaged. A clear gender divide was noticed among students from many schools, with boys gravitating toward sports such as soccer, football, and basketball, and girls preferring activities like tag or playing on the playground structure. For instance, one student observed, *"Boys play sports"* while another stated, *"Girls play on the playground mostly."* However, in some schools, students noted more mixed-gender play dynamics, where boys and girls participated in activities together. This variation underscores the role of school culture and environment in shaping social interactions during recess.

Students also reported that conflicts frequently arose during recess, particularly in competitive sports. Disagreements over game rules, winning and losing, and perceived fairness were common triggers for arguments. One student explained, *"If we play soccer and another team loses, they get mad at the team. They start saying that they're going to beat people."* Another added, *"Fights happen because someone lost the game and said they cheated, and it becomes*

one big argument." These conflicts highlight the emotional intensity and high stakes some students associate with competitive activities, which can escalate into verbal or physical altercations.

Bullying and teasing were also motifs in students' accounts. For example, one student shared, "What happens is bullying. I can tell you this." Additionally, in more racially diverse schools, physical altercations were sometimes linked to racial tensions. For example, one student stated, *"Fourth grade has a lot of physical fights. There was a lot of racist stuff."*These incidents reflect the broader social dynamics that often occur during recess, where unresolved tensions can lead to exclusionary or harmful behaviors.

Perceptions of Playworks

Students reported that Playworks helped address challenges on the playground and promoted a more positive environment.

More Enjoyable. One of the most frequently mentioned impacts of Playworks was its ability to make recess more enjoyable. Students emphasized how Playworks brought a sense of fun and excitement to their activities. For example, one student remarked, *"It is pretty fun. He [the Playworks Coach] took us out to play, and then it was so fun we got to play soccer."* Another added, *"When we don't have enough players to play football with, we go over and play with him [the Playworks Coach] because he actually makes it fun."*

Adult Guidance. The statements underscore how adult guidance at recess can contribute to the play culture. Moreover, students appreciated the variety and creativity that Playworks brought to recess. As one student shared, *"So when Playworks came, there were more activities and games."* Another added, *"Some of the kids at recess go play with Coach T, because she has fun games."* These data highlight the importance of thoughtful design of play spaces and the opportunities for games and activities available at recess.

Safety and Fairness. Playworks also contributed to increased safety and perceived fairness on the playground, with data again highlighting the connection between adult guidance, recess culture, and opportunities for play and socialization. Students noted that the presence of the coach helped reduce bullying and promoted fair play. One student observed, *"[Recess] changed a lot because, like, a lot of bullies went over there with him to play games."* Another highlighted how fairness was maintained, stating, *"If someone's not playing correctly, she [the Playworks Coach] calls it out and makes sure it's fair."*

Variety of Games and Inclusion. Further, while some students mentioned that participation in Playworks activities was skewed toward specific groups, particularly boys, others highlighted the program's ability to bring children together. For instance, one student noted, *"Like, [the Playworks coach] sets up games and stuff, especially sharks and minnows and to play together. That's like the only time the grades can be together."* Playworks was recognized for creating opportunities for broader participation and encouraging students to engage with peers across different groups.

DISCUSSION

The primary objective of this evaluation study was to examine students' perceived sense of belonging and victimization experiences during recess within the context of Playworks' Recess Relay service model. Additionally, we examined change trajectories in different demographic groups including gender, race/ethnicity, and grade level. Utilizing focus group interviews, we aimed to further explore children's recess experiences with Playworks. Our findings revealed some significant differences and change patterns in both belongingness and experiences of victimization.

Overall, students showed a significant linear growth in belonging. These changes in the sense of belonging may have multiple explanations, both within and beyond the presence of Playworks. For example, previous research has shown that recess intervention effects tend to plateau over time, whereas without intervention recess outcomes may actually worsen over time (Massey et al., 2017), which may explain the non-linear effects observed in the current study. Further, previous research has showed that children report relatively high levels of belonging at recess (Lodewyk et al., 2020), a trend that was also observed in the current study. However, for the proportion of children who do not report belonging at recess, providing organization and adult support on the playground may have led to changes in initial scores. For example, in the focus group interviews, students shared narratives about their Playworks experiences, emphasizing positive experiences related to the program's provision of games and equipment, a safe and inclusive environment, and organized recess activities, including support from the Playworks coach. Thus, the data showing that those low in belonging had an initial sharp increase that leveled off over time may be due to more structural changes made to the recess environment. Contrary to previous findings, in this study, we also found that boys' sense of belonging was higher than girls' at all four time points and also significantly increased over time. Previous research has shown that girls tend to report a higher sense of belonging than boys at recess, possibly due to their preference for social activities more than sports, where more conflict tends to appear (Lodewyk et al., 2020; Smith & St. Pierre, 2009). Focus group data suggested that boys were more likely to participate in physically active games such as soccer, basketball, and football, which provided structured and dynamic opportunities for social interaction under adult guidance. Thus, data in the current study suggest it is possible that, when certain conditions are met, play can serve as an effective means of fostering social connections, enhancing peer relationships, and sense of belonging.

Students' victimization experiences demonstrated a non-linear pattern of change, with pronounced early decreases that eventually leveled out. Importantly, students who reported higher victimization at the beginning of the year tended to show steeper declines, suggesting that those most at risk saw the greatest improvements. Although research on the relationship between sense of belonging and victimization experiences in the recess context is limited, there is some evidence to indicate that positive peer relationships can buffer victimization (Wormington et al., 2016). Thus, increases in belonging may have played a role with decreases in victimization. Previous research shows that victimization experiences differ between genders. While direct and physical bullying are more prevalent among boys, indirect forms like verbal and social bullying occur at similar rates among boys and girls (Boulton et al., 2009). Further examination of focus group data shows that students reported verbal and physical

conflicts frequently occurring on the playground, particularly in areas with minimal adult supervision and during competitive games. These findings align with previous research that highlighted the importance of supportive adult presence on the playground. Massey et al. (2020) found that a lack of active adult engagement with students increases conflicts and antisocial behaviors during recess. In contrast, positive adult engagement was found to help minimize bullying and exclusion in the schoolyard. Students in the present study perceived the presence of the Playworks coach, or more broadly, active adult guidance, as instrumental in reducing conflicts and decreasing experiences of victimization by actively engaging with students, facilitating problem solving, and creating a safe and inclusive play environment.

Taken together, results from this study reveal the dual, and complex nature of the recess context as both a space for connection and conflict. While research-informed recess interventions, such as Playworks, may positively influence perceptions of belongingness and reduce experiences of victimization for some students, a more nuanced approach may be needed to address persistent disparities across different demographic groups. Without research-driven interventions, recess may remain an overlooked aspect of the school day, despite its potentially profound impact on students' academic, physical, and psychological wellbeing.

Strengths and Limitations

One strength of this study is its longitudinal design, which allowed for the exploration of changes in students' perceived sense of belonging and victimization experiences at recess over multiple time points across one entire academic year. By tracking the same students across an academic year, the longitudinal approach provided a better understanding of how psychosocial aspects change in contrast to the momentary findings offered by cross-sectional studies. The longitudinal and mixed methods nature of the study enhanced the ability to identify patterns in students' sense of belonging and peer relationships, offering a richer context for interpreting findings. Another strength of the study was the diverse sample, which included students from varied racial/ethnic, gender, and grade levels. Furthermore, unlike previous studies that adopt a binary gender approach, our research considered gender-nonconforming students, offering a more inclusive perspective on recess belonging, victimization experiences and peer interactions. Notably, students who identified outside the gender binary reported the lowest initial sense of belonging and higher victimization experiences compared to other demographic groups. Although changes in belongingness and victimization for these students were not statistically significant, they were more pronounced than for any other subgroup. This lack of statistical significance is likely attributable to small sample sizes and high variability within this demographic. Future research should further explore the unique challenges faced by gender-nonconforming students, particularly in socially unstructured school environments such as recess, where peer interactions play a critical role in shaping belonging and victimization experiences.

Despite the strengths of this study, several limitations must be acknowledged. The diverse cultural and linguistic backgrounds of students may have influenced how they interpreted and responded to survey items and focus group questions, which may have led to different interpretations of the data collection measures used, and thus the possibility of a lack of measurement invariance. Another limitation relates to the phrasing of certain survey items,

specifically those referencing recess at the end of the sentence (e.g., "I feel that I have friends I can turn to in times of need at recess"). It is possible that some students began forming responses before fully processing the context, interpreting items more generally rather than specifically in relation to recess. Future studies should consider rewording such items to foreground the context. While efforts were made to ensure clarity and accessibility, differences in understanding and self-reporting remain a methodological consideration that could have affected the consistency of our results. It is also possible that newly enrolled students had not yet established social connections at the time of the initial survey, which may have influenced their early reports of belonging and victimization. Although our analysis did not indicate any selective drop out, student mobility within the school district contributed to significant attrition over the academic year, posing challenges to data continuity. Given the transient nature of some student populations, future research may benefit from strategies that account for mobility effects, such as targeted follow-up assessments or longitudinal tracking across multiple school years. It is also important to consider that some of the observed improvements may partially reflect regression to the mean. That is, students with extreme scores at baseline might have shown more moderate scores at follow-up due to natural variability rather than true change. However, the substantial improvements observed among students who reported low sense of belonging and high victimization at the beginning of the year may be reflecting the improvements in the playground and developmental shifts rather than statistical artifacts.

CONCLUSION

While extensive research highlights the general benefits of recess, empirical evidence of how these benefits affect specific groups of children remain more limited. The results of the present study indicate that the most notable gains were among those who initially struggled with low belonging or high victimization. The changes in children at greater risk highlight the importance of investigating how children navigate and resolve these challenges during recess. Additionally, the importance of further research into the recess experiences of gender-nonconforming students, who may face increased social exclusion, is highlighted by the results of this study. Understanding the challenges that all students encounter, and how their needs can help inform more inclusive and equitable recess practices, ensuring that all students benefit from the advantages recess can provide is paramount.

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No potential conflict of interest was reported by the author(s).

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DATA AVAILABILITY STATEMENT

Due to the nature of the study and ethical restrictions, supporting data is not available.

HUMAN SUBJECTS APPROVAL STATEMENT

The authors received ethical approval from the Institutional Review Boards (IRB) of the affiliated institutions to conduct the study.

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