Consequences for prevention strategies of reduced prevalence of bullying at school-class and school level in a Swedish Municipality

Peter Edward Gill, Bo-Erik Simonsson, Pelle Matton (2017). Session 05 SES 07. ECER 2017: Children and Youth at Risk and Urban Education. Copenhagen

Bullying in Schools

A special feature of school classes, as intact social entities, is that members share certain values (Boehnke & Schiefer, 2016). Saarento, Garandeau and Salmivalli (2015), argue that the influence of classroom- and school-level factors on bullying involves demographic, structural, peer contextual and teacher-related dimensions. Swearer et al. (2014) use a theory of "homophily and bullying" to argue for a homophily hypothesis where within group similarity leads to bullies physically or relationally rejecting those who are different and withdrawing any social support for victims. However, Saarento, Garandeau and Salmivalli's conclusion (op.cit.) was that the contributions of demographic, school structural and school-class characteristics remain inconsistent. On the other hand, recent Swedish research (Thornberg et al., 2015 & Thornberg et al., 2016), after controlling for factors such as age, gender, ethnicity, school-class size and gender composition, found that relational climate and experience of moral disengagement within school-classes was a significant predictor of between-class variation in victimisation. Victimisation was less likely in classes characterised by supportive relational patterns and lower levels of moral disengagement in the classroom, a result confirmed by Grundherr (et al., 2016). The research reported here builds on a presentation at ECER 2016 (Gill, Larsson, Matton, Simonsson & Levin, 2016) that explored some consequences of systematic reductions of prevalence of bullying at school. It was argued that Swedish anti-bullying programs are being delivered at the later phases of an implementation research continuum (Chalamandaris & Piette, 2015). Uncovering new or persistent cases of bullying becomes more difficult as prevalence of bullying reduces (successful implementation). Being bullied at least 2 to 3 times a month between 2009–2015, among 200,000 children in 1500 Finnish schools (grades 1–9) decreased from 17.2% at baseline to 12.6% after six years of implementation of the KiVa program (Herkama & Salmivalli, 2016). Even though creating reliable measures of bullying prevalence is difficult (Vivolo-Kantor et al., 2014), Finnish prevalence is considerably higher than in Sweden, national average is about 7/8%, which in turn, is higher than the average in the municipality where this research has been carried out (4.9%, Spring 2016). With prevalence rates at this level it is possible to envisage realistic "zero-vision" and "zero-tolerance" strategies. (For a critical review of zero-tolerance, see Borgwald & Theixos, 2013 and James & Freeze, 2006). Any goal of reducing a low prevalence of bullying in Sweden, even lower, is mediated by the discovery, from individual-level, longitudinal data, where successful cases of ceased victims are regularly replaced by new victims (Flygare, Gill & Johansson, 2013: Hellstedt, Johansson & Gill, 2016), revealing a cyclical replacement of victims. While up to 75% of victims at one time will self-report not being victimized at one-year follow-up, rates at cross-sectional measurement may remain the same (typically 7/8% in Swedish schools, op.cit.). The Norwegian "Zero Program" (Strohmeier and Noam, 2012) is based on a "zero-vision" manifesto. Köhler (2006) in outlining health indicators for Swedish children argues that while some ideal zero-outcomes might not stand up as credible operational targets, using "zero vision" as a reference point may be reasonable in some cases. In the municipality that is the focus here, evidence is emerging that some schools and school classes are coming closer to a zero-vision reference point. In a school with 200 children, in 8 or 9 classes, a point prevalence rate of 3% would indicate that at least two, possibly three classes in that school had no victims of bullying. It is argued that this circumstance creates new challenges for prevention strategies. Therefore, it is important to delve deeper into changes in "the

picture of bullying", and link critical findings to design and implementation of anti-bullying initiatives. That is the goal of this research.

Threshold, Sub-Threshold and Reduced Rates of Bullying

Mikita and Stringaris (2013) give an example of irritability, referring "to easy annoyance and touchiness that can manifest in anger and temper outbursts", where, depending on threshold prevalence rates, chronic irritability can ranges from 3 % for to 20 % in various studies.

Fehm (et al., 2008), expecting social anxiety to be more prevalent on a broad syndrome level, found 2% of their sample at a prevalence of threshold of social anxiety disorder (SAD). Subthreshold expressions of SAD were found in 3.0%, while 7.5% were "symptomatic". Since social anxiety usually follows a normal distribution in the general population, they wondered if their prevalence estimates could be explained by the wording of their questionnaire. Similar patterns of variation in prevalence rates of classroom bullying have been indicated in many studies. See, for instance, Kärnä (et al., 2011), who studied a range of classroom characteristics, and Saarento and Salmivalli (2015) who reported how variations in rates of bullying and victimization across classrooms were linked to pupils' negative perceptions of the school and classroom climate. These studies used a prescriptive definition of bullying.

Identifying a threshold for bullying, or social anxiety symptoms, which could be linked to coexisting problems is critical for intervention planning. Olino (et al., 2012, p. 324) argue that these kinds of studies can be conducted either as variable-centered, by imposing, for instance, various cut-off points in quantitative analyses or as person-centered, by identifying subgroups in the data that differ from each other. By using person-centered analyses relatively homogenous subpopulations may be identified. School classrooms with no bullying victims are probably different from classrooms with one or more victims, or increasing numbers of victims. A person-centered approach is used here.

Clustering of bullying behaviour

Azeredo (et al., 2015) conducted a systematic review of contextual-level risk factors in observational studies of school bullying, including multilevel analyses aimed at measuring proportions of variance in bullying behaviour accounted for by different contextual levels: 1.7% and 9.1% of variance occurred at the municipality-level; between 0.6% and 13% of variance occurred at this school level; between 87% and 99% of variance occurred at the individual-level; classroom-level variation ranged from 2.3% to 10.2%. Even if up to 20% of variance in bullying occurred at group-levels, Azeredo (ibid.) concluded that most variation in bullying prevalence occurs at the individual-level.

On the other hand, Saarento (et al., 2013), in a large-scale Finnish study of elementary school pupils (3386 girls and 3345 boys) sampled from 358 classrooms in 74 schools (grades 3, 4, and 5 (mean age 11 years), found classroom contexts to have a particularly strong influence on variability of peer-reported bullying victimization. Pupils reporting social anxiety and rejection by their classmates were at risk for victimization, with an increased likelihood among those reporting both anxiety and rejection. Risk of victimization was greater in classrooms where negative social outcomes of defending a victim were expected. Victimization was also more likely in classrooms and schools where pupils perceived their teachers to be less disapproving of bullying (op.cit).

Program Adaptation, Dosage and Fidelity

Bopp, Saunders and Lattimore (2013) use the term "tug-of-war" in explicating the notion of fidelity versus adaptation in a "life cycle" of program implementation. There is an in-built assumption in regard to the efficacy of program implementation parameters such as delivery, dosage and fidelity.

Prevention science and intervention theory are based largely on medical models and population epidemiology where accurate implementation is the best guarantee of effectiveness. Thus, assessing fidelity and dosage becomes an important research activity. Hill, Maucione and Hood (2007) used a focused approach to relate facilitator attributes with program fidelity. While they found no clear relationship, they were able to demonstrate facilitators' belief in the importance of fidelity and their awareness of how "they are not supposed to adapt evidence-based programs" (ibid.). Many program facilitators in this study reported feeling guilty about any changes they had made in program delivery. The most frequent reason given for making additions to a program was a perceived need to clarify program concepts. Deletions to program content were explained through not having time to cover content, forgetting material, or having some disagreement with content. This study is a good example of what we term "normal prevention science" where evidence-based implementation is expected to adhere to guidelines and parameters designated by the program providers.

Smith and Caldwell (2007) have tackled the issue of adapting programs to new contexts. They give an example of a substance use prevention program being adopted by school districts in rural settings and internationally, pointing out that little attention was paid to an adaptation process when such a program is moved to a different context. They argue that evidence-based programs ought not to be changed haphazardly. Any modifications should be based on careful reviews of program content, the theoretical basis for the program, and special characteristics of the new context.

Macklem (2014) in a text on "fidelity versus adaptation" quotes the American National Institute of Mental Health definition of implementation as "use of strategies to adopt and integrate evidence-based health interventions and change practice patterns within specific settings." Macklem points out that "it is only when practitioners determine whether or not a program or preventive intervention has been implemented very much as the developers of the program intended can they have any confidence at all in whether or not they will get the same results as the original studies which determined that the program was effective in the first place" (op.cit., p. 193).

In this paper we argue that changes in prevalence rates of target behaviour, in themselves, constitutes a new or changed context. We argue further, that adaptations made to an existing program on the basis of valid and reliable changes to threshold prevalence rates of bullying, at school and classroom level should be regarded as a strengthening of program implementation rather than a weakness.

Method

Since the initiation of the rolling intervention (2011/12), where participation was voluntary, 6 schools have become 29 (including independent academy schools). Since Autumn 2016, all 4th to 9th graders, in these schools, have participated in the municipality's web-based "School Safety and School Climate Questionnaire". Included in this questionnaire is the instrument used by the National Agency for Education to estimate the prevalence of bullying in Swedish schools (see Flygare, Gill & Johansson, 2013, for details). The questionnaire is delivered twice during the school year (October and April). These measurements allow for follow-up comparisons for in a target population of 6000 children distributed between 300 school classes in 29 schools.

The dependent variable – being bullied

It is important to point out that the measure used to estimate bullying is indirect and does not use a prior prescriptive definition of what bullying is. Instead, a two part question is posed to participants where the report if certain things have happened to them, "in the last couple of months" (teased, hit, pushed, excluded, nasty messages on social media etc. – 7 categories). Having answered this question respondents are then ask of the perceptions of why the event (or events occurred). The can indicate that it was "just for fun", "because I was in conflict", because "it was an attempt to hurt me", or they were unsure. Respondents were categorized (discrete measure) as bullied (victims) or not (see Flygare,

Gill & Johansson, 2013, and Swedish National Agency for Education, 2011 for details). Using this measure of bullying/victimhood, the research reported here attempts to create a range of descriptive statistics and indicators to establish realistic estimates of prevalence of bullying victimization. An analysis of results for prevalence rates at individual, classroom and school level with then be presented for comment to three critical stakeholders in the planning, implementation and evaluation of an ongoing, municipal-wide anti-bullying set of initiatives, referred to as 'The Gävle Model for Bullying Prevention'.

The final database

The lead author (who conducted the analysis) was provided with an Excel file of raw data from 185 classes in 27 schools in the municipality. The population of pupils covered by the bi-annual School Climate Survey is estimated at about 8000 pupils in 29 schools. For inclusion in the database used each school had to have at least 4 responding classes, at both measurement points. At least 75% of participating pupils in each class had to have answered the questionnaire, and the raw number of responses per responding class has to be 12 pupils or more. This yielded a survey sample of about 4200 pupils, distributed between 170 school classes in 20 schools.

Coding Scheme

The lead author was supplied with an excel file with longitudinal data for 185 classes, distributed between 27 schools participating in the 'Gävle Model for Bullying Prevention'. The municipal quality assurance office generated the data from the bi-annual "School Safety Questionnaire". This is distributed to all compulsory schools in the municipality in October and April, within the same school year. The data provided to Gill (by Simonsson) showed numbers of boys and girls, as total numbers and as percentage in each school class, categorised as victims of bullying in October 2016 and in April 2017. As mentioned above, classes included in the file had at least 12 respondents, on both occasions, representing at least 75% of the participating class. In the final analysis, only 20 of 27 schools were included because 7 schools did not meet the criterion of "at least four classes per school". Outcomes for these classes were then coded as follows (by Gill):

Green = No pupil bullied October 2016 or April 2017(The best outcome)	n= 37	20%
Blue (right hand column) = Bullying ceased between October (Successful outcome)	n= 25	14%
Yellow (full line) = Someone bullied in October, improvement by April (Improved outcome)	n= 25	14%
Purple (full line) = No improvement for existing victims – bullying continues (Red flag)	n= 23	12%
Red (right hand column) = no bullying in October, at least one victim in April (Red flag)	n= 45	24%
Red (full) = Someone bullied in October, more bullied in April (Worst outcome – Red Flag)	n= 30	16
	N= 185	100%

Table 1, Coding scheme for various outcomes in the original database

The final number of school classes, because of the exclusion of schools with less than four responding classes, was 170 (distributed between the 20 schools). An example of how the coding scheme was applied is given in Table 2 below. The example chosen is for Västerskola (note: names of all schools have been changed)

School	Class	Boy October 2016	Girl October 2016	Total October 2016	Proportion October 2016	Boy April 2017	Girl April 2017	Total April 2017	Proportion April 2017	Patten of change between October and April
Västerskola	4A	1	2	3	12,5%	2	3	5	21,7%	Two boys - three girls - new additions
Västerskola	4B	1	2	3	12.0%	0	0	0	0	One boy - two girls intervention success
Västerskola	5A	1	2	3	17,6%	0	2	2	11,8%	Two girls - one boy - success with boy
Västerskola	6A	3	0	3	14,3%	3	0	3	13,6%	Three boys - no change
Västerskola	6B	0	0	0	0	1	1	2	10,5%	One boy - one girl - new additions
Västerskola	7A	0	0	0	0	1	2	3	13,6%	One boy - two girls - new additions
Västerskola	7B	0	0	0	0	0	0	0	0	
Västerskola	7C	0	0	0	0	0	0	0	0	
Västerskola	7D	1	0	1	5,3%	1	0	1	4,5	One boy - no change
Västerskola	7E	0	0	0	0	0	0	0	0	
Västerskola	8A	0	0	0	0	0	0	0	0	
Västerskola	8B	0	0	0	0	0	0	0	0	
Västerskola	8C	0	0	0	0	0	1	1	4,5%	One girl - new addition
Västerskola	8D	0	0	0	0	0	1	1	4,2%	One girl - new addition
Västerskola	8E	0	0	0	0	0	0	0	0	
Västerskola	8F	1	1	2	9,1%	0	1	1	4	One girl - one boy - success with boy
Västerskola	9D	0	0	0	0	0	1	1	3,8%	One girl - new addition

Table 2, Extract from data base showing coding scheme for outcomes at classroom level

Weighted outcomes scale

A weighted outcomes scale was developed based on the categories of outcomes shown in Table 2. A score of 1 was given to school class that had zero bullying both in October 2016 and April 2017. A score of 2 was awarded to a class that had at least one bullied pupil in October and no victims of bullying in April. A score of 4 was given to a class that had two or more victims in October and that showed a reduction of number of victims in April. A score of 6 corresponded to a situation where at least one pupil was bullied in October and the same situation pertained in April. The situation where there was no bullying in October and at least one bullied in April, that is to say, a more serious outcome (failure of the program) than where no change had taken place. These classes scored 8 on the weighted scale. A score of 10 was indicated when there was zero bullying in October and two bullied in April. A score of 11 corresponded to zero bullying in October and three or more bullied in April. A 12 corresponded to one victim in October and two bullied in April. A score of 13 was awarded when there were one or two victims in October and three bullied in April. When there was one victim in October and four bullied in April the score was 14, and the worst outcome, a score of 15, corresponded to a situation where there were two or three victims in a class in October and three or more bullied April. The scale was the most "sensitive" of the scales produced for analysis.

Outcomes

The goal of the analysis was to search for fluctuations in prevalence estimates, at classroom level, and to reveal raw numbers, at classroom level, of individuals, male and female, subjected to bullying at two measurement intervals, October 2016 and April 2017. Data has been examined with the goal of uncovering indicated cases, at school and classroom level. Descriptive statistics at school level are

based on summations of patterns in individual classes. Once statistical patterns have been uncovered, and conclusion drawn, these are tested against municipal stakeholders' knowledge, experiences, contacts and reports involved in the day-to-day administration of what we have termed the "Gävle model of bullying prevention".

The coding scheme allowed for a number of various summary statistics. These are shown below in a series of diagrams and summary tables. While these results have value in themselves, the key goal of this paper is to show how the data was generated, what the data reveals about cases of bullying in a Swedish municipality and how significant stakeholders, involved in the planning, designing, administrating and evaluating an anti-bullying 'program', respond to a deep analysis of data that was already available to them.

Figure 1 shows best outcomes (lower numbers) for Rundby (2.8) and Bredäng (2.8) and worst for Sjötorp (8.8). Knäbäck had the third best outcome (3.8), while Mariaskolan (4.7), Söderskolan (4.9), Nordskolan (4.9) and Västerskolan (5.2) constitute a cluster. Then there is a fairly evenly rising curve from Saltskolan (5.9) to Klosterskolan (7.9), the school with the second-worst outcome.

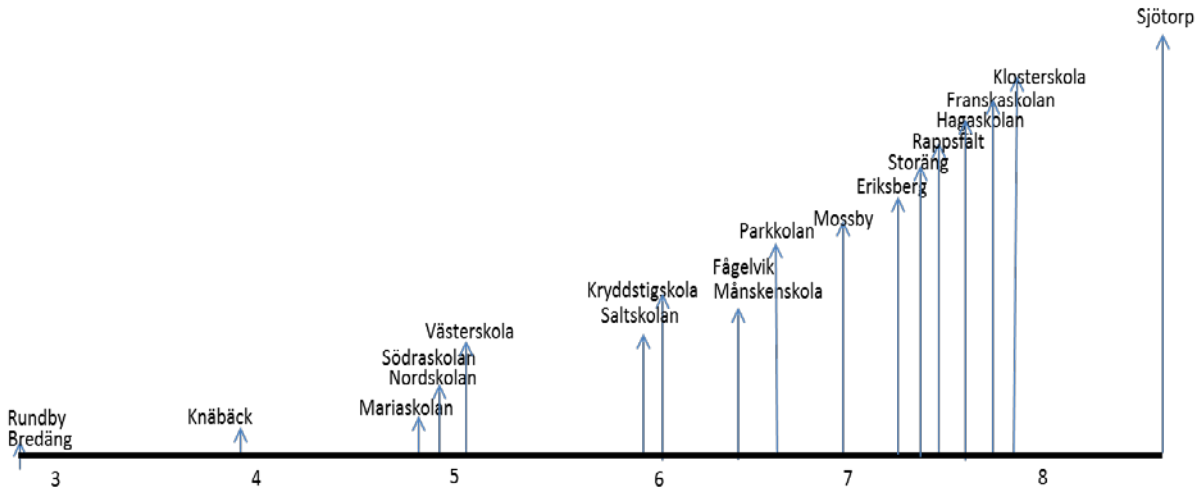

Figure 1: Distribution of 20 schools on a weighted outcome scale

The weighted scale is based on the following numbers: 1 = Zero bullying March or April; 2 = at least one bullied October, zero bullying April; 4 = Two or more bullied October, reduction in April; 6 = at least one bullied October, same situation in April; 8 = Zero bullying-October, one bullied April; 10 = Zero bullying-October, two bullied April; 11 = Zero bullying-October, three or more bullied April; 12 = One bullied October, two bullied April; 13 = One or two bullied October, three bullied April; 14 = One bullied October, four bullied April; 15 = Two/three bullied October, three or more bullied April (note: at least 4 responding classes per school)

The first three schools differ further. In those school classes where bullying has arisen between October and April, it is usually a single individual (one per class) who has become a victim, except for in two of 15 classes in the Knäbäck where the situation has gone from zero being bullied to two being bullied.

Figure 2 shows the 20 schools distributed on a scale based on more or less successful outcomes per school class. An average of 3 would mean no change between October and April, while higher numbers indicate successful outcomes and lower numbers of negative outcomes. Bredäng, Rundby and Knäbäck distinguish themselves positively while Sjötorp, Franskaskolan, Hagaskolan and Klosterskolan distinguish themselves negatively.

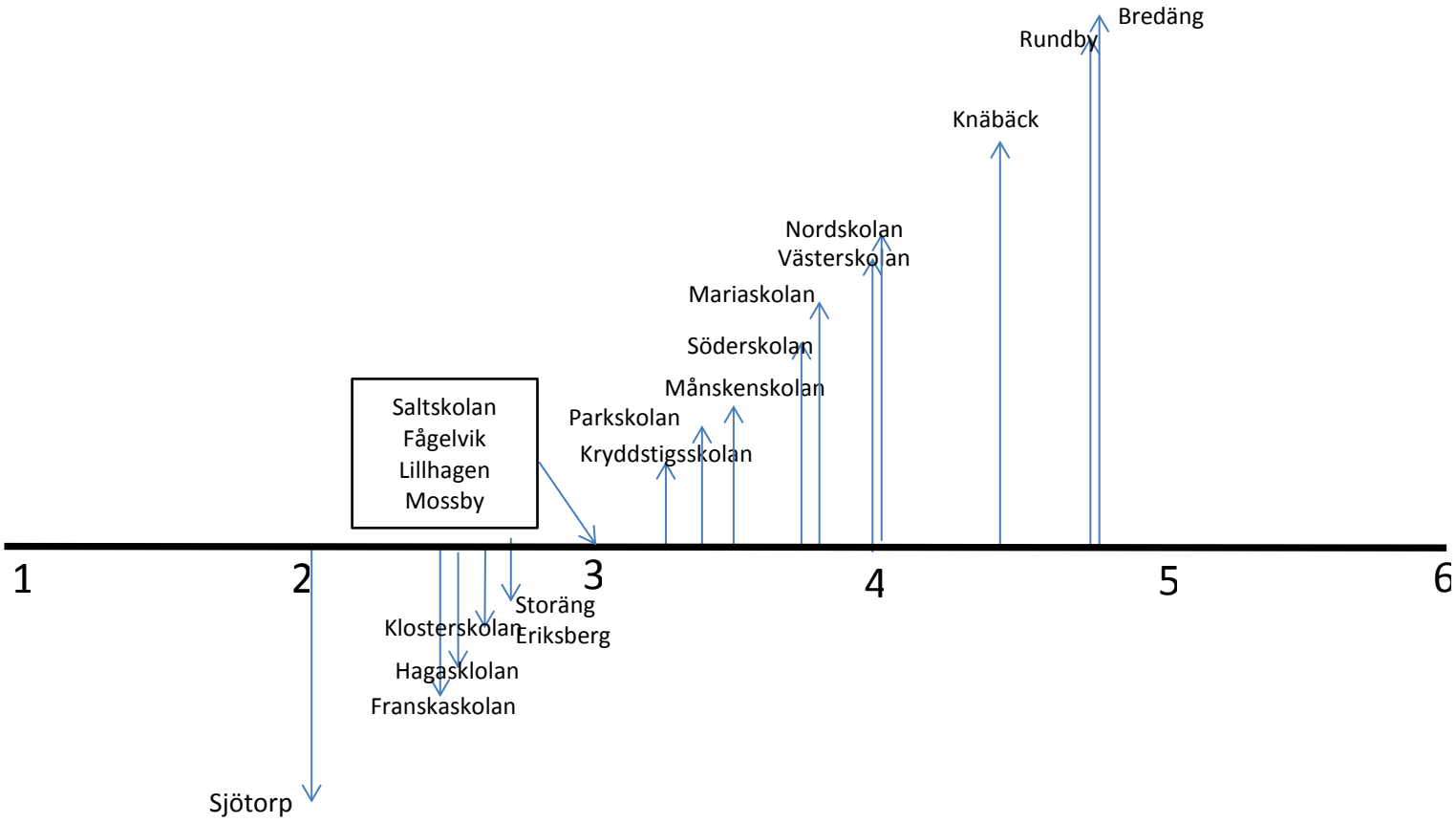

Figure 2, Ranking of 20 schools based on outcomes for each school class with more or less successful indices using the following scores:

No bullying, Oct./April (6); Ceased bullying Oct. to April (5); Reduced bullying Oct. to April (4): At least one victim, No change Oct./April (3); No bullying Oct/Some bullying April (2); Increase in bullying increased Oct. to April (1).

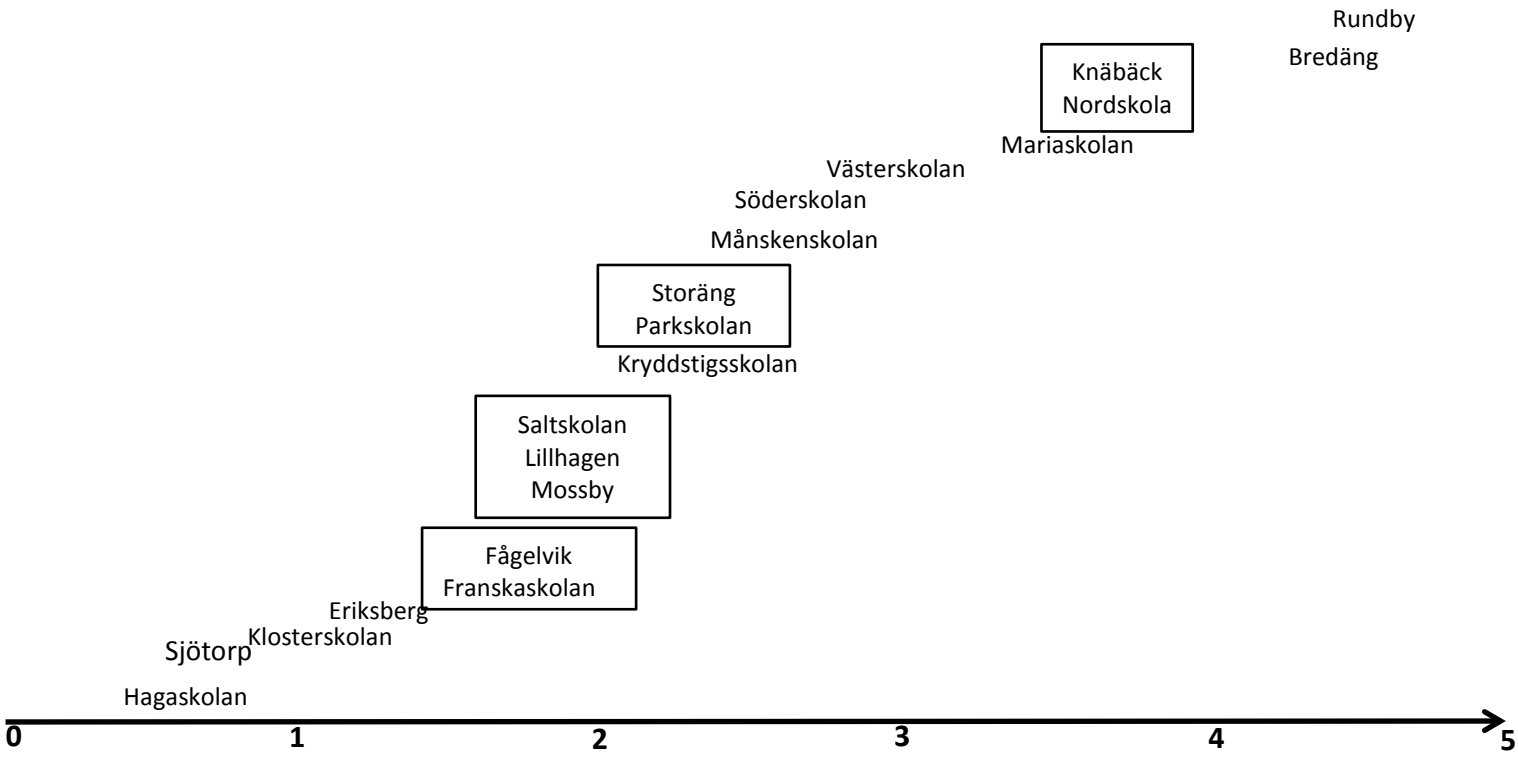

Figure 3, Rankings of 20 schools by scores for school classes based only on successful outcomes:

Breakdown by: No bullying (6); Ceased bullying (5); Reduced bullying (4)

Figure 3 shows a summary of scores based solely successful outcomes, that is, the three classroom indicators where bullying; (i) is not present in October or April; (ii) where bullying, present in October, has ceased in April; and (iii) where prevalence of bullying is reduced from October to April. The distribution in Figure 1 is based on the most "sensitive" scale with a possible spread from 1 to 15. A school that had a “one” on this scale would mean that all school classes (at least four responding in each school) had indicated no bullying either on October 2016 or April 2017.

An initial analysis

Rundby, Bredäng and Knäbäck all appear in the top rank on all three scales. These schools exhibit the most positive outcomes. Nordskolan and Mariaskolan represent anomalies, as shown in how their rank positions differ between the three figures.

Among the schools with the least positive outcomes, we find Sjötorp, Klosterskolan, Franskaskolan and the Hagaskolan. Their rank positions differ a little between the different scales while Eriksberg pops up at fourth rank (negative) in Figure 3.

All three figures are based on compilations based on various indices, derived from the original table of results. Outcome for each school on the various indices are given in Table 3.

An analysis of these outcomes is indicated in Table 3, below. Less good statistics are shown in red and better outcomes in green covering the 20 schools with a total of 170 responding classes. Seven schools from the original table of results, with three or fewer responding school classes (October and April), are excluded from this analysis.

School	**1.** Rank on ratio of positive to negative outcomes in each classes	**2.** Rank on number of classes with zero bullying	**3.** Number of victims in all classes April 2017	**4.** Number of victims in classes with at least one victim April 2017	**5.** Rounded number of victims in classes with at least one victim April 2017	**6.** Number of classes with at least one victim March 2016 and April 2017
Mariaskolan	1	16 (1 of 6)	10 in 6 classes	10 in 5 classes	2	4 of 6
Bredäng	2	1 (4 of 5)	1 in 5 classes	1 in 1 class	1	0 of 5
Rundby	3	2 (3 of 4)	1 in 4 classes	1 in 1 class	1	0 of 4
Knäbäck	4.5.	3 (9 of 15)	8 of 15 classes	8 in 6 classes	1	3 of 15
Nordskolan	4.5.	4 (5 of 9)	7 of 9 classes	7 in 4 classes	2	2 of 9
Västerskolan	6	5	20 in 17	20 in 10	2	5 of 17
Storäng	7.5.	12	5 in 4 classes	5 in 3 classes	2	3 of 4
Månskenskolan	7.5.	12	12 in 4 classes	12 in 3 classes	4	3 of 4
Söderskolan	9	6	12 in 15	12 in 9 classes	1	6 of 15
Kryddstigsskolan	10	8	12 in 9	12 in 6 classes	2	5 of 9
Parkskolan	11	10	11 in 7	11 in 5 classes	2	3 of 7
Rappsfält	12	15	15 in 10	15 in 8 classes	2	6 of 10
Franskaskolan	13.5.	19 (2 of 16)	30 in 16	30 in 14	2	11 of 16
Mossby	13.5.	8	10 in 9 classes	10 in 6 classes	2	3 of 9
Saltskolan	15.5.	8	9 of 6 classes	9 in 4 classes	2	1 of 6
Fågelvik	15.5.	16	6 of 6 classes	6 for 5 classes	1	3 of 6
Klosterskolan	17.5	16 (2 of 12)	17 in 12	17 in 10	2	4 of 12
Eriksberg	17.5	12	5 in 4 classes	5 in 3 classes	2	2 of 4
Sjötorp	19	20 (0 of 5)	12 in 5 classes	12 in 5 classes	2	4 of 5
Hagaskolan	20	18 (1 of 7)	9 in 7 classes	9 in 6 classes	1	3 of 7

Table 3, Twenty schools (with a minimum of 4 responding school classes) ranked on different indices based on the number of bullied pupils on two occasions (October 2016 and April 2017)

School	**7.** Total weighted score by number of classes	**8.** Average weighted score for each school	**9.** Rank on weighted scores	**10.** "Worst" school classes based on weighted scores for each class (1= best; 15= worst)	**11.** Number of victims per school, October 2016 …April 2017	**12.** Nominal percentage increase or decrease in total number of victims
Mariaskolan	28/6	4.7.	4	**10**	**20..... 10**	Minus 50%
Bredäng	14/5	2.8.	1.5.		2..... 1	Minus 50%
Rundby	11/4	2.8.	1.5.		0..... 1	Plus 100%
Knäbäck	53/15	3.5.	3	**10.10**	9..... 6	Minus 33%
Nordskolan	44/9	4.9.	5.5.	**15, 10**	7..... 7	0%
Västerskolan	88/17	5.2	7	**15, 10, 11**	15..... 20	Plus 33%
Storäng	30/4	7.4.	15	**12, 12**	6..... 5	Minus 17%
Månskenskolan	26/4	6.5.	10.5	**15**	9..... 12	Plus 33%
Söderskolan	73/15	4.9.	5.5.	**10, 10**	12..... 12	0%
Kryddstigsskolan	55/9	6.1.	9	**12, 12, 10**	11..... 12	Plus 9%
Parkskolan	46/7	6.6.	12	**15, 11**	4..... 11	Plus 175%
Rappsfält	75/10	7.5.	16	**15, 15, 11, 10**	13..... 15	Plus 15%
Franskaskolan	125/16	7.8.	18	**15, 12, 11, 11, 11, 10, 10**	23..... 30	Plus 30%
Mossby	63/9	7.0	13	**15, 13**	7..... 10	Plus 43%
Saltskolan	42/6	6.0	8	**12, 11**	2..... 9	Plus 350%
Fågelvik	39/6	6.5.	10.5	**12**	4..... 6	Plus 50%
Klosterskolan	95/12	7.9.	19	**14, 13, 12, 12, 10, 10**	6..... 17	Plus 183%
Eriksberg	29/4	7.3.	14	**13**	4..... 5	Plus 25%
Sjötorp	44/5	8.8.	20	**12, 12, 10**	8..... 12	Plus 50%
Hagaskolan	53/7	7.6.	17	**12, 11**	5..... 9	Plus 80%

Table 3 (contd.), Twenty schools (with a minimum of 4 responding school classes) ranked on different indices based on the number of bullied pupils on two occasions (October 2016 and April 2017)

In Table 3, Mariaskolan is ranked first because the scale is based on the number of school classes that showed a positive trend compared to classes where the trend is neutral or negative. Five of the six responding classes in Mariaskolan show a positive trend. However, the same school has a high percentage of classes with at least one bullied pupil, April 2016 (four of six classes). Thus, Mariaskolan is marked red in column 6 of Table 3.

A general conclusion is indicated in column 6 (for extended data, see Table 6 below). Firstly, it is clear that no school has zero bullying. Schools with the highest percentage of school classes with zero bullying are Bredäng, Rundby, Knäbäck and Nordskolan (green-highlighted in column 2, as well as in the last column of table 4). The first three schools differ further. In those school classes where bullying has arisen between October and April, it is usually a single individual (one per class) who has become a victim, except for in two of 15 classes in the Knäbäck where the situation has gone from zero being bullied to two being bullied.

Regarding the social psychology of bullying, it is important to distinguish between situations in a class where the number of targeted pupils goes from zero to one, from school classes where the number of victims has gone from zero to two or more. That these situations occur within, as well as between, different schools is evident among these 20 schools.

From table 4, below, we can conclude that in one-third (33%) of school classes, 56 classes of 170, no bullying was evident in April 2017. These classes are unevenly distributed between the 20 schools, as evidenced by percentages in the last column of table 4. Notable here, as indicated above, are Rundby, Knäbäck, Bredäng and Nordskolan, all with at least half of their classes without indicated bullying. In these schools, the average proportion of pupils being bullied in each class is 3%.

School	Number of victims October 2016	Number of victims April 2017	Average percentage bullied in all responding school classes April 2017	Number of responding classes (at least 12 pupils) March/April	Number and percentage of school classes with zero bullying April 2017
Rundby	0	1	4.5%	4 classes	3 (75%)
Västerskolan	15	20	5.2%	17 classes	7 (41%)
Klosterskolan	6	17	6.6%	12 classes	2 (17%)
Knäbäck	9	8	2.2%	15 classes	9 (60%)
Bredäng	2	1	0.9%	5 classes	4 (80%)
Månskenskolan	9	12	10.2%	4 classes	1 (25%)
Saltskolan	2	9	6.7%	6 classes	2 (33%)
Mariaskolan	20	10	8.6%	6 classes	1 (17%)
Fågelvik	4	6	6.1%	6 classes	1 (17%)
Kryddstigsskolan	11	12	8.4%	9 classes	3 (33%)
Mossby	7	10	6.1%	9 classes	3 (33%)
Sjötorp	8	12	11.2%	5 classes	0
Eriksberg	4	5	7.5%	4 classes	1 (25%)
Hagaskolan	5	9	6.4%	7 classes	1 (14%)
Franskaskolan	23	30	7.4%	16 classes	2 (13%)
Söderskolan	12	12	4.4%	15 classes	6 (40%)
Nordskolan	7	7	4.2%	9 classes	5 (56%)
Storäng	6	5	6.2%	4 classes	1 (25%)
Parkskolan	6	11	7.6%	7 classes	2 (29%)
Rappsfält	13	15	6.3%	10 classes	2 (20%)
	Total bullied October	**Total bullied April**	**Average percentage bullied per school class**	**Total number of school classes**	**Number of classes with zero bullying**
20 schools	**N = 146**	**N= 212**	**6.3%**	**170 classes**	**56 classes**

Table 4, Number of bullied pupils at classroom and school level in 20 schools and 170 school classes

If a negative outcomes threshold is set to where at least 80% of school classes in any school report some bullying, then Mariaskolan, Franskaskolan, Fågelvik, Rappsfält, Klosterskolan and Hagaskolan all belong to this group. Among these schools, the average rate of bullied pupils 7%

Another way to look at these numbers is to imagine an average class size of 23/25 pupils. A rate of 3% would correspond to a single bullied pupil in every second school class, every third class if there were two victims in a particular class, while a rate of 7% corresponds to at least one pupil in every class and at least two victims in every second class. A reasonable conclusion is that challenges for prevention and intervention in these schools differ.

Of the 56 school classes without bullying in April 2017, 34 (61%) had no victims at first measurement (October 2016). These 34 classes represent 20% of the 170 school classes who responded to the school climate survey on both occasions. In the remaining 22 school classes (13%), bullying had ceased between October 2016 and April 2017.

In 43 classes (25%), there was a pattern where no bullying was indicated in October but where bullying (at least one victim) had arisen by April.

The fact that 56 classes showed zero bullying in April 2017 means that victims were distributed between 114 classes. Because the number of victims during April 2017 was estimated at 212 this would mean approximately "1.9" bullied pupils in every class where bullying was. From column 5 in Table 3, we know that the distribution of numbers of victims per classroom is uneven. We also know that more than two pupils are victims in some classes. This uneven distribution is also seen in the numbers listed in column 10 of Table 3, where weighted scores (15 to 10) for the "worst" classes in each school are listed.

Distribution of classes (N = 185) with zero or some bullying October 2016, and bullying or increased bullying by April 2017				
Baseline status	**Number of classes fulfilling condition**	of which: **bullied boys**	of which: **bullied girls**	**Cluster boys (at least one) and girls (at least one) exposed in the same class**
Zero bullying-October: **1 victim by April**	25 classes	11	14	
Zero bullying-October: **2 or more victims by April**	18 classes	1 pair of boys	6 pairs of girls	11 classes
One or more exposed October: **Increase in victims by April**	25 classes	5 "boy groups"	3 "girl groups"	17 classes
Totals	***68 classes***	***17 classes male victims***	***23 classes female victims***	***28 with male and female victims***

Table 5, Gender patterns in victimization in classes with one or more victims by April 2017

Table 5 is an attempt to indicate gender patterns of vulnerability on the classroom level. The question becomes, if we assume that roughly the same number of boys and girls are exposed to bullying at school level, are they divided evenly among victims at classroom level? Is the social psychology of bullying different in a class where a single girl is exposed (14 classes) compared to a class where a single boy is exposed (11 classes)?

A clear difference arises in the case where victims are clustered in pairs. Six (6) classes show a pattern where two girls are victims, compared to one class where two boys are victims. Of the 25 classes with more than two victims, five are clusters of boys, compared to three classes with clusters of girls, with victims in the remaining classes consisting of mixed gender clusters of victims (two girls/one boy, three boys/one girl, etc.).

These clusters are specified for each school (20 schools) in table 6 below. Of the 212 pupils categorized as victims of bullying in April, 2017, distributed in 114 classrooms, 55% were girls.

School	Bullied	Gender distribution	Gender clusters in certain classes
Rundby	1	B (1)	
Västerskolan	20	B (8) G (12)	BBB (1)
Klosterskolan	17	B (7) G (10)	GG (1)
Knäbäck	8	B (3) G (5)	GG (1)
Bredäng	1	B (1)	
Månskenskolan	12	B (7) G (5)	GG (1)
Saltskolan	9	B (4) G (5)	GG (1)
Mariaskolan	10	B (3) G (7)	GG (1) GGG (1)
Fågelvik	6	B (2) G (4)	BB (1)
Kryddstigsskolan	12	B (4) G (8)	GG (1)
Mossby	10	B (3) G (7)	
Sjötorp	12	B (6) G (6)	BB (1) BBB (1)
Eriksberg	5	B (2) G (3)	
Hagaskolan	9	B (6) G (3)	GG (1)
Franskaskolan	30	B (14) G (16)	BBBB (1) BB (2) GGG (1)
Söderskolan	12	B (8) G (4)	BB (2)
Nordskolan	7	B (4) G (3)	
Storäng	5	B (3) G 2)	
Parkskolan	11	B (2) G (9)	GGG (1) GGGG (1)
Rappsfält	15	B (9) G (6)	
212 bullied April 2017:45% boys (97); 55% (115) girls			**7 "Boys clusters": 11, "Girl clusters"**

Table 6, Gender distribution of 212 vulnerable pupils in 20 schools, April 2017

There is also a larger collection of clusters with two girls are (11), compared to clusters of boys (7). Of the 20 schools, 7 show no pattern of gendered "clusters". In these schools, in school classes where bullying occurs, victims are either single boys or girls, or are clusters with at least one boy and one girl. The question arises here as to whether these “gendered clusters” indicate a need for additional targeted actions.

Summary conclusions (as presented to the Municipality)

Below, in Tables 7 through 11, an attempt is made to draw specific conclusions about the 20 schools and those of its constituent 170 school classes about how ' whole school ' anti-bullying efforts possibly should be fine-tuned to better respond to specific patterns of vulnerability that emerges in the data on pupils ' exposure in the two surveys with a six-month intervals, during the same school year: 2016/2017?

School	Increase or decrease October to April	School average rate of victims April 2017	Proportion of classes with zero bullying in April	School classes with worse prognosis (11 – 15)	Indicated the gender cluster B = Boys; G = Girls
Rundby	+ 100%	4.5%	(75%)		
Bredäng	-50%	0.9%	(80%)		
Knäbäck	-33%	2.2%	(60%)		GG

Table 7, Schools with effective anti-bullying efforts

These three schools have effective program implementation, with low bullying prevalence rates and a majority of school classes without bullying. The efforts the school administers, and possibly advantageous conditions, guarantees safe schooling for almost all pupils. One class Knäbäck School may have a particular problem with vulnerable girls. Rundby school's "100% increase" is an anomaly because, in October 2016, that school had zero bullying. One pupil had become a victim at the April 2017 survey.

School	Increase decrease April 2017	Proportion bullied April 2017	Proportion of classes with zero bullying in April	School classes with negative prognosis (11 – 15)	Gender of clusters P = boys; T = girls
Nordskolan	0%	4.2%	(56%)	15	
Söderskolan	0%	4.4%	(40%)		PP, PP
Västerskolan	+ 33%	5.2%	(41%)	15, 11	PPP

Table 8, Schools with effective anti-bullying efforts in some school classes

These schools have a relatively low proportion of victims. Approximately half of the classes had no victims at the April 2017 questionnaires. Both Nordskolan and Västerskolan have at least class scoring highest (negative) on the weighted outcome scale. Västerskolan shows a relatively high increase in the proportion of bullied pupils between October and April. This school also has the highest prevalence rate of these three schools (5.2%). Västerskolan may also have a small problem with "tough guys" in one class, this conclusion based on the fact that three boys that were categorized as bullied in April 2017.

School	Increase decrease April 2017	Proportion bullied April 2017	Proportion of classes with zero bullying in April	School classes with negative prognosis (11 – 15)	Gender of clusters B = Boys; G = Girls
Mariaskolan	-50%	8.6%	(17%)		GG, GGG
Storäng	-17%	6.2%	(25%)	12, 12	

Table 9, Schools with reduced bullying from a high starting point

Mariaskolan and Storäng seem to be specific anomalies. In both schools, bullying decreased bullying from October and April (especially in Mariaskolan), which would indicate that anti-bullying efforts are working. On the other hand, both schools are characterized by having few classes with zero bullying (approximately 1 in 5 classes) as well as a relatively high prevalence rate (7.4%), that is, at least 2 victims in classes where bullying occurs. Finally, the gender clusters would indicate that Mariaskolan has a particular problem with vulnerable girls.

School	Increase decrease April 2017	Proportion bullied April 2017	Proportion of classes with zero bullying in April	School classes with negative prognosis (11 – 15)	Gender of clusters B = Boys; G = Girls
Kryddstigsskolan	+ 9%	8.4%	(33%)	12, 12	GG
Fågelvik	+ 50%	6.1%	(17%)	12	BB
Mossby	+ 43%	6.1%	(33%)	15, 13	
Eriksberg	+ 25%	7.5%	(25%)	13	
Rappsfält	+ 15%	6.3%	(20%)	15, 15, 11	

Table 10, Potential indicated schools

These schools represent the first group of particularly vulnerable schools. In all these schools bullying increased from October to April. The prevalence rate for bullying averages about 6.9% (April, 2017) and the percentage of classes with zero bullying in April 2017, at about 25%, means that there are victims of bullying in about 75% of the school classes. Also, all schools have one or more classes with particular problems (high numbers on the weighted scale). It is also possible that Kryddstigsskolan has a group of particularly vulnerable girls while Fågelvik has at least one class where some boys are particularly vulnerable.

School	Increase decrease April 2017	Proportion bullied April 2017	Proportion of classes with zero bullying in April	School classes with negative prognosis (11 – 15)	Gender of clusters B = Boys; G = Girls
Hagaskolan	+ 80%	6.4%	(14%)	12, 11	GG
Månskenskolan	+ 33%	10.2%	(25%)	15	GG
Franskaskolan	+ 30%	7.4%	(13%)	15, 12, 11, 11, 11	BBBB, BB, BB, GGG
Sjötorp	+ 50%	11.2%	0	12, 12	BB, BBB
Klosterskolan	+ 183%	6.6%	(17%)	14, 13, 12, 12	GG
Parkskolan	+ 175%	7.6%	(29%)	15, 11	GGG, GGGG
Saltskolan	+ 350%	6.7%	(33%)	12, 11	GG

Table 11, The most vulnerable schools

These schools exhibit a significant increase in the proportion of bullied pupils between October 2016 and April 2017. This trend is also visible in higher average prevalence in each class (8.0%), and the proportion of classes with zero bullying (not more than I in 5 classes)

Each school has at least one, in some multiple (5 classes in Franskaskolan, 4 classes in Klosterskolan) classes with particular problems. In addition, there is at least one class in each school where victims are clustered by gender. Franskaskolan and Sjötorp would appear to have problems with vulnerable boys while Parkskolan would seem to have a particular problem with vulnerable girls.

A consequence of the picture painted in Table 11 would seem to be the conclusion that these 7 schools, especially when compared to their peers in the municipality, are in need of targeted interventions.

Sharing analysis with municipal administrative stakeholders

A key goal of the detailed analysis of the data provided to Gill was to shares results and conclusion with the administrative stakeholders of the Gävle Anti-Bullying Model. These are the administrative head of the Compulsory School Division of the Municipality, E.L., the Quality Assurance Administrator (in charge of administering and giving feedback from the bi-annual school safety questionnaire) B-E.S., and the program administrator, P.M.

Three particular questions were posed:

A. Are there significant critical differences between some schools and others?

B. Are there school classes where the pattern (seen only from the data) would require targeted efforts within a particular school?

C. Do the municipal executive staff's opinions concur, and to what extent, with the conclusions made possible by the data?

In addition, the same informants were asked to comment on the content of the five summary tables (Tables 7 to 11).

Quality Assurance Co-ordinator's response

The municipal quality assurance co-ordinator's comments confirm the first question: "Yes, based on the documentation contained in our quality reports, there are significant differences in analysis and planned actions"; concurs with the second; "probably, here I have a poor overall picture, but some actions that are implemented are linked to classes/groups or within classes or targeting individuals. When the number of victims suddenly increases in a particular class, there may be a suspicion of something significant having happened - New pupils? - Change of teacher?" and is less certain in regard to the third: "the degree of awareness about the situation in any particular school, based on data, varies. But my impression is that this awareness has become significantly better since we started working on the Gävle model. The management team attaches importance to this data by making it part of our performance dialogues with the school principals in the municipality. This "results dialogue" includes educational results (grades, test results), attendance and outcomes from the Gävle model".

B-E S. then comments on the summary conclusions. Commenting Tables 7-11, he writes: "based on the October 2016 and April 2017 data, the portrayal of the schools is correct". He then adds a few riders: "but there are a few things that may have to be weighed in before a school gets to be given a certain epithet". He asks how long schools may have participated in the Gävle model, and wonders what "the historical pattern of bullying look like for those schools that have been participating in previous years? How much turbulence has there been in changes of school management and staff?"

He then comments on conclusions on some of the schools. He writes, "Mossby: is a school where the results two previous academic years actually improved from autumn to spring" (not the case in Table 3, column 12, above, increase 43%), similarly he points out that "Västerskolasskolan has had very good results in previous years and is now in its fourth year in the program, (Changes in the cohort of pupils?), preparedness for this?" (33% increase in Table 3).

He comments particularly on Klosterskolan where earlier "results show a declining trend. They have been there from the start (5 years)" (188% increase, in Table 3) and wonders again if this can be explained by "changes to the cohort of pupils?" and answers his own question with" Yes!" and doubts the schools "preparedness for this?" Hagaskolan, from his perspective is not anomalous, a "clear pattern between low autumn value and a worse value" after 3 years in the program (80% increase in Table 3, column 12).

His final comment, in agreement with the Project Co-ordinator (see below) is as follows: "I agree with Pelle's comments. The model you present works, especially where both the actual situation (bullying) and

patterns of change are combined". He also notes, in his role as administrator of the biannual measurement instrument, that "it is positive that there are guidelines/parameters for results to be included - sufficient response rate and minimum number of classes - reduces the risk of 'statistical wobbles'". He does not a downside here in that "some small schools risk not being included, but as a tool for our work within the municipality, there is nothing to prevent these schools from being given feedback on their outcomes".

Project Co-ordinator's response

The project co-ordinator 's(P.M.) first response, which would be anathema to strict implementation science theory, is as follows: "the preconditions for each school, grade level, School Safety Team, class, group, etc. are unique at every given moment. These conditions also change over time. This means that the efforts must always have a "customized content"… but the framework for these efforts needs to be research… this is the key to the Gävle model!"

In responding to whether there are significant critical differences between some schools and others, his answer is "clearly" and then he goes on to comment that there are "major differences in how schools… manage and lead… Since it's about people, I would imagine that the school leaders' abilities follow a normal distribution curve??" He argues that "school leaders are the key to success in this work" and that "continuity on school posts is a success factor".

He thinks that municipal staff's perceptions of the state of the conclusions made possible by the data "is developing year by year" and he comments that School Principals, when presented with results are less inclined to put the blame for any negative finding "on bad questions or that the students are (not) doing well". He thinks that "school leaders appreciate the service provided through the surveys", but is of the opinion that "the systematic approach to correcting the survey results can clearly be developed". This, of course, is one of the goals of the research presented here.

He is of the opinion "that the survey results usually confirm what you already knew, but that you also get perspectives on phenomena that you were not aware of. The survey results can help to put things in 'black and white'".

In commenting on the tables of analysis, the project co-ordinator states that "the tables largely match my own perception of how the work is progressing". He notes that "Rundby, Bredäng, Knäbäck have had the same school principals over a longer period, that they work long term and have built up a high degree of efficacy". These are the schools with the most positive results.

He also confirms a detailed hypothesis drawn from the data. "Västerskola I know have worked a lot with structures since they got a new school head a few years ago", but they "had big problems with a group of boys last year". This was suggested from the analysis of the data (Table 8, above).

He also provides some explanation for the poor outcomes for Klosterskolan. He points out that the school has been disrupted by "an intake of new student groups" and that the "school has had a change of principal".

Concerning the "anomalous" school, Mariaskolan, the project co-ordinator provides some special insights. "Mariaskolan has had a large turnover in both school leaders and staff over time. Previous bullying figures have been reported. Since one year back, the two school leaders have also employed a lecturer in these issues, you have a high level of awareness about how to work on. While compared to other schools their results may be poor, compared to previous surveys results have shown a considerable improvement - (something that was marked with a celebration cake)". The special case of prevalence levels in Mariaskolan is clear from columns 1 and 12, compared to columns 6 and 12 in Table 3.

He also points out the Mariaskolan is in a catchment area "that is socio-economically weak".

In regard to Västerskola, he confirms the suspicion from the data in Table 6: “currently this is a group of boys that are giving extra time to”.

He makes a general comment in regard to the cluster of “worst schools”, not finding fault with the general finding, adding “several of them have had a high turnover on school leaders, some schools are from socio-economically weak areas, there has been a high turnover of staff, causing the schools to enter a negative spiral, where there is never any continuity. These schools also have a higher proportion of unskilled staff”.

In regard to the indication from the data in Table 7, the most effective schools, the project co-ordinator writes: “on the whole - in my individual follow-up with the principal of Knäbäck School, I seem to remember that a large part of our conversation was just about a bullied girl”. This confirms the suspicion indicated in Table 7.

The comment on the results presented in Tables 8 and 9, above, is as follows: “nothing surprising… these schools need, as you have suggested, ‘targeted efforts’. However, these efforts will be based on the needs of individual schools, which means that actions will most likely differ between schools, between grades, between classes, between groups of students and between individual students”. This description provides a blueprint for an adaptive mode of program/intervention implementation. This, in turn, begs the question, based on what evidence should tailored and targeted strategies be designed?

The program co-ordinators final comments are instructive. When asked for a general comment on the analysis that emerged from the data, he writes: “as a description of the ‘reality’ of the measurements, it is very close to 100%”. He writes further: “your results and the way you describe them with your graphs are very interesting. Could you do this easily, in advance, and which of the graphs should you prioritize?” He adds that the material could be useful for municipal management staff… when following up program outcomes with school principals, who, in turn, could use the material in following-up with their assistant principals”.

And, finally, he adds: “what you've created could definitely be developed into something useful. A very important factor is that it should be simple and clear, with concise data and conclusions”.

Response from the Head of the Compulsory School Division of the Municipality

The Head of the Compulsory School Division first made a short response to the material: “this was interesting reading that raises many questions with me”. She expressed initial concern “that many of the schools among the ‘most vulnerable schools’ group would not appear to belong there, if I think about it from a socio-economic perspective, qualified teachers, etc.” She wondered if “groups of staff groups and individual teachers have a different "tolerance" for what they see happening among student groups or how adults are observed behaving towards the students, which might explain why so many schools with low socioeconomic weighting are overrepresented among the ‘most vulnerable schools’ group”.

The following day she wrote with further comments, and sticking with her “thoughts about the conditions of the different schools”. Rhetorically, she asks “when does a student feel bullied? Does a pupil’s family situation and school attended play a role?”

She then worries that the parameters for inclusion in the analysis, leading to the exclusion of some schools may bias the data. She also finds it interesting that there appears to be differences between schools resulting from grade levels (some schools are grades 4 to 6, others grades 7 to 9). She adds that “of the 7 schools that are most exposed, four are pre-school class to 6th grade schools and three are preschool class through to 9th grade (Månskensskola, Franskaskolan and Klosterskolan)”.

Commenting on the most effective schools (Tables 5 and 6) she writes: “it is also my impression that in schools with few pupils who are bullied, there is a structured value base and intervention processes”, and, echoing the program co-ordinator, she comments “that school principals (in these schools) have been in the schools for a number of years”.

She also comments on the anomalous school: “as far as Mariaskolan is concerned, I think it's important that they now have two joint principals and that they have space to work much more actively on the problem of bullying, so the questionnaire data is being used to a much greater extent”.

She concludes by remarking on how she thinks she “can use this material (the results generated by the analysis in this paper) in my follow-up with the principals” and reminds the principal author, in guaranteeing the anonymity of participating schools, how the municipality wishes to avoid “the media making lists of the best and worst schools”.

Summary of comments by stakeholders

All three find the conclusions based on the data trustworthy, reliable and valid. It is important to point out that the lead author, who carried out the analysis, had no other knowledge or data in regard to bullying in municipal schools, in general, nor in regard to the data on the schools as they partook in the rolling schema over the five years the project has been evolving. As of autumn 2017, all compulsory schools, public and private, in the municipality have requested to participate in the program.

The rolling implementation of the prevention model (see Gill et al., 2016 for a description of the process), while based on good evidence regarding the prevalence and prevention of bullying in Swedish compulsory schools, does not follow best-practice guidelines for prevention program implementation. This is clear from the stakeholders’ responses.

The starting point for this research has been the notion of evidence-based anti-bullying program implementation in compulsory schools and how this might relate to consequences for program delivery when target behaviours drop below critical threshold prevalence rates, including possible classroom rates of zero. The data produced for this analysis of contemporary delivery of a program in a Swedish municipality has clearly shown significant differences in numbers of bullied children at classroom and school level. In some classes bullying had ceased, from base rates of one or two bullied children in each classroom. Some classes recorded no bullying at measurement points in Autumn 2016 and Spring 2017. Some classes recorded reductions in rate of bullying between the measurement points. In some classes initial zero bullying was replaced by one, two, three, and in a few cases, four or more bullied children at the Spring 2017 survey. In some classes bullying at first measurement was followed by increased bullying at follow-up. Ought this variation be reflected in adaptation and tweaking of program delivery? This is both a theoretical and practical question.

The opinions of all three stakeholders is that adaptation is a better option. This could be considered as a rejection of best practice in program implementation. We argue that it is not.

Conclusions

The jinx in this kind of analysis is the vagaries of statistical measurement and categorisation of cases. Irrespective of where threshold values are drawn, it is difficult to reconcile the notion of being bullied to some degree with the category of “being a victim of bullying”. The latter alternative has been the starting point for this research, that is, the assumption that the status of being a victim of bullying can be operationalised on the basis of answers to a number of questions. With a prescriptive definition of bullying as the starting point, this is what bullying is, have you been bullied, seems like a reasonable

question to pose. The risk is that respondents exaggerate, misunderstand, misperceive or actually deceive, when giving a response.

When it is the researcher who establishes the category, of being bullied, then the abovementioned difficulties are diminished. The 212 schoolchildren that we categorised as "bullied" in April, 2017, represent about 6% of all children in 20 municipal schools.

Regardless of whether this prevalence is high, or low, it has been established beyond any doubt those children attending 20 compulsory schools in the municipality are not evenly distributed among school classes in every school, nor between schools. The variability occurs at cross-section and longitudinally. This indicates that different schools, and different classes within schools, face different challenges when attempting to intervene against bullying.

This being the case, it is our firm conclusion that effective efforts in combating bullying, whether packaged as and termed "a program", or not, require evidence-based strategic adaptation, particularly when prevalence levels reduce beyond rates of about 5%. At a threshold of 5%, victims of bullying represent about one child in every class. However, the research presented here shows that even in schools with low prevalence rates of bullying, victims need not necessarily be distributed evenly between classes. When some classes have 2, or even 3, victims, low prevalence rates means that other classes will have no victims.

This kind of skewed distribution of victims within a school also applied to gender specific clusters of victims. Where this kind of clustering is uncovered, certain consequences for prevention efforts ought to follow.

The results as presented, and analysed, and confirmed by stakeholders, show how much "added value" can be derived from relatively straight forward data, in this case, a spread sheet of classroom level data for schoolchildren categorised as victims of bullying.

References

Azeredo, C. M., Rinaldi, A. E. M., de Moraes, C. L., Levy, R. B., & Menezes, P. R. (2015). School bullying: A systematic review of contextual-level risk factors in observational studies. *Aggression and Violent Behavior*, 22, 65-76.

Boehnke, K., & Schiefer, D. (2016). 2 Horizontal transmission of value orientations in adolescence. Youth in Education: The Necessity of Valuing Ethnocultural Diversity, 27.

Bopp, M., Saunders, R. P., & Lattimore, D. (2013). The tug-of-war: fidelity versus adaptation throughout the health promotion program life cycle. *The journal of primary prevention*, 34(3), 193-207.

Borgwald, K. & Theixos, H. (2013) Bullying the bully: Why zero-tolerance policies get a failing grade, *Social Influence*, 8:2-3, 149-160, DOI: 10.1080/15534510.2012.724030.

Chalamandaris, A-G. & Piette, D. (2015) School-based anti-bullying interventions: Systematic review of the methodology to assess their effectiveness. *Aggression and Violent Behavior*, 24, 131–174.

Fehm, L., Beesdo, K., Jacobi, F., & Fiedler, A. (2008). Social anxiety disorder above and below the diagnostic threshold: prevalence, comorbidity and impairment in the general population. *Social psychiatry and psychiatric epidemiology*, 43(4), 257-265.

Gill, P. E., Larsson, P., Matton, P., Simonsson, B. E., & Levin, E. (2016). Research to Practice: Rolling Implementation of Evidence-Based Anti-Bullying Strategies in a Swedish Municipality. Presented to the European Educational Research Association, annual Conference, Dublin, 2016.

Grundherr, M., Geisler, A., Stoiber, M., & Schäfer, M. (2016). School Bullying and Moral Reasoning Competence. *Social Development*. Published Online: doi: 10.1111/sode.12199.

Herkama, S., & Salmivalli, C. (2016). 10. Making large-scale, sustainable change: experiences with the KiVa anti-bullying programme. Ending the torment: tackling bullying from the schoolyard to cyberspace, 75.

Hill, L. G., Maucione, K., & Hood, B. K. (2007). A focused approach to assessing program fidelity. *Prevention Science*, 8(1), 25-34.

Kärnä, A., Voeten, M., Little, T. D., Poskiparta, E., Kaljonen, A., & Salmivalli, C. (2011). A large-scale evaluation of the KiVa anti-bullying program: Grades 4–6. *Child Development*, 82, 311–330.

James, S., & Freeze, R. (2006). One step forward, two steps back: Immanent critique of the practice of zero tolerance in inclusive schools. *International Journal of Inclusive Education*, 10(6), 581-594.

Köhler, L. (2006). *Health indicators for Swedish children. A contribution to a municipal index*. Stockholm, Save the Children, Sweden.

Macklem, G. L. (2014*). Fidelity Versus Adaptation*. In Preventive Mental Health at School (pp. 193-212). Springer: New York.

Mikita, N., & Stringaris, A. (2013). Mood dysregulation. *European child & adolescent psychiatry*, 22(1), 11-16.

Muijs, D. (2017). Can schools reduce bullying? The relationship between school characteristics and the prevalence of bullying behaviours. *British journal of educational psychology*, 87(2), 255-272.

Olino, T. M., Klein, D. N., Farmer, R. F., Seeley, J. R., & Lewinsohn, P. M. (2012). Examination of the structure of psychopathology using latent class analysis. *Comprehensive Psychiatry*, 53, 323-332.

Ranøyen, I. (2015). *Internalizing Symptoms in Adolescence: Familial Aggregation and Other Psychosocial Factors*. Thesis for the degree of Philosophiae Doctor, April 2015 Norwegian University of Science and Technology Faculty of Medicine Regional Centre for Child and Youth Mental Health and Child Welfare, Trondheim.

Saarento, S., Garandeau, C. F., & Salmivalli, C. (2015). Classroom-and school-level contributions to bullying and victimization: A review. *Journal of Community & Applied Social Psychology*, 25(3), 204-218;

Saarento, S., & Salmivalli, C. (2015). The role of classroom peer ecology and bystanders' responses in bullying. *Child Development Perspectives*, 9(4), 201-205.

Saarento, S., Kärnä, A., Hodges, E. V., & Salmivalli, C. (2013). Pupil-, classroom-, and school-level risk factors for victimization. *Journal of School Psychology*, 51(3), 421-434.

Skolverket. (2011). Utvärdering av metoder mot mobbning. Skolverket: Rapport 353 (The Swedish National Agency for Education Report 353), Stockholm.

Smith, E., & Caldwell, L. (2007). Adapting Evidence-Based Programs to New Contexts: What Needs to Be Changed?. *The Journal of Rural Health*, 23(s1), 37-41.

Strohmeier, D., & Noam, G. G. (Eds.). (2012). *Evidence-Based Bullying Prevention Programs for Children and Youth: New Directions for Youth Development*, Number 133 (Vol. 117). John Wiley & Sons;

Swearer, S.M., Buhs, E.S., Amanda B. Siebecker, A.B., Brey-Love, K. & Miller, C.K. (2011). *Bullying and Peer Victimization, in Coleman*, H. L., & Yeh, C. (Eds.). (2011). Handbook of School Counselling. Routledge;

Thornberg, R., Wänström, L., & Pozzoli, T. (2016). Peer victimisation and its relation to class relational climate and class moral disengagement among school children. *Educational Psychology*, 1-13. DOI: 10.1080/01443410.2016.1150423;

Thornberg, R., Wänström, L., Pozzoli, T., & Gini, G. (2015). Between-class variation in the prevalence of bullying victimization: What's the role of class moral disengagement and quality of teacher–pupil and pupil–pupil relationships? In The 17th European Conference on Developmental Psychology, Braga, Portugal, September 8-12, 2015;

Vivolo-Kantor, A. M., Martell, B. N., Holland, K. M., & Westby, R. (2014). A systematic review and content analysis of bullying and cyber-bullying measurement strategies. *Aggression and Violent Behavior*, 19(4), 423-434.