

Analysis of group differences in perceptions of the school environment

Ji-hye Lee _ Daejeon Education Policy Institute Researcher

Over- view

- The Daejeon Education Longitudinal Study (DELS) examines the current state of school educational activities and systematically and continuously investigates and analyzes the factors affecting student growth and development to establish data-driven educational policies in Daejeon.
- The first DELS was conducted in July 2024 across all elementary, middle, and high schools in Daejeon.
- The data were derived from the first DELS, collected in July 2024.
- The DELS targets five groups: students, parents (guardians), teachers, principals, and administrative staff.
- This issue aims to explore the school environment and the needs of each group by using common survey items to examine group differences in terms of their perceptions of the "school environment."
- This issue seeks to identify the needs of the five educational family groups, and to obtain an objective understanding of the school environment from various perspectives.

Data and methods of analysis

1) Subjects of analysis

- A total of 17,157 subjects, including students (fifth grade in elementary school, second year in middle school, second year in high school), parents (parents of the students concerned), teachers (in charge of the grades concerned), principals, and administrative staff.

<Table 1> Subjects of analysis

Target group	School level			Total
	Fifth grade in elementary school	Second year in middle school	Second year in high school	
Students	4,112(36.4%)	4,209(37.2%)	2,983(26.4%)	11,304(100%)
Parents	2,599(59.4%)	1,243(28.4%)	534(12.2%)	4,374(100%)
Teachers	383(37.6%)	355(34.8%)	281(27.6%)	1,019(100%)
Principals	76(43.4%)	62(35.4%)	37(21.1%)	175(100%)
Administrative staff	114(40%)	86(30.2%)	85(29.8%)	285(100%)

- Survey period: July 1-July 19, 2024
- Survey method: DELS online system/EUREKA online system

2) Analysis data: Six items related to the school environment

<Table 2> Analysis data

No.	Variable	Respondent				
		Students	Parents	Teachers	Principals	Administrative staff
1	Perception of rest areas in school	0	0	-	-	-
2	Perception of cleanliness in school spaces	0	0	0	0	0
3	Perception of safety in school facilities	-	-	0	0	0
4	Perception of safety from school violence	0	0	-	-	-
5	Perception of safety in blind spots around school	-	-	0	0	0
6	Perception of traffic safety in the routes to and from school	0	0	0	0	0

3) Methods of analysis

- Comparison of means across school levels (elementary, middle, and high school)
- t-test/analysis of variance (ANOVA) and post-hoc Scheffé test
 - * In cases where homogeneity of variance was not met, Brown-Forsythe ANOVA and post-hoc Games-Howell tests were conducted
- SPSS 27.0.1



1) There are sufficient “rest areas in school”

① Analysis of school-level differences related to “rest areas in school”

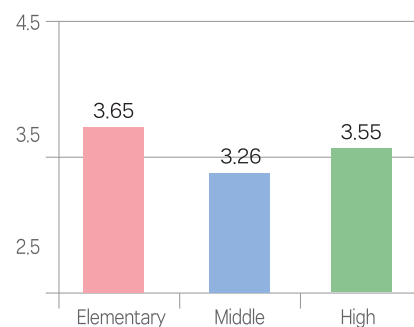
- Positive perceptions were highest in elementary school (M=3.65, SD=1.17), followed by high school (M=3.55, SD=1.09) and middle school (M=3.26, SD=1.19), and this difference was statistically significant($F=172.67$, $p<.001$).

<Table 3> Analysis of school-level differences in perceptions of “rest areas in school”

n=15,678

Respondent group	School level	N	M	SD	F
Students Parents	Elementary	6,711	3.65	1.17	172.67*** elementary > high > middle
	Middle	5,452	3.26	1.19	
	High	3,515	3.55	1.09	

*** $p<.001$



② Analysis of group differences related to “rest areas in school”

- Elementary: Students showed higher positive perceptions than parents did ($t=23.25$, $p<.001$).
- Middle: Students showed higher positive perceptions than parents did ($t=4.80$, $p<.001$).
- High: Parents showed higher positive perceptions than students did ($t=-5.94$, $p<.001$).

<Table 4> Analysis of group differences in perceptions of “rest areas in school”

n=15,678

School level	Group	N	M	SD	t
Elementary	Students	4,112	3.91	1.08	23.25***
	Parents	2,599	3.24	1.19	
Middle	Students	4,209	3.31	1.15	4.80***
	Parents	1,243	3.11	1.28	
High	Students	2,983	3.51	1.09	-5.94***
	Parents	532	3.80	1.03	

*** $p<.001$

2) The school environment is clean and well organized

① Analysis of school-level differences related to “cleanliness in school spaces”

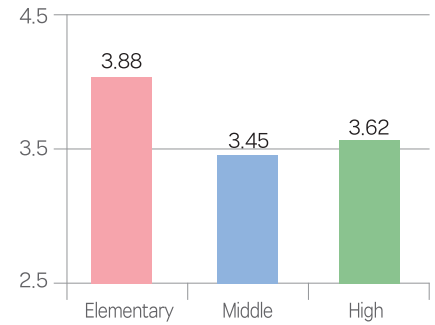
- Positive perceptions were highest in elementary school ($M=3.88$, $SD=0.95$), followed by high school ($M=3.62$, $SD=0.94$) and middle school ($M=3.45$, $SD=1.06$), and this difference was statistically significant ($F=317.47$, $p<.001$).

<Table 5> Analysis of school-level differences in perceptions of “cleanliness in school spaces”

N=17,157

Respondent group	School level	N	M	SD	F
Students	Elementary	7,284	3.88	0.95	317.47*** elementary > high > middle
Parents	Middle	5,955	3.45	1.06	
Teachers	High	3,918	3.62	0.94	
Principals					
Administrative staff					

*** $p<.001$



② Analysis of group differences related to “cleanliness in school spaces”

- Elementary: Parents, teachers, and principals showed higher positive perceptions than administrative staff did ($F=4.66$, $p<.001$).
- Middle: Students showed lower positive perceptions than did parents, teachers, principals, and administrative staff. Principals showed higher positive perceptions than did students, parents, and teachers ($F=64.42$, $p<.001$).
- High: Students showed lower positive perceptions than did parents, teachers, principals, and administrative staff. Teachers and principals showed higher positive perceptions than parents did ($F=28.76$, $p<.001$).

<Table 6> Analysis of group differences in perceptions of “cleanliness in school spaces”

N=17,157

School level	Group	N	M	SD	F	Post-hoc tests (Scheffé/Games-Howell)
Elementary	①Students	4,112	3.86	1.04	4.66***	②,③,④ > ⑤
	②Parents	2,599	3.89	0.78		
	③Teachers	383	3.98	0.99		
	④Principals	76	4.11	0.93		
	⑤Administrative staff	114	3.62	1.01		
Middle	①Students	4,209	3.31	1.10	64.42***	②,③,④,⑤ > ① ④ > ②,③
	②Parents	1,243	3.74	0.81		
	③Teachers	355	3.80	0.99		
	④Principals	62	4.19	0.92		
	⑤Administrative staff	86	3.81	0.77		
High	①Students	2,983	3.54	0.95	28.76***	②,③,④,⑤ > ① ③,④ > ②
	②Parents	532	3.72	0.88		
	③Teachers	281	4.04	0.83		
	④Principals	37	4.35	0.86		
	⑤Administrative staff	85	3.92	0.83		

*** $p<.001$

3) School facilities are maintained in a safe condition

① Analysis of school-level differences related to “safety in school facilities”

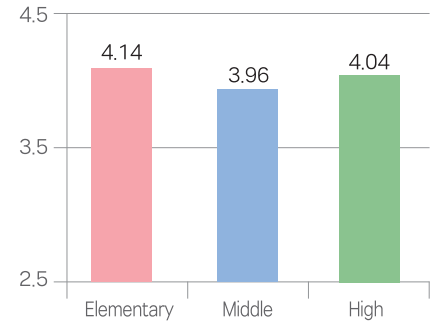
- In general, positive perceptions of “safety in school facilities” were high across all school levels.
- Positive perceptions were highest in elementary school (M=4.14, SD=0.84), followed by high school (M=4.04, SD=0.79) and middle school (M=3.96, SD=0.88), and this difference was statistically significant ($F=6.16$, $p<.01$).

<Table 7> Analysis of school-level differences in perceptions of “safety in school facilities”

n=1,479

Respondent group	School level	N	M	SD	F
Teachers Principals Administrative staff	Elementary	573	4.14	0.84	6.16** elementary > middle
	Middle	503	3.96	0.88	
	High	403	4.04	0.79	

*** $p<.01$



② Analysis of group differences related to “safety in school facilities”

- Elementary: Teachers and principals showed higher positive perceptions than administrative staff did ($F=7.38$, $p<.001$).
- Middle: Principals showed higher positive perceptions than teachers and administrative staff did ($F=14.04$, $p<.001$).
- High: Principals showed higher positive perceptions than teachers and administrative staff did ($F=5.48$, $p<.01$).

<Table 8> Analysis of group differences in perceptions of “safety in school facilities”

n=1,479

School level	Group	N	M	SD	F	Post-hoc tests (Scheffé/Games-Howell)
Elementary	③ Teachers	383	4.17	0.82	7.38***	③,④ > ⑤
	④ Principals	76	4.37	0.76		
	⑤ Administrative staff	114	3.91	0.89		
Middle	③ Teachers	355	3.88	0.91	14.04***	④ > ③,⑤
	④ Principals	62	4.50	0.67		
	⑤ Administrative staff	86	3.94	0.74		
High	③ Teachers	281	4.02	0.77	5.48**	④ > ③,⑤
	④ Principals	37	4.43	0.65		
	⑤ Administrative staff	85	3.94	0.85		

*** $p<.001$, ** $p<.01$

4) Our school is safe from school violence

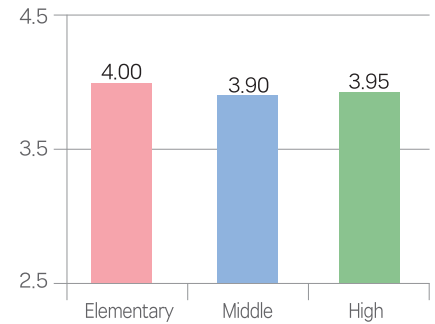
① Analysis of school-level differences related to “safety from school violence”

- In general, positive perceptions of “safety from school violence” were high across all school levels.
- Positive perceptions were highest in elementary school (M=4.00, SD=0.96), followed by high school (M=3.95, SD=0.87) and middle school (M=3.90, SD=0.95), and this difference was statistically significant ($F=17.47, p<.001$).

<Table 9> Analysis of school-level differences in perceptions of “safety from school violence”
n=15,678

Respondent group	School level	N	M	SD	F
Students Parents	Elementary	6,711	4.00	0.96	17.47*** elementary > middle
	Middle	5,452	3.90	0.95	
	High	3,515	3.95	0.87	

*** $p<.001$



② Analysis of group differences related to “safety from school violence”

- Elementary: Parents showed higher positive perceptions than students did ($t=-6.30, p<.001$).
- Middle: Students showed higher positive perceptions than parents did ($t=5.26, p<.001$).
- High: Students showed higher positive perceptions than parents did ($t=3.37, p<.001$).

<Table 10> Analysis of group differences in perceptions of “safety from school violence”
n=15,678

응답집단	학교급	N	M	SD	t
Elementary	① Students	4,112	3.94	1.05	-6.30***
	② Parents	2,599	4.09	0.78	
Middle	① Students	4,209	3.93	0.98	5.26***
	② Parents	1,243	3.79	0.81	
High	① Students	2,983	3.97	0.87	3.37***
	② Parents	532	3.83	0.86	

*** $p<.001$

5) There are blind spots around school that require management in terms of student guidance (reverse scoring)

① Analysis of school-level differences related to “safety in blind spots around school”

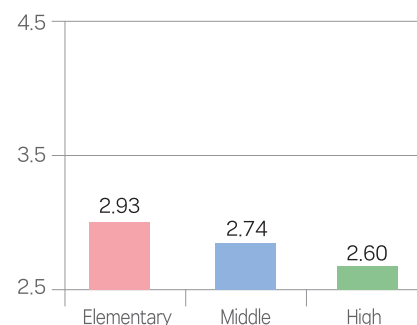
- In general, positive perceptions of “safety in blind spots around school” were low across all school levels.
- Positive perceptions were highest in elementary school (M=2.93, SD=1.13), followed by middle school (M= 2.74, SD=1.00) and high school (M=2.60, SD=0.95), and this difference was statistically significant (F=12.76, $p < .001$).

<Table 11> Analysis of school-level differences in perceptions of “safety in blind spots around school”

n=1,479

Respondent group	School level	N	M	SD	F
Teachers Principals Administrative staff	Elementary	573	2.93	1.13	12.76*** elementary > high
	Middle	503	2.74	1.00	
	High	403	2.60	0.95	

*** $p < .001$



② Analysis of group differences related to “safety in blind spots around school”

- Middle: Administrative staff showed higher positive perceptions than teachers did (F=3.90, $p < .05$).

<Table 12> Analysis of group differences in perceptions of “safety in blind spots around school”

n=1,479

School level	Group	N	M	SD	F	
Elementary	③ Teachers	383	2.89	1.15	1.56	-
	④ Principals	76	2.91	1.17		
	⑤ Administrative staff	114	3.10	1.03		
Middle	③ Teachers	355	2.66	0.99	3.90*	⑤ > ③
	④ Principals	62	2.84	1.09		
	⑤ Administrative staff	86	2.98	0.96		
High	③ Teachers	281	2.56	0.92	2.27	-
	④ Principals	37	2.43	1.04		
	⑤ Administrative staff	85	2.78	0.98		

* $p < .05$

6) The routes to and from our school are safe from traffic accidents

① Analysis of school-level differences related to “traffic safety in the routes to and from school”

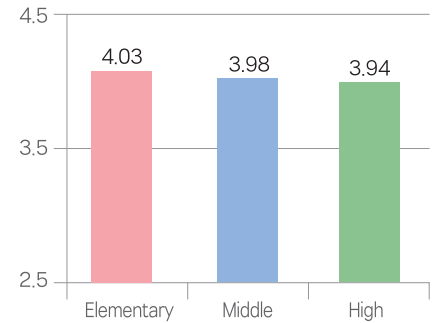
- In general, positive perceptions of “traffic safety in the routes to and from school” were high across all school levels.
- Positive perceptions were highest in elementary school ($M=4.03$, $SD=0.93$), followed by middle school ($M=3.98$, $SD=0.92$) and high school ($M=3.94$, $SD=0.88$), and this difference was statistically significant ($F=15.02$, $p<.001$).

<Table 13> Analysis of school-level differences in perceptions of “traffic safety in the routes to and from school”

N=17,157

Respondent group	School level	N	M	SD	F
Students	Elementary	7,284	4.03	0.93	15.02*** elementary > high
Parents	Middle	5,955	3.98	0.92	
Teachers	High	3,918	3.94	0.88	
Principals					
Administrative staff					

*** $p<.001$



② Analysis of group differences related to “traffic safety in the routes to and from school”

- Elementary: Students showed higher positive perceptions than parents, teachers, and administrative staff did. Parents showed higher positive perceptions than teachers and administrative staff did ($F=17.86$, $p<.001$).
- Middle: Students showed higher positive perceptions than parents, teachers, and administrative staff did. Parents and principals showed higher positive perceptions than teachers and administrative staff did ($F=68.38$, $p<.001$).
- High: Students showed the highest positive perceptions, followed by principals, teachers, and administrative staff. Principals showed higher positive perceptions than teachers and administrative staff did ($F=23.23$, $p<.001$).

<Table 14> Analysis of group differences in perceptions of “traffic safety in the routes to and from school”

N=17,157

School level	Group	N	M	SD	F	Post-hoc tests (Scheffé/Games-Howell)
Elementary	①Students	4,112	4.09	0.99	17.86***	① > ②,③,⑤ ② > ③,⑤
	②Parents	2,599	4.00	0.79		
	③Teachers	383	3.77	1.02		
	④Principals	76	3.88	0.97		
	⑤Administrative staff	114	3.67	0.92		
Middle	①Students	4,209	4.09	0.90	68.38***	① > ②,③,⑤ ② > ③,⑤ ④ > ③,⑤
	②Parents	1,243	3.77	0.82		
	③Teachers	355	3.50	1.03		
	④Principals	62	3.92	0.91		
	⑤Administrative staff	86	3.44	0.94		
High	①Students	2,983	4.01	0.88	23.23***	① > ② > ③,⑤ ④ > ③,⑤
	②Parents	532	3.79	0.82		
	③Teachers	281	3.60	0.88		
	④Principals	37	4.05	0.78		
	⑤Administrative staff	85	3.55	0.92		

*** $p<.001$

Overall results

<표 14> 문항별 종합 결과

Order	Item	M		Results
1	Perception of rest areas in school	Elementary	3.65	- Positive perceptions of “rest areas in school” were highest among elementary school students, followed by high school and middle school students. - Elementary and middle school students showed higher positive perceptions, whereas parents exhibited greater positive perceptions in high school.
		Middle	3.26	
		High	3.55	
2	Perception of cleanliness in school spaces	Elementary	3.88	- Positive perceptions of “cleanliness in school spaces” were highest among elementary school students, followed by high school and middle school students. - Students showed lower positive perceptions than other groups did in middle and high school.
		Middle	3.45	
		High	3.62	
3	Perception of safety in school facilities	Elementary	4.14	- In general, positive perceptions of “safety in school facilities” were high across all school levels. - Positive perceptions of “safety in school facilities” were higher in elementary school than they were in middle school. - Principals showed higher positive perceptions than administrative staff did in elementary school. - Principals showed higher positive perceptions than teachers and administrative staff did in middle and high school.
		Middle	3.96	
		High	4.04	
4	Perception of safety from school violence	Elementary	4.00	- In general, positive perceptions of “safety from school violence” were high across all school levels. - Positive perceptions of “safety from school violence” were higher in elementary school than they were in middle school. - Parents showed higher positive perceptions in elementary school, and students showed higher positive perceptions in middle and high school.
		Middle	3.90	
		High	3.95	
5	Perception of safety in blind spots around school	Elementary	2.93	- In general, positive perceptions of “safety in blind spots around school” were low across all school levels. - Positive perceptions of “safety in blind spots around school” were lower in high school than they were in elementary school. - Administrative staff showed higher positive perceptions than teachers did in middle school.
		Middle	2.74	
		High	2.60	
6	Perception of traffic safety in the routes to and from school	Elementary	4.03	- In general, positive perceptions of “traffic safety in the routes to and from school” were high across all school levels. - Positive perceptions of “traffic safety in the routes to and from school” were higher in elementary school than they were in high school. - Students showed higher positive perceptions than did the other groups in elementary, middle, and high school.
		Middle	3.98	
		High	3.94	

Implications

- 1) Perceptions of rest areas and cleanliness in school spaces were rated lowest in middle schools, indicating a need to implement support measures to enhance the environment specifically for middle schools.
- 2) In general, perceptions of safety within school facilities were high, although differences were noted between principals and teachers/administrative staff, which need to be examined further.
- 3) In general, safety perceptions in blind spots around schools were low across all levels, highlighting the need for a comprehensive survey and management of these areas.
- 4) In general, perceptions that the routes to and from school are safe from traffic accidents were high. However, students exhibited significantly higher positive perceptions than other groups did, highlighting the need to continually remind students about the importance of traffic safety on these routes.

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