

School-Level Association Between SEL Competencies and Bullying Involvement

A Four-Year Longitudinal Study

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The Problem of Bullying

- One out of every five students aged 12-18 reported being bullied in 2019 (NCES, 2023).
- A U.S. study showed about 20% of middle and high school students have been victims of cyberbullying in their lifetime (Patchin & Hinduja, 2022)
- Detrimental short- and long-term impacts of traditional bullying and cyberbullying victimization on students' academic achievement and mental health outcomes (Bansal et al., 2024; Laith & Vaillancourt, 2022)



[Image source](#)



Ongoing Debate and Research Gaps

Do different bullying types differ or overlap?

Difference

Cyberbullying is conceptualized as a **distinct bullying phenomenon** from the traditional bullying (Sabella et al., 2013; Tokunaga, 2010)

VS

Overlap

Cyberbullying is conceptualized as a **distinct bullying phenomenon** from the traditional bullying (Sabella et al., 2013; Tokunaga, 2010)

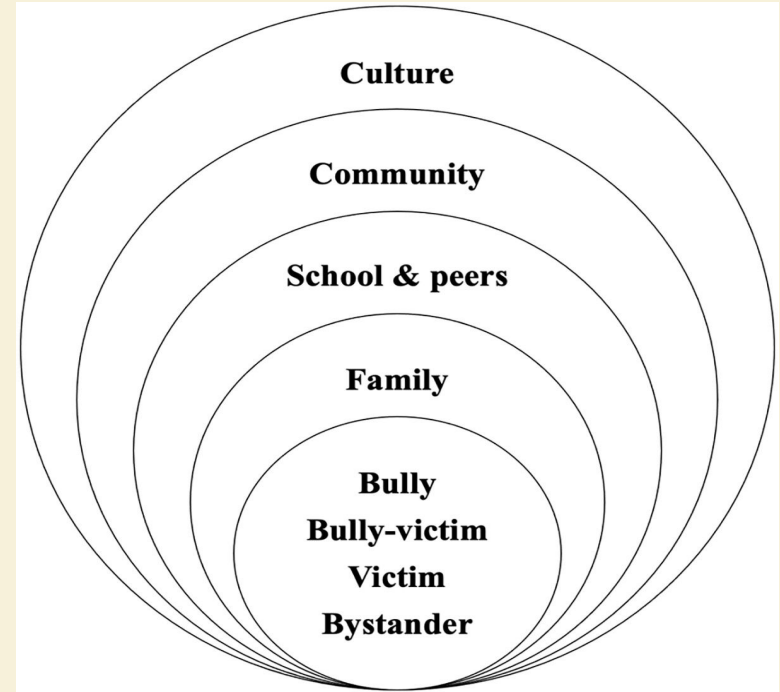


Research Gaps and Theoretical Framework

Lack of studies focusing on

- **School-wide** phenomena
- **Longitudinal** trajectories
- **Differentiated roles** of bullying involvement (e.g., perpetration, victimization)

Social-ecological Model



Social-ecological model (Swearer & Espledge, 2010)



Research Questions

1. What are the longitudinal trajectories of schoolwide bullying perpetration, traditional bullying victimization, and cyberbullying victimization over time?
2. What are these bullying trajectories are shaped by domain-specific SEL competencies and school characteristics (grade level, diversity index, school size)?



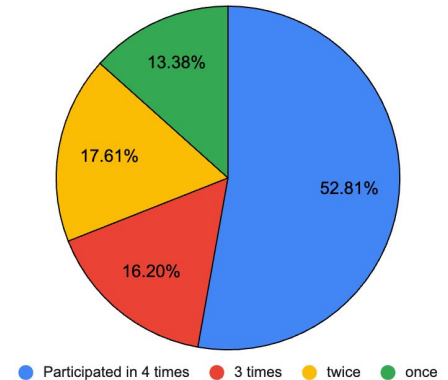
Methods: Participants

- **Sample:** Students in Grades 3-12 from 142 public schools in Delaware, US (2016-2020).
- **School Levels:** 87 elementary, 31 middle, and 24 high schools

Student Sample per Year:

2016-17: 32,044 students (51.64% female) in 104 schools.
2017-18: 38,758 students (52.1% female) in 134 schools.
2018-19: 34,871 students (51.8% female) in 124 schools.
2019-20: 39,942 students (51.9% female) in 124 schools.

School Participation in the Four Year Study



Measures

- **Schoolwide Bullying Perpetration:** 3-item school-wide bullying subscale of Delaware School Climate Survey-Student (DSCS-S; Bear et al., 2011) E.g., “Students threaten and bully others.”
- **Traditional Bullying Victimization & Cyberbullying Victimization:** Subscales of the Delaware Bullying Victimization Scale-Student (DBVS-S). E.g., “*I was teased by someone saying hurtful things to me.*” “*A student sent me a mean or hurtful message about me using email, text messaging, instant messaging, or similar electronic messaging.*”
- **Social Emotional Learning (SEL) Competencies:** Delaware Social Emotional Competencies Scale-Student (DSECS-S), 4 subscales. E.g., “I think about how others feel.”
- **Demographic Factors:** School levels, racial/ethnic diversity index, and school size were included in analyses.



Data Analysis

RQ 1: **Growth mixture modeling (GMM)** was employed to examine the unobserved groups of growth trajectories for each bullying.

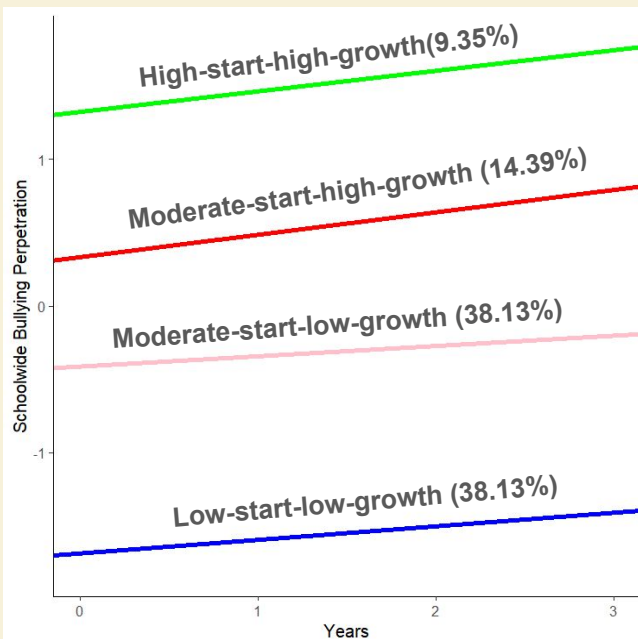
- Indices: Bayesian information criterion (BIC), entropy

RQ 2: **The multinomial regression** was conducted to examine how covariates contribute to the growth trajectories

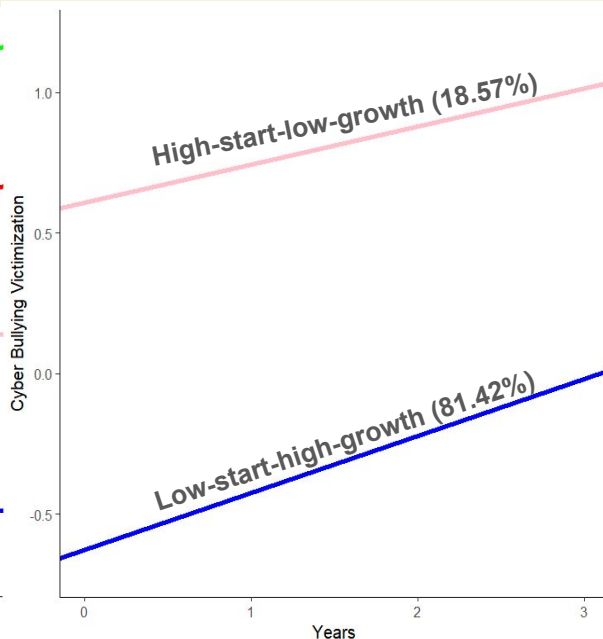
- In the case of *a single group of growth trajectories*, we utilized **hierarchical linear regression models** that incorporate interaction terms between timestamps and covariates.



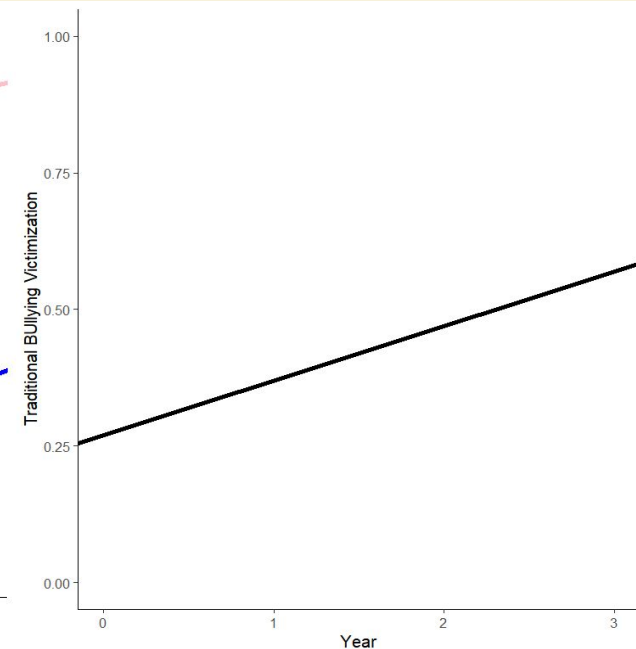
Different Schoolwide Trajectories



Schoolwide Bullying Perpetration



Schoolwide Cyberbullying Victimization



Schoolwide Traditional Bullying Victimization



Key Findings and Implications

Divergent Schoolwide Trajectories

- Schoolwide Bullying Perpetration: 4 distinct trajectories
- Schoolwide Cyberbullying Victimization: 2 distinct trajectories
- TBV: Linear increase over time

Discussion: Differentiated Intervention needed

- Each bullying types needs tailored strategies and type-specific responses; avoid one-size-fits-all programs
- Sustained interventions are critical for high-growth perpetration schools
- Cyberbullying-specific programs are more effective than generic ones



Key Findings and Implications

SEL Competency Impact

- Social Awareness significantly linked to lower TBV and SWBP growth
- No SEL domain predicted CBV trajectory

Discussion: Social Awareness as a leverage point

- Promoting empathy and perspective-taking can reduce traditional bullying
- Promote systemic-SEL integration across classroom and relationships, not just curricula
- Address cyberbullying with distinct tools and align cyberbullying prevention with digital behavior trends



Key Findings Implications

School-level Characteristics

- High school showed higher SWBP and CBV growth
- Ethnic diversity associated with increased SWBP, not TBV and CBV
- School size was not significantly related to any bullying trajectory

Diversity and Equity considerations

- The role of power dynamics in shaping safety and aggression
- Training for supporting educators navigating hyper-diverse contexts and recognize majority-minority dynamics
- Professional development for sustainable and equity-focused prevention



Limitations and Future Directions

Limitations:

- Self-report bias
- Limited generalizability
- Lack of severity measures
- Unlinked student data

Future directions

- Use multi-informant data
- Broaden sample scope
- Assess severity
- Track longitudinal student data





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Thank you for listening! Questions?

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Results:

Trajectory of Schoolwide Bullying Perpetration

Four distinct trajectory classes

High-start-high-growth

Moderate-start-high-growth

Moderate-start-low-growth

Low-start-low-growth

Social Awareness:

- An increase in SA was associated with a **92% lower likelihood** of a school demonstrating a high-start-high-growth trajectory.

School Grade Level:

- High schools had a lower probability of being in the high-start-high-growth class than elementary schools, but were more likely to be in the **moderate-start-high-growth** trajectory than elementary schools compared to moderate-start-low-growth.

Racial/Ethnic Diversity Index:

- Schools with a one-unit higher Racial/Ethnic Diversity Index were 80 times more likely to show a **moderate-start-high-growth** trajectory.



Results: Trajectory of Cyberbullying Victimization (CBV)

Two trajectory classes

High-start-low-growth

Low-start-high-growth

SEL domains, school size, or diversity index were **not significantly** associated with CBV trajectory classes at a 5% level.

School Grade Level: High schools were only 0.26 times as likely as middle schools to be in the **low-start-high-growth** class.



Results: Trajectory of Traditional Bullying Victimization (TBV)

One Class Solution

A general linear growth pattern.

0.10 yearly growth of TBV ($p < .05$).

Social Awareness (SA): Only mean Social Awareness was significantly associated with TBV (negatively).

School Level: Middle and high schools experienced lower levels of TBV compared to elementary schools.



Model Fit Indices, Entropy Values, and Classes Percentages for Growth Mixture Model for SWB

# of classes	Loglik	# of pars	BIC	Entropy	%class1	%class2	%class3	%class4	%class5
1	-611.4	3	1237.61	NA	100				
2	-523.6	6	1076.86	0.77	64.75	35.25			
3	-464.8	9	974.12	0.84	49.64	35.97	14.39		
4	-442.9	12	945.2	0.84	9.35	14.39	38.13	38.13	
5	-436.9	15	948	0.76	30.22	9.35	13.67	19.42	27.34

Multi-nominal logistic regressions of BullySWMean trajectory types on school characteristics and SEL

Covariates	high-start-high-growth vs. moderate-start-low-growth		low-start-low-growth vs. moderate-start-low-growth		moderate-start-high-growth vs. moderate-start-low-growth	
	<i>b</i>	<i>OR</i>	<i>b</i>	<i>OR</i>	<i>b</i>	<i>OR</i>
Intercept	-1.67*	0.19	-4.53**	0.01	0.23	1.26
Size	0	1	0	1	0	1
Middle	-2.1	0.12	2.42	11.29	-1.16	0.31
High	-17.68**	0	0.82	2.26	-2.11*	0.12
Index	-0.04	0.96	0.63	1.88	.59*	1.8
RS+RE_mean	0.18	1.2	1.09	2.98	-0.06	0.94
SA_mean	-2.51*	0.08	1.22	3.38	-1.29	0.28
SM_mean	-1.11	0.33	0.51	1.66	-0.48	0.62

Note.* $p < .05$; ** $p < .01$. s.e.=standard errors ; OR=odd ratio; Middle= middle schools contrast vs. elementary school; High = high schools contrast vs. elementary school.



Model Fits, Entropy, and Classes Percentages for Growth Mixture Model for CBV

# of classes	Loglik	# of pars	BIC	Entropy	%class1	%class2	%class3	%class4	%class5
1	-233.35	3	478.72	NA	100				
2	-225.79	6	475.63	0.59	23.64	76.36			
3	-220.45	9	476.97	0.79	3.64	72.73	23.64		
4	-214	12	476.08	0.86	16.36	3.64	76.36	3.64	
5	-211.78	15	483.67	0.72	50.9	3.64	3.64	30.91	10.91

Logistic Regressions of CBV Trajectory Classes on School Characteristics and SEL Competencies

	low-start-high-growth class vs. high-start-low-growth	
	<i>b</i>	<i>OR</i>
Intercept	1.94*	6.98
Size	0	1
High	-1.34**	0.26
Index	-0.18	0.84
RS+RE_mean	-0.27	0.77
SA_mean	0.46	1.59
SM_mean	0.38	1.46

Note. * $p < .05$; ** $p < .01$. OR =odd ratio; Middle = middle schools contrast vs. elementary school; High = high schools contrast vs. elementary school; RS+RE_mean = mean of the combination of relationship skills and responsible decision making; SA_mean = mean of social awareness; SM_mean = mean of self-management



Model Fits, Entropy, and Classes Percentages for Growth Mixture Model for TBV

# of classes	Loglik	# of pars	BIC	Entropy	%class1	%class2	%class3	%class4	%class5
1	−593.85	3	1202.47	NA	100.00				
2	−539.35	6	1108.27	0.99	0.72	99.27			
3	−501.59	9	1047.53	0.87	81.16	0.72	18.12		
4	−488.32	12	1035.76	0.83	1.45	73.91	0.72	23.91	
5	−488.78	15	971.48	0.77	50.00	34.78	0.72	0.72	13.77

HLM Results for TBV

Variable	Model 0 (main effects)		Model 1 (main + interaction effects)	
	Coef	s.e.	Coef	s.e.
Intercept	0.27*	0.11	0.24*	0.14
Time	0.10*	0.04	0.09	0.06
Size	0	0	0	0
Index	−0.12	0.06	−0.18	0.08
Middle	−0.79**	0.20	−0.78**	0.27
High	−1.28**	0.27	−1.31**	0.37
RS+RE_mean	−0.04	0.08	0.12	0.12
SA_mean	−0.32*	0.14	−0.51*	0.20
SM_mean	−0.03	0.11	−0.08	0.17
Time: Size			0	0
Time: Index			0.04	0.03
Time: Middle			0	0.10
Time: High			0.05	0.14
Time: (RS+RE_mean)			−0.1	0.07
Time: SA_mean			0.12	0.09
Time: SM_mean			0.04	0.09
R ²	0.23		0.23	
Variance Components (Random Effects)				
School intercept (σ^2)	0.43		0.45	
Residual (τ_{00})	0.42		0.40	
Deviance	1018.61		1010.41	
# of parameters	11.00		18.00	

