



The Impact of the COVID-19 Pandemic on B.C. Secondary School Students' Schooling Experience: A Survey Inquiry and Thought Experiment

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Abstract

Attending school in-person in the year 2020-2021 was a different experience for many secondary school students in British Columbia. Safety measures such as mask-wearing and reduced interpersonal interaction were introduced there and nationwide. We conducted exploratory research to understand B.C. secondary school students' in-person schooling experience. Survey items polled the *impact of COVID-19 at school* and *students' perceptions of school climate*. In a thought experiment, participants were randomly assigned to an improved COVID-19 scenario or a worsened COVID-19 scenario and asked to think about how their perceptions of school climate might change in that context. Results indicated a noticeable change in students' perceptions of school life and elevated worry about COVID-19 safety while in school. In addition, there was a small statistically detectable correlation ($r_{77} = -.29, p = .01$) between participants' perceptions of the impact of COVID-19 at school and perceptions of school climate. Results of the thought experiment showed COVID-19 effects on participants' perceptions of school climate had a greater impact on perceptions of peer relationships than student-teacher relationships and school connectedness. This survey during the COVID-19 pandemic provided timely feedback and opinions from students about their in-person schooling experience during this unusual year.

Keywords: School Climate, COVID-19, Social Relationships in School, Peer Relationship, School Closures

Introduction

School closures have been a common practice to limit the spread of COVID-19 in many countries around the world. The implementation of school closures was often sudden and ill-prepared due to the unexpected nature of the COVID-19 pandemic. While this study examined student perceptions of school climate after they had returned to in-person learning, the impact of social isolation and school closures on students is important to

consider because it may impact their view of school and reshape school climate.

As studies of the impact of COVID-19 on students' well-being studies emerge, it is becoming clear that children and youths' emotional well-being is vulnerable and susceptible to the negative effects of lockdown and social isolation (Bignardi et al., 2020; Dove et al., 2020). Negative effects include heightened depressive and anxiety symptoms, and an increased sense of loneliness due to a wide range of factors including school closures and distance learning (Bignardi et al., 2020; Dove et al., 2020; Loades et al., 2020; Orgilés et al., 2020; Singh et al., 2020).

In the *BC COVID-19 SPEAK SURVEY*, 60.3% of families with children reported an increase in children's stress, and 79.2% of children reported a loss of connection with friends due to school closures. These changes may result in problems related to student mental health and emotional well-being (Dove et al., 2020). In a national survey of Canadian youth aged 10-17 years old, a majority reported a general sense of boredom, missing their friends, being unmotivated academically, and a sense of dislike toward the current social isolation experience (Korzinski, 2020).

In two literature reviews of the construct of school climate (Koopman et al., 2009; Wang & Degol, 2016), the book *Management of a City School* by Arthur Perry (1908) is credited with introducing the construct of school climate. Perry's view that the "duty of the school was to provide something more than mere 'housing'" (Perry, 1908, p. 303), raised the idea that school is more than a physical space to host students. Starting in the 1970s, researchers increased studies of connections between school climate and various student outcomes (Zullig et al., 2010). The construct of school climate, among other constructs such as socioeconomic status and ethnicity, has now joined other factors as a popular predictor of student outcomes (Brookover et al., 1978; Coleman, 1968; Hauser, 1970; McDill et al., 1967; Zullig et al., 2010).

Although there is a diversity in how to define the construct of school climate, it is widely agreed the construct spans multiple domains: social, emotional, and academic for example (Olsen et al., 2017; Wang & Degol, 2016; Zullig et al., 2010). Wang and Degol (2016)'s review identified four general categorizations of school climate in the research literature: academic, community, safety, and institutional environment. While the issue of defining the construct of school climate is still debated, there is a growing preference for definitions that are more specific, narrow, and operationalized for research purposes (Payne, 2018). In this study, we operationally define school climate using students' perceptions of in-person schooling experience and social relationships (community domain of school climate) in school during the COVID-19 pandemic.

Due to the novelty of the situation caused by the pandemic and interest about its effects on students' opinions of their schooling experience and perceptions of school climate, we conducted an exploratory study to gain insight and knowledge about student perceptions of school climate during the COVID-19 pandemic. We also included a thought

experiment in which participants were asked to forecast perceptions of school climate based on a hypothetical COVID-19 scenario of either improving or worsening conditions.

Our theoretical frameworks lie within the idea that changes in school related to COVID-19 may affect nearly all aspects of students' schooling experience. The bioecological theory, the social cognitive theory, and the stage-environment fit theory all speak to the importance of the schooling environment on school climate and various student outcomes (Wang & Degol, 2016). Thus, our study addresses:

1. Students' subjective evaluation of the impact of the COVID-19 pandemic on their schooling experience.
2. Students' perceptions of the community dimensions of school climate (peer relationships, student-teacher relationships, and school connectedness) in this abnormal school year.
3. How well do students' subjective evaluations of the impact of COVID-19 pandemic on schooling experience correlate with their perceptions of school climate?
4. How does the potential change in the progression of the COVID-19 pandemic affect students' perceptions of the community dimension of school climate?

Methods

Participants

The survey was administered using SurveyMonkey. Convenience sampling and snowball sampling were used. Participants were recruited on social media (e.g., Facebook) or by referrals. The survey had 5 components: (1) an informed consent form, (2) a questionnaire on students' characteristics and demographic factors, (3) student perceptions of the impact of COVID-19 on schooling experience, (4) student perceptions of the community domain of school climate survey, and (5) a COVID-19 related thought experiment.

Measures

The survey included items we developed and items adapted from existing surveys. Using a mix of new and existing items of schooling experience and school climate increased sensitivity in evaluating the specific impact of the COVID-19 pandemic and capitalized on relationships to research using existing measures. Some items in this survey were adapted from the U.S. Education Department School Climate Surveys (EDSCLS)-Student Survey and the Community and Youth Collaborative Institute (CAYCI) School Experience Surveys (Anderson-Butcher, Iachini, et al., 2016; National Center for Education Statistics, 2016). Permission to adopt items from these surveys was obtained. Table 1 presents survey items integrated to this present study from the EDSCLS or CAYCI survey. Table 2 presents the scoring scheme and labels associated with the numeric values

of the survey items.

Demographics

Before starting the survey, participants were presented with the informed consent form and reminded that only students in grades 8-12 attending school in person in B.C. should fill out the survey. Participants were then asked to identify their gender, name of their school, grade level, age, and learning mode (remote, in-person, mixed) during the current school year. Participants' demographics such as learning mode and grade level were then used to further determine the eligibility of participants.

COVID-19 at School Scale

Participants were asked to express their opinions about five statements related to their perceptions of COVID-19 safety at school and the overall impact of COVID-19 at school. These five items were developed by the researcher and included: (1) I worry about getting COVID-19 while I am in school, (2) I think social distancing and mask wearing are effective in protecting me from getting COVID-19 while I am in school, (3) I prefer to stay home than going to school because of my worry about getting COVID-19 while I am in school, (4) I wish school can go back to the way it was last year before the COVID-19 pandemic, and (5) I don't see any changes in school because of the COVID-19 pandemic. Participants rated their opinions on a 5-point Likert scale ranging from strongly disagree, agree, no opinion, disagree, to strongly disagree.

School Climate Scale

The School Climate Scale consisted of items measuring student perceptions of (1) peer relationships, (2) student-teacher relationships, and (3) school connectedness. A mix of items developed by the researcher and from existing surveys was used to construct the School Climate Scale. A summary of survey items appears in Table 1, organized by the underlying factor items. Participants responded on a 5-point Likert scale identical to the COVID-19 at school scale.

Thought Experiment

To understand better how student perceptions of school climate may change depending on the progression of the COVID-19 pandemic, participants were randomly assigned to one of two groups (A, B) using the A/B test feature in SurveyMonkey. Participants in both groups were asked to rate the 11 items in the school climate scale again based on a hypothetical COVID-19 scenario except this time on a 3-point Likert scale: less, no change, and more. Instructions for group A, improving conditions, and group B,

worsening conditions, are below.

Group A: Now, you will be asked to rate some of the previous statements again. Except for this time, please imagine it is the beginning of another school year, and the COVID-19 pandemic has improved over the summer break. Safety measures against COVID-19 are not needed anymore at your school.

Group B: Now, you will be asked to rate some of the previous statements again. Except for this time, please imagine it is the beginning of another school year, and the COVID-19 pandemic has worsened over the summer break. Additional safety measures against COVID-19 are in place at your school.

Results

Data were analyzed primarily using the Statistical Package for the Social Sciences 27 (SPSS-27). From 98 potential participants, 19 were excluded: 13 didn't complete the survey, 5 were deemed ineligible (e.g., selected full-time remote learning), and 1 tended to select the same response for all items (straight-lined). Table 3 includes the participants' demographics of this present study.

Results of the COVID-19 at School Scale

To address the first research question, we created a simple bar chart, figures 1-5, for each of the statements on the COVID-19 at school scale depicting students' subjective evaluation of the impact of the COVID-19 pandemic on their schooling experience. The percentages on these figures were rounded up to the nearest whole percent.

Results of the School Climate Scale

Descriptive statistics for items on the School Climate Scale 11 items are reported in Table 4. To examine associations among participants' perceptions of the impact of the COVID-19 at school and their perceptions of school climate, Pearson correlation coefficients were computed and tested using the sum of 5 items on the COVID-19 at school scale and the sum of all 11 items on the school climate scale. Higher scores on COVID-19 at School Scale represent a higher perceived impact of COVID-19 at school. Higher scores on the School Climate Scale represent a more positive perception of school climate. The Pearson correlation was statistically detectable $r_{77} = -.29, p = .01$ (2-tailed). Figure 6 shows the scatterplot.

Thought Experiment

Contrasts of participants' views imagining improving conditions or worsening

conditions are provided in figures 7-10 regarding peer relationships, figures 11-14 considering student-teacher relationships, and figures 15-17 on school connectedness. Because the thought experiment is intended to offer evidence of a causal relationship between the COVID-19 situation and one's perceptions of school climate, it is hypothesized that more participants in the improved group will select "more" on an item compared to participants in the worsened group, and vice versa. Figure 18 depicts the total scores on all items by groups, improved and worsened, for the thought experiment.

We conducted an independent-samples *t*-tests (2-tailed) comparing means for each item between these two groups. The aggregate means across all items were 1.95 for the improved group and -2.79 for the worsened group. This mean difference was statistically detectable ($t_{77} = 4.55, p < .001$).

Summary of Results

1. About half of the participants worried about getting COVID-19 in school, while the other half had no opinion or did not worry.
2. Almost all participants felt attending school was different this year, and preferred that school go back to the way it was before the COVID-19 pandemic
3. Overall, participants' perceptions of peer relationships, student-teacher relationships, and school connectedness were on the positive side.
4. There was a small but statistically detectable correlation ($r_{77} = -.29, p = .01$) between participants' perceptions of the impact of COVID-19 at school and their perceptions of school climate
5. Based on the results of the thought experiment, while participants in the improved scenario tended to report improved perceptions of school climate and participants in the worsened scenario tended to report worsened perceptions of school climate, the impact of the COVID-progression on participants' perceptions of school climate differed across items on the School Climate Scale. Not all items on the School Climate Scale were impacted to the same degree by the progression of COVID-19.

Discussion

The Impact of Covid-19 at School

One major concern related to the COVID-19 pandemic and in-person learning was safety. Specifically, were students worried about getting COVID-19 while they were in school? The simple answer is yes. The majority (51%) of students either agreed or strongly worried about getting COVID-19 in school. However, only 28% of students reported they would prefer to stay home rather than go to school because of worry about getting COVID-19 in school. However, there was a statistically detectable positive correlation ($r = .56$) between students' worries about getting COVID-19 in school and wanting to stay home.

Students who worried about getting COVID-19 while they were in school were also more likely to prefer to stay home instead of going to school.

Furthermore, almost all students in this study thought attending school in-person was different this year and they would like things to return to the way it was before the COVID-19 pandemic. These unsurprising results provide evidence that the COVID-19 pandemic did cause unwanted changes to students' school lives. This finding on students' in-person schooling experience during the COVID-19 pandemic came largely on students in the Province of BC. secondary schools. Students from other provinces or school districts with different safety measures could have different opinions or experiences with what in-person schooling felt like during the COVID-19 pandemic.

Students' Perceptions of School Climate during the COVID-19 Pandemic

Based on the results of the School Climate Scale, students' mean response on these items landed somewhere between no opinion to agree. In past studies, such as the School Connectedness Subscale in the CAYCI School Experience Survey and student-teacher relationships from EDSCLS, similar results were observed (Anderson-Butcher, Amorose, et al., 2016; National Center for Education Statistics, 2015). For example, the mean of the school connectedness items in the CAYCI was between no opinion to agree. Since the School Climate Scale was not a complete replica of past surveys, and no pre-pandemic results were collected, one should refrain from inferring any conclusion related to changes in students' perceptions of school climate.

Among the School Climate Scale, there were two items with a negative mean score (*I am satisfied with how often I get to hang out and talk with my schoolmates while we are at school, and my teachers understand my problems*). Reduced social interaction is perhaps the most prominent COVID-19 related change in school for students. Students were expected to stay within their own learning bubbles and often discouraged from engaging in close interaction with their peers. The stage-environment fit model demonstrates the discrepancy between students' needs for social interaction and how much peer interaction they are receiving in school as a source of students' dissatisfaction with their schooling experience. While such social distancing procedures are important in controlling the spread of COVID-19, the negative impact on students' social relationships with peers/friends ought to be addressed as well.

The other item with a negative mean score was students' perceptions of how much their teachers understand their problems. Prescribed by the bioecological theory, the impact of the COVID-19 pandemic often affects multiple domains of students' lives. The COVID-19 pandemic affects students' personal, social-emotional, physical, familial, and school domains. Therefore, students' feelings or thoughts of not being understood by teachers could be a reflection of the wide variety of changes or problems students were facing during

the COVID-19 pandemic. As teachers only make up a portion of students' lives, it's understandable that some students' problems might require beyond the help of teachers.

Regarding the question of how well participants' perceptions of the impact of the COVID-19 at school predict their perceptions of school climate; as stated previously, a small but statistically detectable correlation was found, $r = -.29$, between one's perceptions of the impact of the COVID-19 and perceptions of school climate. The problem in interpreting this correlation is that one does not know whether there was a causal relationship between the two variables and the direction of this causal relationship. Hence, we included the thought experiment in this study as an alternative approach to address some of the causal and directional issues in correlational studies.

In the thought experiment, there was some support for such a causal relationship, particularly regarding students' perceptions of peer relationships and school connectedness. We expected a pattern where more participants in the improved selected "more" than participants in the worsened group and more participants in the worsened group selected "less" than participants in the improved group (an inverse pattern in figures). All items about peer relationships and school connectedness demonstrated this inverse pattern. In contrast, only 2 of 4 items about student-teacher relationships demonstrated this inverse pattern. COVID-19 appears to have a stronger impact on students' projected perceptions of peer relationships and connectedness than their perceptions of student-teacher relationships.

The proportion of participants selecting "no change" should be considered in both groups to judge the strength of the proposed causal relationship. Figuratively speaking, a U-shaped pattern provides stronger evidence of these proposed causal relationships. In our data, 3 of 4 items about peer relationships demonstrated this U-shaped graph, while 2 of 3 items on school connectedness and all 4 items on student-teacher relationship demonstrated an upside-down U-shaped graph.

In this light, support for a causal relationship of COVID-19 progression on students' perceptions of school climate appeared to be the strongest for perceptions of peer relationships.

Conclusion

This rapid survey during the COVID-19 pandemic provided timely feedback and opinions from students about their in-person schooling experience during this unusual year. Overall, COVID-19 caused a noticeable change in students' school life and worry about getting COVID-19 in school was reported by many students in this study. As the popular COVID-19 phrase "we are all moving at our own pace" suggests, students are also moving at their own pace. Perhaps, the most important takeaway for professionals working in the educational sector is that students are faced with a wide range of issues, and no universal

solution could address all their problems. Therefore, it's crucial to allow and encourage students to voice their opinions and concerns regarding their schooling experience during the COVID-19 pandemic.

A potential limitation of this study has to do with the participants' demographics. While focusing on the B.C. student population provided more concentrated and locally relevant results, this trade-off minimized the external validity of the results of this study. Another limitation relates to the cross-sectional nature of this study. The findings only represent students' perceptions at one time; therefore, this study did not include any findings on how students' perceptions of school climate might change over time. Despite the thought experiment in measuring students' perceptions of school climate in a hypothetical futuristic sense, the lack of longitudinal findings confirming the actual changes in students' perceptions of school climate also remained a problem.

Future studies should investigate how the impact of the COVID-19 pandemic may affect the commonly identified school climate domains differently (Wang & Degol, 2016). For example, the results of the thought experiment in this study provided some indication that students' perceptions of peer relationships might be more affected by COVID-19 related changes in school than their perceptions of student-teacher relationships or school connectedness. In addition, interviewing students or asking more open-ended questions about their in-person schooling experience during the COVID-19 pandemic might provide more contextual information in this regard. Unlike conducting a survey study with pre-made questions or items, conducting an interview provides more opportunities for students to bring up issues or problems that are most relevant in their own lives.

Let's assume that COVID-19 did indeed have a greater impact on students' peer relationships than their relationships with teachers. With this in mind, strategies and activities should then focus more on rebuilding peer relationships and providing opportunities for peer relationships to thrive as students return to school. Having a virtual school spirit day connecting all students through video chat, and setting up a time when students can Facetime with their peers in school using their own personal devices, are ways one can bring positivity into the picture during this unusual time. While these activities may not seem much at first glance, this extra little touch of feeling connected is perhaps all one needs in the time of COVID-19.

Ethics Statement

The author, whose name appears on the title page of this work, has obtained, for the research described in this work, either:

- a. human research ethics approval from the Simon Fraser University Office of Research Ethics

or

- b. advance approval of the animal care protocol from the University Animal Care Committee of Simon Fraser University

or has conducted the research

- c. as a co-investigator, collaborator, or research assistant in a research project approved in advance.

A copy of the approval letter has been filed with the Theses Office of the University Library at the time of submission of this thesis or project.

The original application for approval and letter of approval are filed with the relevant offices. Inquiries may be directed to those authorities.

Simon Fraser University Library
Burnaby, British Columbia, Canada

Update Spring 2016

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Tables and Figures

Table 1: Items in school climate scale

	Item	Underlying factor	Source
1	My schoolmates and I know each other well.	Peer relationships	The present survey
2	I consider my schoolmates my friends.	Peer relationships	The present survey
3	I am satisfied with how often I get to hang out and talk with schoolmates while we are at school.	Peer relationships	The present survey
4	My <u>schoolmates</u> support and care about me.	Peer relationships	CAYCI (changed from friends to schoolmates)
5	My teachers understand my problems.	Student-teacher relationships	EDSCLS
6	Teachers are available when I need to talk to them.	Student-teacher relationships	EDSCLS
7	It is easy to talk with teachers at this school.	Student-teacher relationships	EDSCLS
8	My teachers care about me.	Student-teacher relationships	EDSCLS
9	I enjoy coming to school.	School Connectedness	CAYCI
10	I have good relationships with teachers and other adults at my school.	School Connectedness	CAYCI (elementary school version)
11	I feel like I belong at my school.	School Connectedness	CAYCI

Table 2: Scoring Scheme of the COVID-19 at School Scale, School Climate Scale, and Thought Experiment

	Scoring	Interpretation
COVID-19 at School Scale	Strongly disagree= -2 Disagree= -1 Neutral = 0 Agree = 1 Strongly Agree= 2 (*)	Higher points = higher perceived impact of the COVID-19 pandemic at school Lower points= lesser perceived impact of the COVID-19 pandemic at school
School Climate Scale	Strongly disagree= -2 Disagree= -1 Neutral = 0 Agree = 1 Strongly Agree= 2	Higher points = more positive perceptions Lower points = more negative perceptions
Thought Experiment	Less = -1 No change = 0 More = 1	Higher points = improvement of perceptions Lower points = deterioration of perceptions

Note: Reverse scoring on item: “I think social distancing and mask wearing are effective ways to protect me from getting COVID-19 while I am in school.”

Table 3: Participants Demographics

Gender	n = 79	% of total participants (n=79)
Other (please specify)	1	1%
Prefer not to say	7	9%
Male	20	25%
Female	51	65%
Birth Year		
2002	3	4%
2003	7	9%
2004	13	17%
2005	23	29%
2006	19	24%
2007	14	18%
Grade Level		
8 th	14	18%
9 th	19	24%
10 th	23	29%
11 th	13	17%
12 th	9	11%
mixed	1	1%
Learning Mode		
Full-time in person learning	36	46%
A mix of in-person learning and remote learning	43	54%
In-person School Days (per week)		
Around 1 day	1	1%
Around 2 days	1	1%
Around 3 days	6	8%
Around 4 days	3	4%
Around 5 days	67	85%
More than 5 days	1	1%

Table 4: The Mean of Participants' Responses on the School Climate Scale

	Mean	Standard Deviation
I am satisfied with how often I get to hang out and talk with my schoolmates while we are at school.	-0.11	1.34
My teachers understand my problems.	-0.04	1.18
I enjoy coming to school.	0.27	1.11
It is easy to talk with teachers at my school.	0.44	1.02
I feel like I belong at my school.	0.47	1.08
My schoolmates and I know each other well.	0.56	1.14
My teachers care about me.	0.61	0.88
My teachers are available when I need to talk to them.	0.68	0.95
My schoolmates support and care about me.	0.68	0.91
I have good relationships with teachers and other adults at my school.	0.81	0.89
I consider my schoolmates my friends.	0.81	1.00

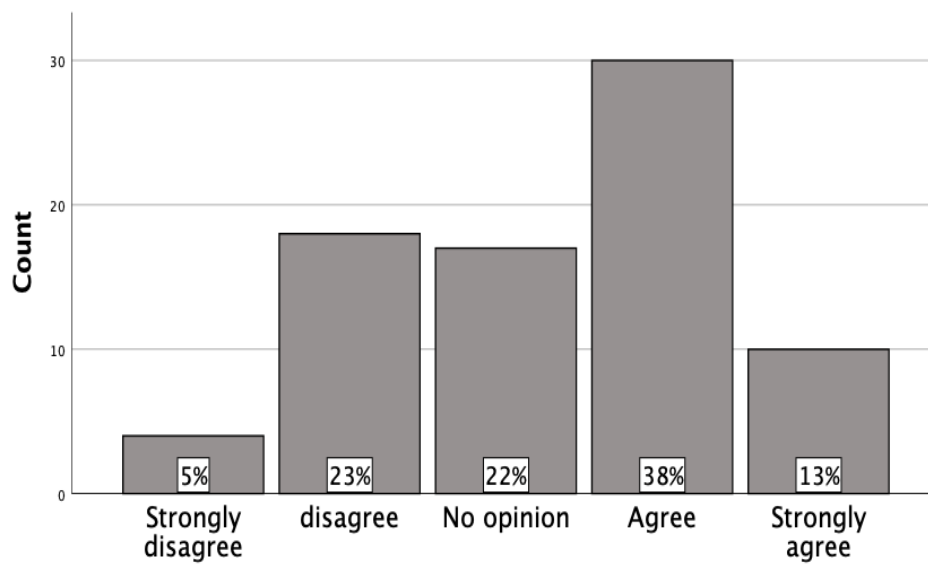


Figure 1: I worry about getting COVID-19 while I am in school

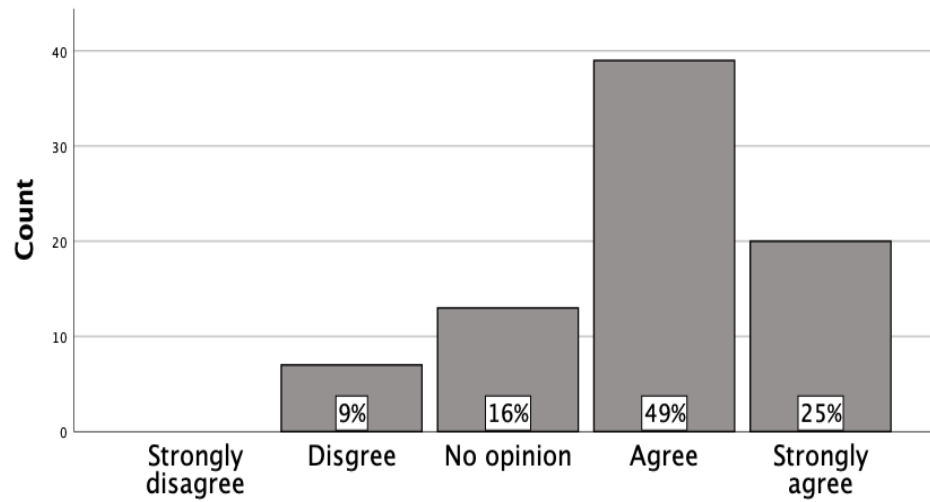


Figure 2: I think social distancing and mask wearing are effective ways to protect me from getting COVID-19 while I am in school

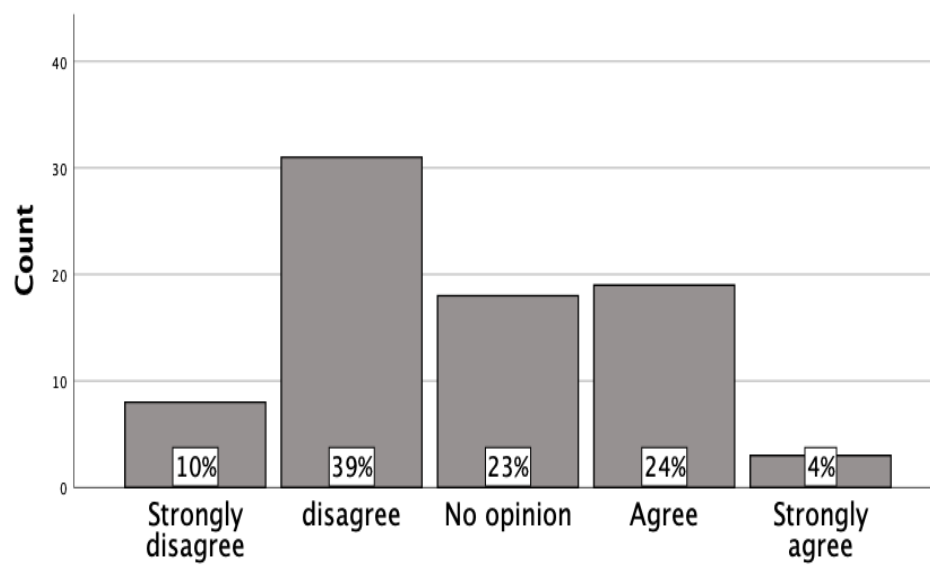


Figure 3: I prefer to stay home rather than go to school because of my worry about getting COVID-19 while I am in school

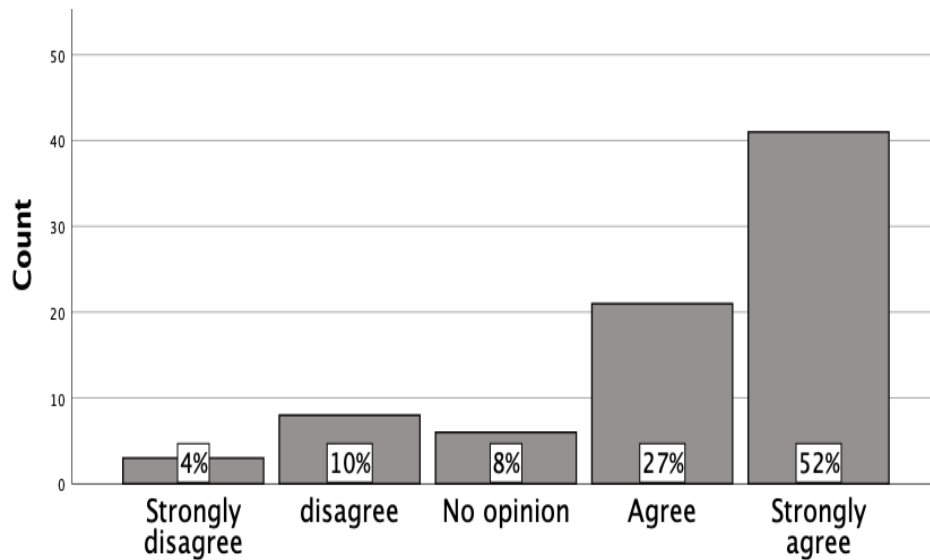


Figure 4: I wish school could go back to the way it was last year before the COVID-19 pandemic

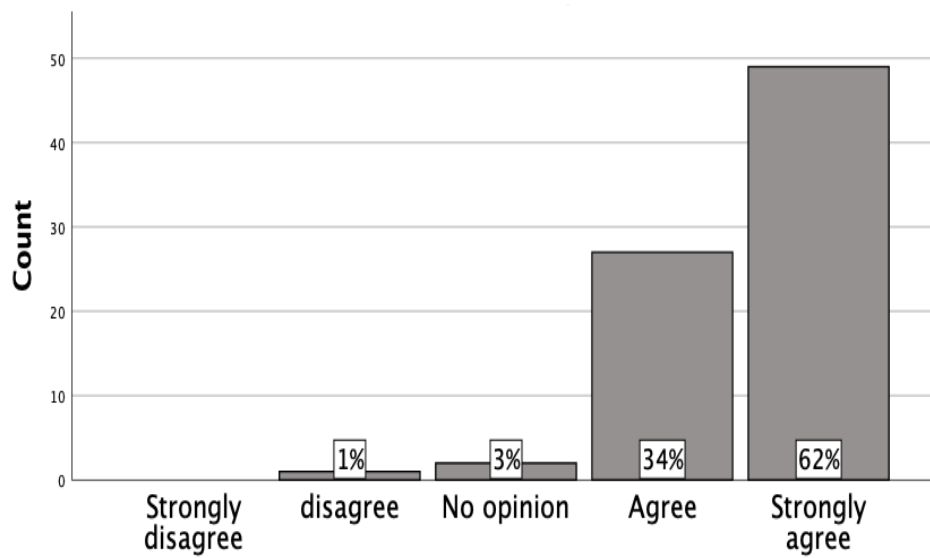


Figure 5: Attending school in-person feels different this year because of the COVID-19 pandemic

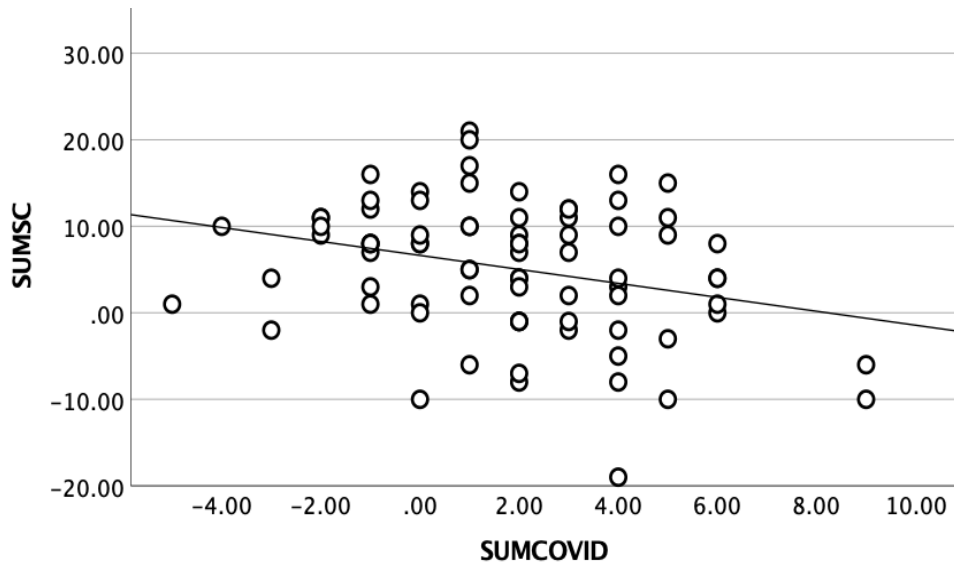


Figure 6: Scatter Plot of SUMSC by SUMCOVID

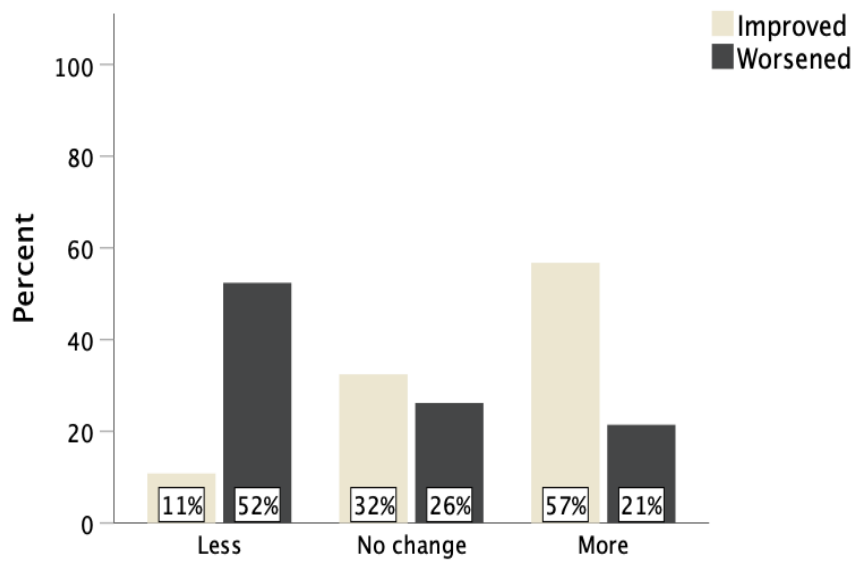


Figure 7: My schoolmates and I know each other ____ well

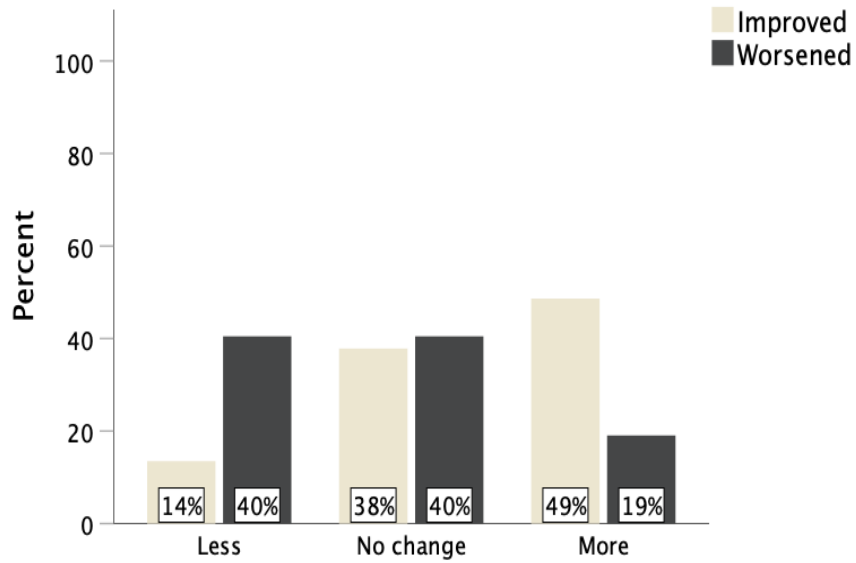


Figure 8: I consider my schoolmates my friends _____

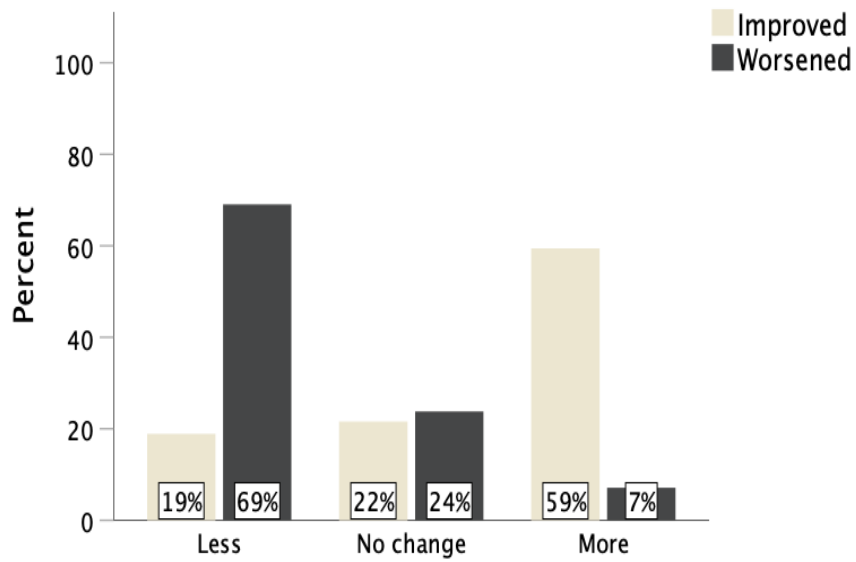


Figure 9: I am _____ satisfied with how often I get to hang out and talk with my schoolmates while we are at school

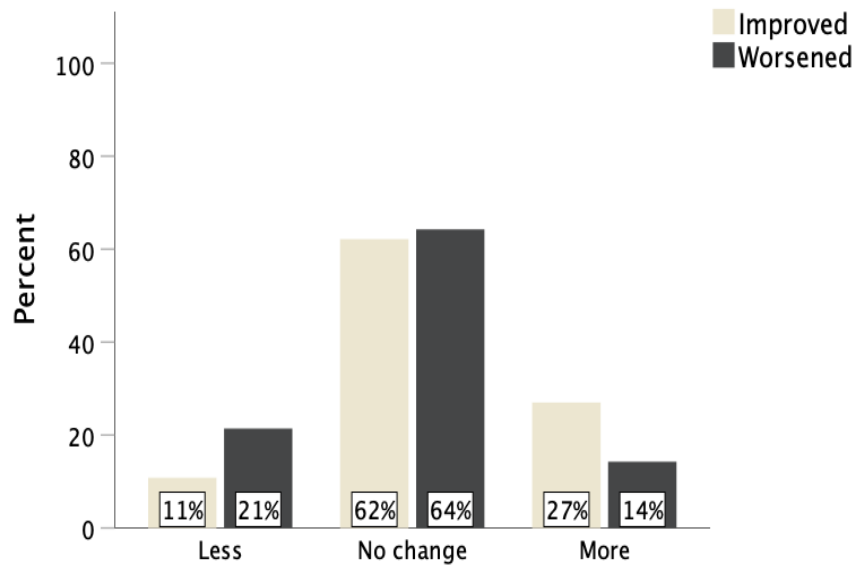


Figure 10: My schoolmates support and care ____ about me

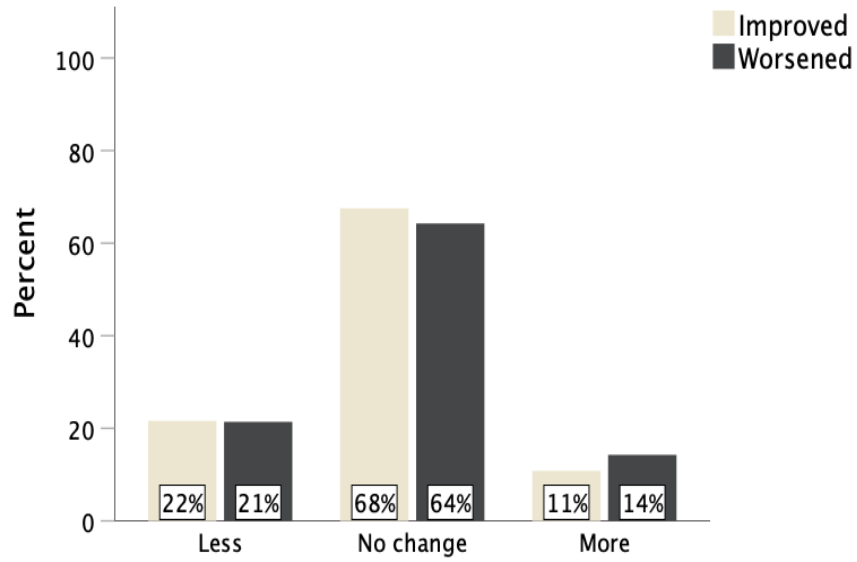


Figure 11: My teachers understand my problems ____

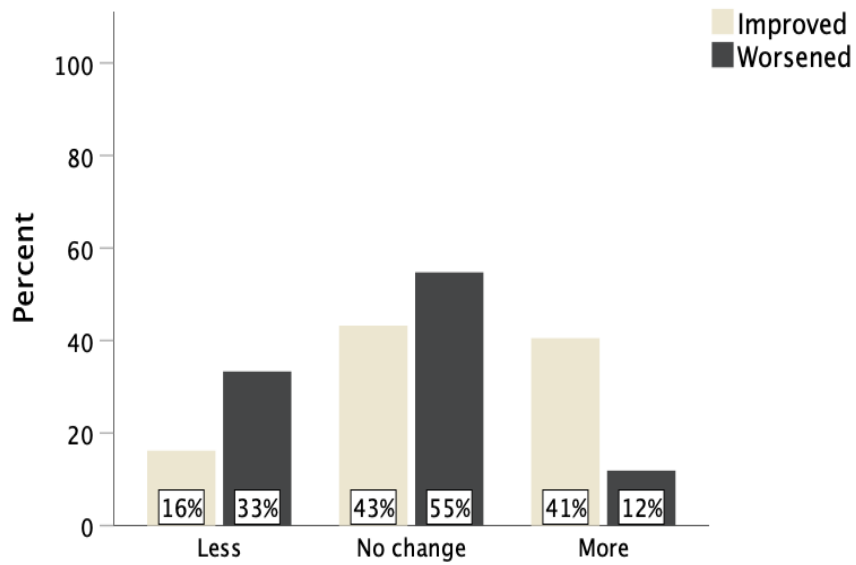


Figure 12: My teachers are ____ available when I need to talk to them

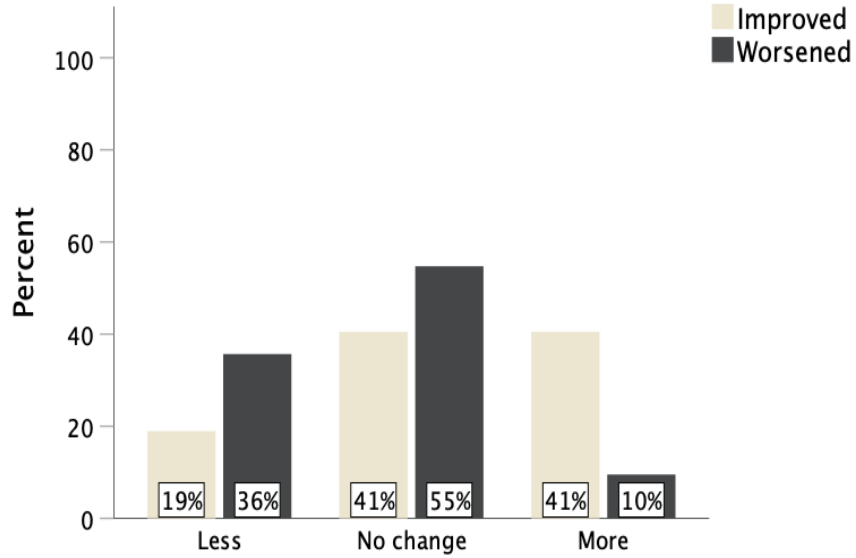


Figure 13: It is ____ easy to talk with teachers at my school

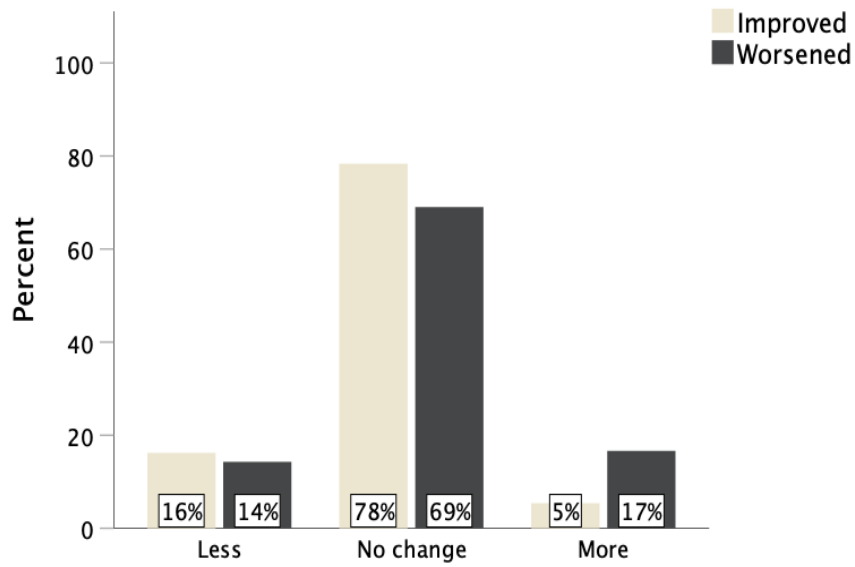


Figure 14: My teachers care ____ about me

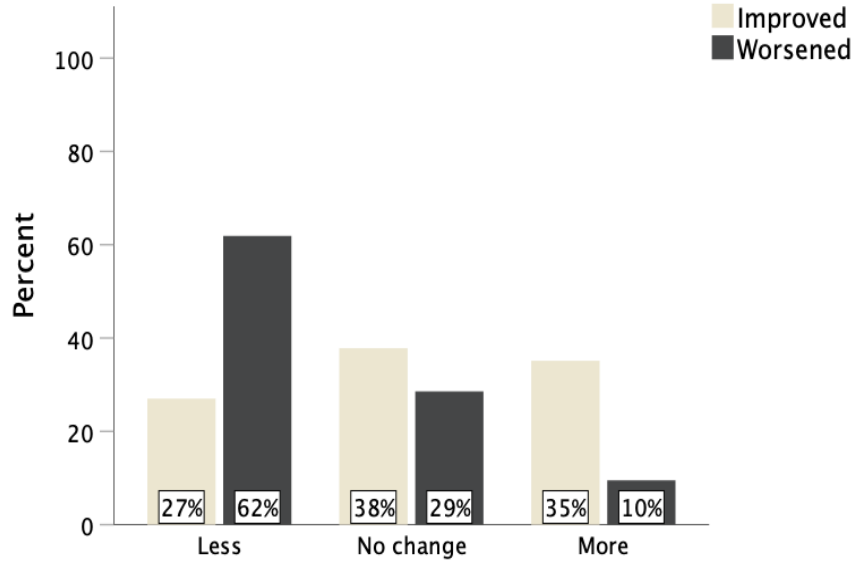


Figure 15: I enjoy ____ coming to school

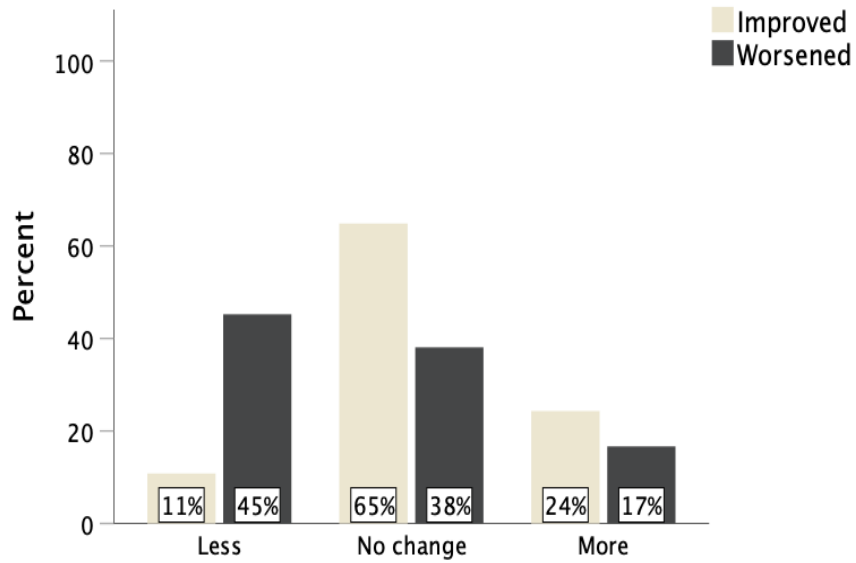


Figure 16: I have ____ good relationships with teachers and other adults at my school

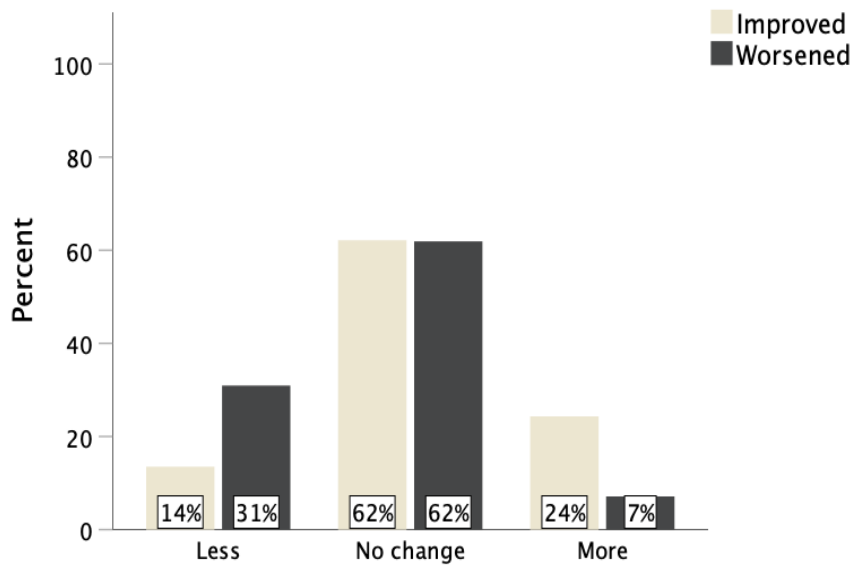


Figure 17: I feel like I belong ____ at my school

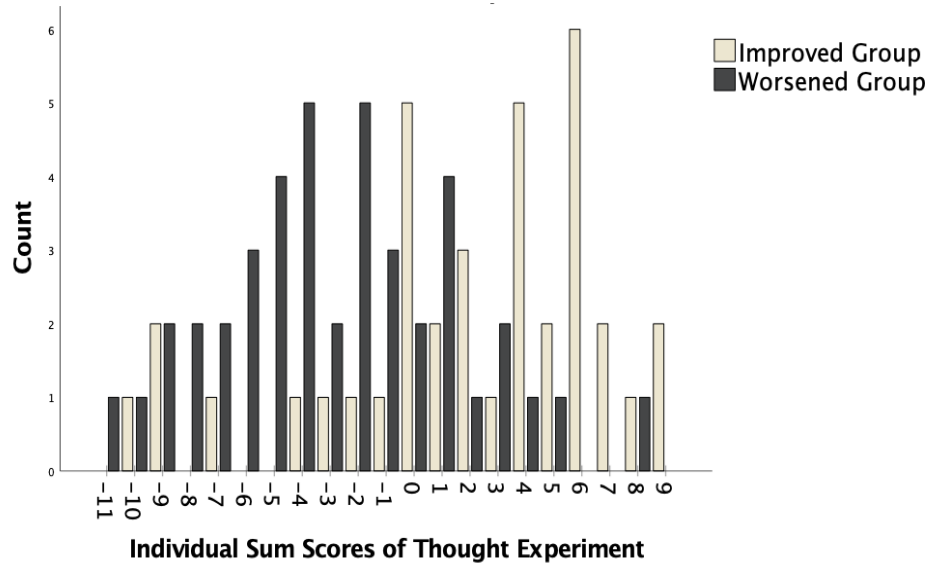


Figure 18: Total Scores of Thought Experiment Organized by Groups