RESULTS REPORT

Evaluation of the Impact of Program Jovem de Futuro on School Climate: 2015 and 2016

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RESUMO	ABSTRACT
Esse relatório apresenta uma avaliação de impacto aleatorizada do Programa Jovem de Futuro sobre medidas de funcionamento da escola e de clima escolar para escolas públicas do Espírito Santo entre 2015 e 2016. A hipótese por trás de tal avaliação é que o programa Jovem de Futuro afeta o desempenho educacional via o funcionamento da escola e o clima escolar. Foram encontradas evidências de impactos fortemente negativos no primeiro ano de implementação do programa, de impactos nulos ao final do segundo ano e também de impactos nulos quando os dois anos são analisados conjuntamente. PALAVRAS-CHAVE: Clima Escolar; Funcionamento Escolar; Avaliação de Impacto; Jovem de Futuro; Gestão Escolar; Ensino Médio	This paper presents a randomized evaluation of the impact of the Program "Jovem de Futuro" on the functioning and climate of secondary public schools of the state of Espírito Santo in 2015 and 2016. The hypothesis underlying this evaluation is that the Program "Jovem de Futuro" affects educational performance through school functioning and climate. The study found evidence of strongly negative impact on school climate in the Program's first year, but no evidence of impact at the end of the second year and when the results of the two years are analyzed together. KEYWORDS: School climate; School functioning; Impact evaluation; Jovem de Futuro; School management; Secondary school

Summary

1. Introduction

Program Jovem de Futuro aims to promote the adoption of a results-driven management model at various administrative levels of a public education system – from the Education Department itself to the schools, and including the Regional Offices and boards. Several studies confirm that the Program Jovem de Futuro has significant impact on learning in Mathematics and Portuguese Language.[1] It is estimated that, if a secondary school participates in the Program for three years, the impact on its average last-year proficiency will be approximately 5 points on the Saeb scale [of the National Basic Education Evaluation System], equivalent to about 12%[2] of standard deviation from a distribution of students according to their last-year proficiency.

Although the impact on learning is statistically significant and substantively relevant, it remains below expectations and lower than the theoretically attainable potential of a school management program such as Jovem de Futuro. The overall perception, therefore, is that there is much room for improvement in the Program's design and that this improvement could lead to a significant increase in the magnitude of its impact.

While this improvement should be achieved through a series of evidence and experiences, some of the requisite evidence for this purpose can and must derive from the impact evaluation effort itself. For this to happen, however, it is crucial to go beyond a mere investigation of the Program's impact on end results, and assess its impact on more immediate and intermediate outcomes.

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[1] See Barros, Mendonça, Franco e Gall (2016) for a meta-analysis of experimental evaluations of Program Jovem de Futuro.

[2] This estimate was obtained from the standard deviation in public schools in the state of Espírito Santo: 41.2 in Mathematics and 48.4 in Portuguese Language.

Only then will it be possible to appraise the impact of these outcomes on learning.

Essentially, there are two ways to use this type of evaluation to understand how an intervention's impact is transmitted. First, by identifying the components of the intervention and attempting to isolate the impact of each one, individually and combined. It then becomes possible to estimate both the contribution of each component to the aggregate impact of the intervention and the degree of synergy or overlap between the various components. To assess the latter, one compares the sum of impacts of the various components with the impact of the whole. If the sum of individual impacts is greater than the combined impact of all the components, we can say that some components overlap and there is a certain amount of redundancy that could be minimized. However, if the sum of impacts is less than the impact of the whole, then there are synergies indicating that the interaction between the components is vital and, if improved, could lead to increases in the magnitude of the Program's impact.

A second way to use the evaluation of impacts to understand the mechanisms of their transmission in an intervention is to identify the intervening variables through which the intervention's effects propagate. An intervening variable is defined as one that conveys part of the impact; in other words, part of the intervention's impact on a given outcome occurs because the intervention modifies this intervening variable, which affects the end results. To a large extent, identifying the intervening variables and estimating how much of the impact can be attributed to them is equivalent to unraveling the mechanisms by which an intervention's impact is transmitted.

In this study, we have chosen the second alternative. Thus, in order to investigate how the Program Jovem de Futuro impacts educational performance – progression and learning –, we estimate its impact on school

functioning and school climate. We assume school functioning and school climate are intervening variables, because they transmit part of the Program's impact on educational performance. Underlying this analysis is the hypothesis that school management affects student performance by impacting school functioning and school climate.

It should be noted, however, that the share of the Program's impact on school functioning and climate depends as much on its impact on these intervening variables as on effect of these variables on educational performance. Thus, as important as estimating the Program's impact on school functioning and climate is to estimate the effect of the intervening variables on school performance. However, this latter task is much more difficult than the former because in this case the intervening variables cannot be directly modified, and therefore no experimental design can be used to estimate their impact. For this reason, and given the experimental nature of this study's evaluation, we will limit our analysis to the impact of Program Jovem de Futuro on school functioning and school climate.

2. Impact evaluation: what it is and how to do it

Defining and estimating the impact of a program is not a simple task.[3] For the purposes of this study, impact is understood as the difference between school functioning and climate of beneficiary schools one or more years after implementation of the Program, and the functioning and climate of these same schools, in the same time period, had they never benefited from the Program.[4]

To estimate the magnitude of the impact, two conditions are always essential. First, it is necessary to *have control over the process of allocating schools* to the program, for only then is it possible to generate *equivalent* groups of beneficiary and non-beneficiary schools. The evolution of school functioning and climate at non-beneficiary schools will indicate what might have happened to the beneficiaries if they had not had access to the Program, making it possible to estimate the magnitude of the impact. Furthermore, in this situation, the evolution of functioning and climate at beneficiary schools will indicate how these outcomes would have progressed in the non-beneficiary schools had they had access to the Program. The *equivalence* between both groups of schools – beneficiary and non-beneficiary – can be achieved by *randomly* selecting a group of schools to be immediately benefited and another what will be benefited only after the period during which the Program's impact will be assessed. In this case, the difference in functioning and climate between schools that benefited

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[3]   See Barros, Mendonça, Franco and Gall (2016) for a discussion on the meaning of the concept of impact of a program in the specific case of the Jovem de Futuro.

[4]   In this study, we examine the impact of the Program at the end of the school year in which it was implemented – 2015 – and also at the end of the second school year after its implementation – 2016.

immediately and those that benefited afterwards is an non-biased measure of the magnitude of the Program's impact.[5]

The second condition to estimate the magnitude of the impact is to have *suitable measures of school functioning and climate*, both for the group of schools chosen for immediate participation in the Program and for those that will be benefited only later. By suitable measures we mean those that meet the following three criteria:

- *Validity*: a measure is valid when it indeed gauges what one wants to gauge. Thus, it is important to have a precise notion of what a scale actually measures. More than that, it is essential to know whether this scale really gauges school functioning and climate, and what evidence there is in this regard.

- *Sensitivity*: for a measure to be sensitive, it must vary when the gauged object varies. A measure can be valid but insensitive to small variations in what is being gauged. Although no measure is perfectly sensitive, it is necessary to determine whether its sensitivity is sufficient for the intended application. Because what one wants to gauge is inevitably an intangible – and, thus, unobservable – conceptual construct, the verification of the validity of the sensitivity of any measure is necessarily limited. After all, how can one verify that a measure actually gauges, or is sensitive to, something that was never gauged before?[6]

- *Reliability* (or *precision*): the measure must not vary when the gauged object does not change. Every measure, however, has limited reliability

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[5] Section 3 of this study describes how these equivalent groups of (immediately) beneficiary and non-beneficiary schools of the Jovem de Futuro Program were determined; it also provides evidence that these groups are indeed equivalent.

[6] Calibrating the validity and sensitivity of the measures used in this study is the subject of Section 6.

(precision). Thus, invariably, one must determine the precision of the chosen measure and if its degree of precision is adequate for the purposes of the evaluation at hand. Verifying the reliability, however, is much easier than checking the validity of a measure, since a reliable measure should always produce the same value when repeatedly gauging the same situation. Indeed, this is precisely how reliability is assessed. And to establish whether the reliability of a measure is acceptable and in accordance with our evaluative objective, we must contrast its precision – its degree of reliability – with the magnitude of the impact we want to estimate and the number of times the measurement can be repeated – the sample size. The smaller the expected impact and the smaller the number of times the measurement can be repeated, the greater the required precision (or reliability) of the measuring instrument. It should be noted that it is always essential to measure the impact of a program multiple times, both to estimate the degree of reliability of the measure and to reduce to a minimum its requisite degree of reliability.[7]

Figure 1, below, summarizes the two conditions described above – control over the process of selecting the beneficiary schools and suitable measures of school functioning and school climate – and divides them into three levels. In each case, the color of the symbols indicates whether it's possible to perform an impact evaluation: only when both symbols are green is it possible to do so. As we can see, this only occurs when one has control over the selection process (and is thus able to randomly choose the beneficiary schools) and there is a monitoring system that provides reliable measurements. Although it is a

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[7] An evaluation of the reliability of the measure used and of its adequacy to the purposes of this study is the subject of Section 6.

simplified view, the figure summarizes the main prerequisites to perform an impact evaluation.

PROCESS OF SELECTING THE BENEFICIARY SCHOOLS

Figure 1: Checking the prerequisites for experimental impact evaluation

Source: Authors' concept
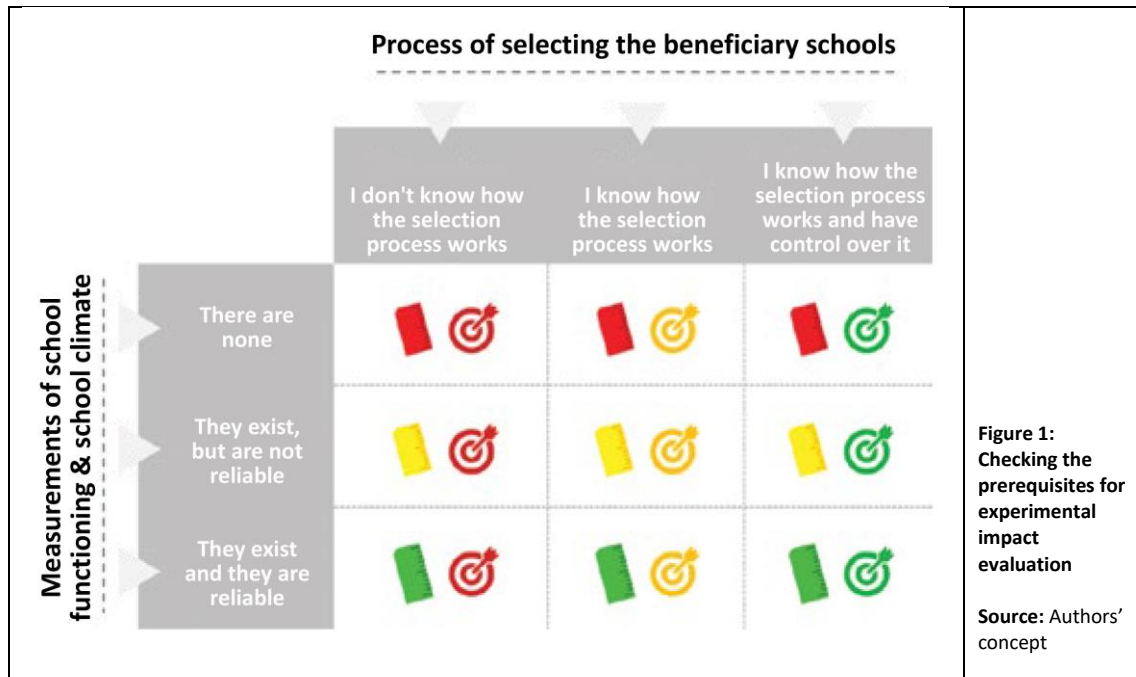
3. Defining the group of beneficiary and non-beneficiary schools

As seen in the previous section, assessing the impact of Program Jovem de Futuro on school functioning and climate is based on the contrast between the situation of a group of beneficiary schools and the corresponding situation of another group of *equivalent* but non-beneficiary schools after the implementation of the Program. In this section, we describe how these groups of *equivalent* schools were defined.

Program Jovem de Futuro was implemented during the 2015 school year in approximately two-thirds of secondary schools of the education system of the state of Espírito Santo, excluding those that did not reach a minimum size. There are 293 public secondary schools in Espírito Santo; of these, 71 have less than 120 enrolled students and, for this reason, did not participate in the Program. Of the 222 schools qualified[8] to participate, only 151 actually did so in the first two years, 2015 and 2016. Of the remaining, 32 joined the Program only in 2017, the third year of implementation in that state, and 38 will likely be incorporated in 2018.

Because the Program is being implemented in stages in the state, it is possible to assess its impact up to three years after its onset, that is, until the end of the 2017 school year. This study deals with impact evaluations carried out at the end of the 2015 and 2016 school years, corresponding to the first and second years of the Program. It should be noted that, as its implementation extended throughout the 2015 school year, the situation by the end of the first

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[8]   For E.E.E.F.M. Francisco Nascimento, one of the schools eligible to participate in the program, there was insufficient data on its IDEB [Basic Education Development Index] to allow it to be part of the evaluation. Therefore, from here on, we only address the other 221 eligible schools that were actually assessed.

year captures more the school functioning and school climate the of implementation stage than of the outcome of the Program.

To ensure equality of opportunities for all state schools of a certain size[9] in joining the Program, we decided to *draw lots* to determine when each school could participate if there were openings. Thus, 151 schools were immediately benefited in 2015; 32 additional schools were enrolled in 2017, the third year of the Program; and all the schools would be able to participate in the Program in the beginning from the 2018 school year (the Program's fourth year) onward.

And to ensure, from the very beginning, proper representation both of the state's regions and of schools of all levels of performance, lots were drawn from clusters of similar schools rather than from the entire universe[10] of schools eligible to participate in the Program.[11] More specifically, the selected schools were initially organized into 70 clusters, based on their geographic location in the state, the socioeconomic level (NES) of the students' families, their vulnerability status[12] and the predicted average academic performance for 2014-2016. Geographically, the state was divided into three zones: North, South and Greater Vitória.[13] The NSE and student performance in Mathematics and Portuguese Language in the three years prior to the implementation of the Program (2012-2014) were used to calculate the predicted average academic performance of each school, and clusters within each region were organized

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[9]   More than 120 enrolled secondary students.

[10]   Universe means here the group of 221 Espírito Santo schools with more than 120 enrolled secondary students.

[11]   It is the *drawing of lots* that makes it possible to build *equivalent* groups of beneficiary and non-beneficiary schools, and, therefore, to estimate the magnitude of the Program's impact. In addition to ensuring that every region of the state and that schools of every performance level are properly represented, the prior organization of the schools into clusters based on location, vulnerability and predicted performance also helps to measure the magnitude of the impact, inasmuch as it increases the accuracy of the estimates and, thus, reduces the magnitude of the smallest detectable impact of the evaluation. On this matter, see Barros, Mendonça, Franco and Gall (2016).

[12]   A school deemed in vulnerable situation is one among the 10% with the lowest average performance in Mathematics and Portuguese Language in the previous year, the smallest variation in average performance between 2012 and 2014, and the lowest NES.

[13]   The metropolitan area of Vitória and environs.

according to this prediction of academic performance for 2014-2016,[14] with priority given to groups of schools with the same vulnerability status. Thus, 22 clusters were formed in the North region, 19 in the South and 29 in the Greater Vitória area.

Considering that, in the end, each cluster must contain both beneficiary and non-beneficiary schools, the maximum number of clusters is determined either by the initial number of Program openings for schools in 2015 (151 in this case) or by the number of eligible schools that exceed the initial number of vacancies (70 in this case), whichever is lower. To ensure the best possible distribution of schools among the clusters, each cluster generally comprised three schools, with only a few (11) having four schools. A uniform distribution of schools among the clusters not only ensured that all of them would have the same chances of participating in the Program (i.e., of being chosen by raffle), but also favored the impact detection capacity of the evaluation by increasing the precision of impact estimates.

One school from each cluster was randomly selected to join the Program only in the third or fourth year, that is, at the beginning of the 2017 and 2018 school years, respectively. The two – or, in eleven cases, three – remaining schools of each cluster were enrolled in the Program from the very beginning, i.e., in the 2015 school year.

Since not all non-beneficiary schools joined the Program at the same time, a second draw was carried out to define which ones would join in 2017 and 2018. To preserve their representativeness, non-beneficiary schools are organized into groups by taking into account their region, their situation of vulnerability and the expected progress in academic performance.[15] Again, the

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[14] Schools with similar expected progress were included in the same cluster.

[15] The predicted progress, as mentioned, was defined by the socioeconomic level of students and the historical performance of the school in Mathematics and Portuguese Language.

number of these new clusters was defined either by the number of vacancies (32) for admission into the third year of the Program (2017) or by the number of leftover schools (38) that would have to wait until the fourth year (2018), whichever was lower. For each new cluster, we then drew lots to define which previously non-beneficiary school would join the Program in 2017.

We should bear in mind that each of the 70 clusters contained only one non-beneficiary school, and it was required that at least one beneficiary and one non-beneficiary school be included in the evaluation. Thus, seeing that 32 of these clusters ceased including a non-beneficiary school in 2017 (having been randomly determined that their non-beneficiary schools would join the Program), they were excluded from the evaluation that year. The remaining 38 clusters that continued to have one non-beneficiary school in 2017 were included in the evaluation that year. As of 2018, seeing that all schools will be in the Program, this type of contrasting will no longer be possible.

4. Monitoring intermediary outcome

As mentioned, any evaluation of impact requires valid and reliable measures of the impact on both beneficiary and non-beneficiary schools which we want to gauge for . Given how the Program Jovem de Futuro was implemented in Espírito Santo, as described in the previous section, it is possible, in principle, to assess its impact at any time between the beginning of the 2015 school year and the end of the 2017 school year. Therefore, to assess the Program's impact on school functioning and climate within this timeframe, we must collect this information from both beneficiary and non-beneficiary schools.

Considering that, before it can be measured, school climate must be observed – if not managed – by the school community, we chose to assess it at the end of the 2015, 2016 and 2017 school years, i.e., the last year when there still were schools not benefited by the Program.

At the end of the 2016, the Program's second year in the state, school functioning and climate were measured in all 219 schools[16] participating in the evaluation. Measures of school climate were obtained from all 149 beneficiary and 70 non-beneficiary schools that constituted the 70 clusters involved in the evaluation. More specifically, school functioning and school climate were measured between October and November 2016. The gathering of information coincided with – and, in some schools, was hampered by – the "occupation" in progress at the same time.[17] Although some schools participating in the

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[16] This number differs from the total number of schools mentioned in the previous section because two schools that would have initially benefited from Jovem de Futuro joined the "Escola Viva" [Living School] program – implemented by the Espírito Santo government in 2015 to provide comprehensive education propounding that "students and teachers develop together the skills that life and the market demand". However, the number of clusters was not affected, since the clusters to which these schools belonged continued to have both beneficiary and non-beneficiary schools.

[17] In mid-2016, 15- to 17-year-old students protested against several measures to reform secondary education by physically occupying more than 1,000 schools across Brazil.

evaluation were "occupied" at the time, information was collected from all of them, because the data collection team went back to them after the end of the "occupation".

To reduce costs, only a sample of 24 randomly selected clusters were chosen to participate in the data collection in 2015 from all that could have been used in the evaluation.[18] In each cluster included in this sample, two schools – one beneficiary, one non-beneficiary – were chosen to have their functioning and climate measured. If there was more than one beneficiary school in a chosen cluster, only one was randomly chosen to have its climate and functioning evaluated.

At the beginning of the 2017 school year, the Program took off in 32 schools from the universe that had not yet been benefited by it. Thus, at the end of the year, school climate evaluation was performed only in the 38 clusters that still had at least one beneficiary and one non-beneficiary school. The results of this survey are not yet available and, for this reason, are not included in this report.

The measures of school functioning and climate used in this study are based on the perceptions of members from three tiers of the school community: administrators, teachers and students. In every school, all the administrators[19] were interviewed, but we chose to interview only a sample of students and teachers. In the case of teachers, we interviewed a sample of ten individuals from the universe of those who taught at a given school, distributed by grade, subject and shift.[20]

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[18] Instead of following the same clustering procedure described in the previous section, this time the clusters were formed by the drawing of lots, taking into account only their regional stratification.

[19] Administrators are understood to be those who occupy the roles of principal, pedagogical coordinator and shift coordinator. This group may include three or more people.

[20] This was the original plan designed for the research. However, in 2016, it was decided to interview, in each school, 10 teachers who were available to answer the questionnaire during the data collection period.

With regard to students, we interviewed every one in three randomly selected classes, equally well distributed among the school's grades and shifts. The distribution by grade and shift of students who took part in the 2016 evaluation is shown in Table 1. Altogether, an average of 76 students per school participated in the evaluation that year.

Table 1 – Distribution of interviewed students by year and shift (2016)								
Shift	**Morning**		**Afternoon**		**Night**		**Full-time**	
Grade	**Number**	**%**	**Number**	**%**	**Number**	**%**	**Number**	**%**
2016 total								
1st grade	4713	28	2234	13	463	3	43	0.3
2nd grade	3123	19	1407	8	780	5	73	0.4
3rd grade	2650	16	581	3	767	5	23	0.1
2016 sample								
1st grade	889	25	632	18	165	5	–	–
2nd grade	759	21	169	5	140	4	–	–
3rd grade	482	14	64	2	270	8	–	–

Note: Percentages are calculated in terms of the total number of students interviewed in the referred universe (16,857 and 3,570 students in Total/2016 and Sample/2016, respectively). **Source:** Authors' concept.

5. What is school climate?

Student learning and development in school are immediate consequences of the effort and quality of a series of pedagogical activities. To the extent that school management can influence the performance and quality of these activities, might it be able to influence educational outcomes? In other words, could better school management affect student learning and development in school? Through what channels might this influence take place? These are some of the questions that will be discussed in this section.

In every school there is a broad range of activities that must be performed. These include both purely pedagogical ones, which directly influence educational outcomes, and non-pedagogical ones, which support the former. It is worth mentioning that in no way should this second type of activity be understood as of minor importance for achieving the school's academic goals. For young people to learn and develop, all these activities, pedagogical or otherwise, must be performed. It could be said that proper school functioning is vital for the learning and development of young people to actually occur. A properly functioning school is one that performs its incumbent activities with a proper level of efficiency, using well its allocated resources.

But what does a school need to function well? How can good management influence school functioning? In principle, for a school to function well, it must meet five conditions. First, it must have human resources who know the functions that need to be performed and who have been trained to perform them. Second, it needs access to the resources required to perform the assigned activities. The third condition refers to community engagement: all members of the school community must be engaged in the scheduled activities. Fourth, the entire school community must show perseverance in completing all the activities that have been started. Finally, it is imperative to ensure that allocated

resources are used efficiently. In other words, a well-functioning school is one that has the support of the school community, possesses the conditions and skills necessary to perform its incumbent activities, and has the perseverance required to carry on these activities until the developmental and learning goals of its students are achieved.[21]

Although all five conditions are influenced to some extent by the quality of school management, some are more than others. As the degree of decentralization is limited, good school management tends to have little impact on the training and availability of human resources and on the availability of other resources. On the other hand, school management tends to have an extremely important impact on the allocation and use of existing resources, particularly in terms of defining the role of each member of the school community and their motivation to perform their functions. In short, good school management, although it has little influence on the availability and quality of the resources available to the school, should in principle have a big impact on how these resources are used and, therefore, on accomplishing the activities that must be performed. Thus, it can be said that good management affects school functioning and, consequently, affects the students' achievement of the learning and development goals.

However, it should be mentioned that the good use of the school's resources requires not only that the various members of the school community know their attributions very well, but also that each one is continuously and efficiently engaged. Although much of this engagement may derive from the perception of the social importance of their attributions and from their

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[21] It should be noted, as a rule, that to perform its programmed activities, the school community must rely its own capability, which in turn requires cognizance of the availability of both the necessary conditions and the necessary skills. As for the perseverance needed for the community to continue pursuing its goals over time, awareness of the efforts of other schools to attain better results can be an important element. Therefore, communication channels between schools are crucial, both to allow the exchange of best practices or to encourage the exchange of incentives and motivation.

confidence in the school's academic success, another portion results from the quality of the school environment. The more welcoming, participatory, safe, fair and stimulating the environment is, the more efficiently the members of the school community will engage in the activities assigned to them. Measures of the quality of the environment are commonly called *school climate*. Thus, it can be said that a school can function better – and, consequently, its students can achieve better academic performance – when the school community is more engaged; and this, in turn, is achieved with improvements in the quality of the school climate. In other words, another way by which good management can foster better academic results is by improving the school climate, i.e., by making the school environment more welcoming, participatory, safe, fair and stimulating.

At last, if school climate is understood as the nature of the human relationships that exist in the school, it follows that the better the climate, the less tense and conflictual will be the interactions between the members of the school community; and, therefore, the less resources will have to be shifted to mediation and conflict resolution. Furthermore, the welcoming, safe, participatory and fair nature of these relationships should promote, in each member, a sense of belonging to the school community, which encourages their involvement in collaborative activities and makes them more effective.

Hence, whether because good climate encourages engagement, or because it reduces the resources that would have to be diverted to conflict resolution, greater and more efficient engagement of everyone in the school community leads to better school functioning and, consequently, to better academic results.

6. Description of the measure of school climate used here

As we attempted to emphasize in the previous section, the concepts of school management, school functioning and, in particular, school climate do not seem simple, evident or even transparent. Quite the opposite; they seem complex, intricate, intertwined and vague. Perhaps, in large measure, precisely because of those characteristics, scientific inquiry on the concept of school climate seems to have moved towards a more pragmatic approach, focused on the development of scales. However, because science has not focused much on the definition of school climate, what these scales actually measure is something very vague. Yet, regardless of exactly what they measure, there is evidence that whatever is measured has a significant impact on academic performance. Performing a meta-analysis, Dulay & Karadag (2017) found that school climate had an impact of approximately 33% from standard deviation on measures of academic performance.[22]

As a result of this choice for a more pragmatic course of action, we also observe an increase in the number both of programs designed to improve school climate and of studies that systematize evidence on the required characteristics for such necessary programs to be effective. Bradshaw & O'Brennan (2014), for instance, argue that programs successful in promoting school climate, in addition to being evidence-based and assessing the climate from multiple perspectives, must be multifaceted, integrate diverse actions and promote a high degree of positive communication between the various members of the school community.

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[22] Dulay and Karadag (2017) performed a meta-analysis of 90 studies estimating the impact of school climate on academic performance.

To substantiate this growing empirical interest in the impact of school climate on educational performance, the number of scales claiming to be able to measure it has been multiplying. As shown in Annex 1, a survey by the National Center on Safe Supportive Learning Environments (2016) includes 21 scales to be completed by students, 18 by educators and 9 by family members – all of them duly tested for validity and reliability, according to the Center. Going beyond this survey, the work of Gangi (2010) and Clifford et al. (2012) also identified a large number of instruments for measuring school climate, making critical evaluations and selecting the ten best measures.

In Brazil, the availability of scales to measure school climate has also grown, and their use has been systematically incorporated into evaluation systems. A variety of alternatives now exist in the country, as shown in Annex 2.

In this study, in order to measure school functioning and climate, we chose to use a scale[23] developed by a large consortium of researchers led by teachers Telma Vinha and Alessandra de Morais, based on the analysis and revision of a broad spectrum of preexisting instruments, written mainly in English. In this process, almost 70 instruments available in the literature were analyzed and used as the foundation to build the proposed scale. According to the authors, the goal is to:

> *Build, apply and analyze evidence for instrument validation, adapted to the realities of Brazilian schools, to assess school climate among students from the 7th grade on, teachers and administrators (VINHA et al., 2016, p. 101).*

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[23]   Published in Vinha et al. (2016). The manual for this instrument is by Vinha, Morais and Moro (2017).

The scale proposed by Vinha et al. (2016) acknowledges the multidimensionality of school climate and, therefore, is organized into eight dimensions, structured into four themes, as shown below:

- *Theme 1: Learning*

    i. Relationship with teaching and learning.
- *Theme 2: Relationship between members of the school community*

    ii. Social relations and conflicts at school

    iii. Situations of intimidation among students

    iv. Family, school and community
- *Theme 3: Human resources management in schools*

    v. Rules, sanctions and safety in school

    vi. Relationship with work

    vii. Management and participation
- *Theme 4: Physical situation of the school*

    viii. School infrastructure and physical facilities

To measure school functioning and climate, this scale collects the opinions of the school's key stakeholders – students, teachers and administrators –using specific instruments for each one. Teachers and administrators answer queries from the eight dimensions, while the opinion of students is restricted to six of the eight dimensions.

The theme directly related to academic performance aims to assess to what extent the school community: *a)* believes in the value of education; *b)* has high expectations regarding the pedagogical capabilities of teachers and the learning of students; *c)* is duly engaged in promoting learning; and *d)* is ready to use different strategies to ensure learning for all.[24] As the authors emphasize:

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[24] Overall, this theme is always present in measurements of school climate. For instance, the second instrument used to assess school climate in Brazil's Education Development Plan (PDE) dedicates four sub-themes to

> *The quality of this dimension is based on perceiving the school as an bona fide place to work with knowledge, to invest in the success, motivation, participation and well-being of students, and to advocate the value of schooling and the meaning assigned to learning. It also presupposes the effective performance of a stable faculty, the existence of specific strategies that contribute to learning for all, and continuous follow-up, so that no student is left wanting (VINHA, MORAIS & MORO, 2017, p. 10).*

This theme is assessed by the three groups of stakeholders – students, teachers and administrators – by means of specific instruments containing 20 to 30 queries.

The second theme covered by this instrument concerns the quality of the relationships between members of the school community and is subdivided into three dimensions. The first comprises a number of queries aimed at assessing the overall quality of relationships between community members, such as respect, support, possibilities for participation and positive conflict resolution, and the ensuing development of the sense of belonging. According to the authors,

> *It also encompasses the identification by adults of situations of intimidation and mistreatment experienced in peer relationships, and the co-responsibility of the school's professionals for problems of sociability and coexistence. A good relational climate results from the positive relationships that occur in this space, opportunities for effective participation, assurance of well-being, respect and support*

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address this issue: "*i)* definition of high teaching standards; *ii)* high expectations regarding student learning; *iii)* teachers' confidence in their work; and *iv)* the school staff's commitment to, and concern for students and the school". It is worth mentioning that, when compared to the instrument developed by Vinha et al. (2016), the items of this PDE instrument pertaining to the first component of the theme are much more explicit in terms of defining standards and of the faculty's knowledge of, and familiarity with these standards. Likewise, the scale to assess school climate organized by *Escola-Abril* magazine (see more details in Annex 2) dedicates one of the seven measured dimensions to issues related to "pedagogical aspects and interest in teaching".

among people, continuously promoting the sense of belonging
(VINHA, MORAIS & MORO, 2017 , p. 10).

Specific instruments are used for each of the three stakeholders whose opinion is being investigated – students, teachers and administrators. This dimension has 21 to 24 queries for each respondent.

The second dimension deals with situations of intimidation among students and investigates: *a)* their occurrence and prevalence; *b)* forms of prevention; and *c)* ways to resolve bullying situations among students. According to the authors,

> *This dimension identifies situations of intimidation and mistreatment in both bullying and peer relationships, and the places where they occur (VINHA, MORAIS & MORO, 2017, p. 10).*

In this dimension, specific instruments are used for each of the three stakeholders, containing two queries for teachers and administrators, and 17 queries for students.

The third specific dimension of the relationship between members of the school community refers to the quality of the school's relationship with families and the community, and encompasses: *a)* respect; *b)* trust; and *c)* mutual support, aimed at building a common identity. According to the authors,

> *This refers to the quality of relationships between school, family and community, comprising respect, trust and support between these groups. It also covers what the school does in face of the needs of the community. It involves the feeling of being part of a group that shares common goals (VINHA, MORAIS & MORO, 2017, p. 10).*

Specific instruments are used for each of the three stakeholders – students, teachers and administrators – with 7 to 13 queries, depending on the respondent.

It should be noted that the theme of relationships between members of a school community, which encompasses these three dimensions of the instrument, is certainly the core of the concept of school climate and, therefore, of its measures.[25]

The instrument proposed by Vinha et al. (2016) also considers three other dimensions associated with the third theme – human resources management in schools – that deal more specifically with school management and functioning, and the participation of different stakeholders in school decisions. These dimensions are: *i)* Rules, sanctions and safety in school; *ii)* Relationship with work; and *iii)* Management and participation.

First, there is a set of queries aimed at evaluating, *a)* how rules are established in the school; *b)* to what extent they are actually verified and complied with; and *c)* how the provided sanctions are actually imposed with fairness. According to the authors,

> *This dimension addresses how administrators, teachers and students intervene in interpersonal conflicts at school. It covers development, content, legitimacy and equity in the application of rules and sanctions, and identifies the types of punishment generally used. It also encompasses order, justice, peacefulness, consistency and*

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[25] The instrument used to assess school climate in the Education Development Plan (PDE) dedicates only one of its nine dimensions to address this issue and calls it "regular communication between school staff, parents and community". Unlike the instrument developed by Vinha et al. (2016), the one adopted by the PDE does not explicitly address the quality of relationships among students. The school climate evaluation scale organized by *Escola-Abril* magazine reserves two of its seven dimensions to address relational issues at school, comprising the following themes: *i)* friendship, interpersonal relationships, welcoming and equality; and *ii)* mutual collaboration.

security in the school environment (VINHA, MORAIS & MORO, 2017, p. 10).

To assess this dimension, specific instruments are used for each of the three stakeholders – students, teachers and administrators – with 26 to 32 queries, depending on the respondent.

Still regarding this third theme, there is a second dimension involving set of queries aimed at evaluating the quality of one's relationship with work and, in particular, the degree of satisfaction with one's work and with everyone's performance and participation. According to the authors of the instrument,

> *This is about how administrators and teachers feel towards their work environment and educational institution. It covers how they perceive professional training and qualification, study practices and reflections on actions, institutional appreciation, satisfaction and motivation regarding the role they perform and the support they receive from administrators and other professionals (VINHA, MORAIS & MORO, 2017 , p. 10).*

This second dimension is not assessed by students; only administrators and teachers answer the questionnaires, which have 15 and 12 queries, respectively.

Finally, the third dimension seeks to capture the extent to which the school community is well informed about what happens at school, and if an environment of trust, respect and mutual support exists. It also seeks to discern if the school community has ample opportunity to effectively cooperate with school management, either by expressing opinions and criticizing, or by participating in the resolution of conflicts. In the words of the authors, this dimension,

Encompasses the quality of the processes used to identify the school's needs, to intervene and to assess the results. It also includes the organization and articulation between the various sectors and stakeholders that make up the school community, in order to promote spaces for participation and cooperation in the pursuit of common goals (VINHA, MORAIS & MORO, 2017, p.10).

Like the previous one, this dimension is also not assessed by the students; administrators and teachers answer specific questionnaires with 27 and 13 queries, respectively.[26]

Finally, the eighth and last section of the instrument developed by Vinha et al. (2016) considers aspects related to the availability and care of the school's physical infrastructure and its functioning and maintenance conditions. In the words of the authors,

This concerns the quality of the school's infrastructure and physical space, their use, adequacy and care. It refers to how equipment, furniture, books and materials are prepared and organized to enhance welcoming, free access, security, interaction and well-being in these spaces (VINHA, MORAIS & MORO, 2017, p. 10).

Administrators, teachers and students fill out specific questionnaires with eight queries each. Although the condition of the school's infrastructure cannot

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[26] The three dimensions of the instrument developed by Vinha et al. (2016) addressing the professional relationship between members of the school community, although more peripheral than those linked to the general relationship among these members, can also be found in most measures of school climate. The instrument used by the Education Development Plan (PDE), for instance, assigns three of its nine dimensions to addressing this issue: *i)* school norms and regulations; *ii)* tangible presence of the school principal; and *iii)* teamwork. Similarly, the school climate evaluation scale organized by *Escola-Abril* magazine also reserves three of its seven dimensions to addressing relational issues at school: *i)* management and transparency; *ii)* discipline; and *iii)* procedures, assistance and services.

be considered the core of the concept of climate, it is found in most scales that seek to measure school climate.[27]

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[27]   In the instrument proposed by the PDE, one of the nine dimensions deemed part of school climate deals precisely with infrastructure: "well-organized and pleasant school environment". Likewise, the seventh and last dimension of the school climate evaluation scale organized by *Escola-Abril* magazine is "infrastructure".

7. Estimating school climate

As highlighted in the previous section, the evaluation of school functioning and climate in the state of Espírito Santo was based on the perception of students, teachers and administrators. Toward this end, three instruments were employed, specific for each type of respondent. The instrument for students aims to assess, from their perspective, six dimensions of school climate. The other two instruments assess the same eight dimensions from the perspectives of teachers and administrators, but with slightly different queries.

The instruments have 108 queries (students), 129 (teachers) and 133 (administrators). Table 2 shows the number of queries in each instrument for every dimension analyzed. All queries are Likert-type scales, with four alternatives, typically: "I don't agree", "I agree somewhat", "I agree" and "I strongly agree". However, these alternatives vary slightly depending on the nature of the query. The answers to each query were coded 1 to 4, depending on the response given, with 4 always assigned to responses indicating a better climate. Thus, "negative" queries, in which the last alternative represents a worse climate, were coded in reverse order: responses to the first alternative were assigned a value of 4 and responses to the fourth alternative received a value of 1.

Table 2 – Number of queries of each instrument per dimension analyzed			
	Number of queries		
Dimension	Students' instrument	Teachers' instrument	Administrators' instrument
1. Relationship with teaching and learning	20	30	21
2. Social relations and conflicts in school	24	23	21
3. Situations of intimidation among students	17	2	2
4. Family, school and community	7	11	13
5. Rules, sanctions and safety in school	32	30	26
6. Relationship with work	–	12	15
7. Management and participation	–	13	27
8. School infrastructure and physical facilities	8	8	8
Total	**108**	**129**	**133**

Source: Authors' concept

In principle, it is possible to estimate school climate using Item Response Theory (IRT). However, we chose an approach that follows the Classical Test Theory. Our choice derived from the multidimensionality of the construct, the scant empirical experience with the instruments and the multilevel nature of their application: we assessed the climate in numerous schools (219)[28] according to the perceptions of three groups of stakeholders (administrators, teachers and students), either with the entire group or a sample of each one reporting their perceptions (on average 3 administrators, 9 teachers and 76 students per school in 2016).

For each school, three aggregate measures of climate were calculated using the methodology described in the next paragraphs. In every case, the measurement per stakeholder – student, teacher or administrator – was based on the mean value of the responses to queries of the dimension being analyzed. Thus, for example, in a given school, a student's measurement for a certain climate dimension is the mean value of his/her responses to the questionnaire

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[28]   As previously mentioned, this number differs from the total number of schools indicated in Section 3 because two schools that would have initially been benefited by the Program were removed. However, the number of clusters was not affected, since the clusters of both these schools continued to include beneficiary and non-beneficiary schools.

queries pertaining to that dimension. The same procedure applies to the other stakeholders – teachers and administrators.

In turn, the aggregate perception of each one of these three groups of stakeholders in a given dimension is the mean value of the perceptions of individuals of that group, regardless of the aggregate measurement.

Thus, the three aggregate measures refer to three perceptions:

- *Measure 1.* First we aggregated the dimensions, and then the perceptions of each group of stakeholders. The aggregation in each dimension is weighed by the number of queries (equivalent to assigning equal weights to every query of the instrument).
- *Measure 2.* First we aggregated the dimensions, and then the perceptions of each group of stakeholders. To aggregate the dimensions, equal weighs are assigned to all the dimensions (equivalent to assigning inversely proportional weights to the number of queries in each dimension).
- *Measure 3.* First we aggregated the perceptions, and then the dimensions. As emphasized, teachers and administrators indicate their perceptions for the eight dimensions of school climate, whereas students report them for only six dimensions. Once the joint perception of the stakeholders regarding each dimension of school climate is established, an aggregate measure is obtained by the simple average of the specific measures pertaining to the eight dimensions.

Please note that, both in Measure 1 and Measure 2, we obtained aggregate measures of school climate by group of stakeholders: students, teachers and administrators. To obtain a joint measure of school climate, in both cases, a final aggregation is carried out by calculating the mean value of the aggregate perception of the three groups of stakeholders.

Formally, then, if $R_{i,j}^{l,k,h}$ denotes the response of stakeholder l from group k in school h to query i of dimension j, then the first step to assess school climate is to aggregate the responses from stakeholders of the same group to the queries of the same dimension in order to obtain,

$$\bar{R}_{j,k,h} = \frac{1}{m_{h,k}} \sum_{i=1}^{m_{h,k}} \left(\frac{1}{n_{j,k}} \sum_{i=1}^{n_{j,k}} R_{i,j}^{l,k} \right)$$

where n_{jk} denotes the number of queries of dimension j of the instrument for group k (*see Table 2*), $m_{h,k}$ denotes the number of stakeholders in group k interviewed in school h and $R_{j,k,h}$ is the measure pertaining to dimension j of the school climate h according to the perception of the stakeholders in group k.

In the first and second measures, the dimensions are aggregated, respectively, as follows,

$$\bar{R}_{k,h}^1 = \frac{\sum_{j=1}^{d_k} n_{j,k} \bar{R}_{j,k,h}}{\sum_{j=1}^{d_k} n_{j,k}}$$

and

$$\bar{R}_{k,h}^2 = \sum_{j=1}^{d_k} \frac{1}{d_k} \bar{R}_{j,k,h}$$

where d_k is the number of dimensions assessed by group k.

The perceptions of the stakeholder groups are then aggregated using a simple average.

$$\bar{\bar{R}}_h^1 = \frac{\bar{R}_{1,h}^1 + \bar{R}_{2,h}^1 + \bar{R}_{3,h}^1}{3}$$

and

$$\bar{\bar{R}}_h^2 = \frac{\bar{R}_{1,h}^2 + \bar{R}_{2,h}^2 + \bar{R}_{3,h}^2}{3}$$

To obtain the third aggregate measure of school climate, we first aggregate the perceptions of the various groups for each dimension, that is, we calculate,

$$\bar{\bar{R}}_{j,h}^3 = \frac{\bar{R}_{j,1,h} + \bar{R}_{j,2,h} + \bar{R}_{j,3,h}}{3}$$

when $j = 1, \ldots, 6$ (dimensions for which the three groups inform their perspectives) and

$$\bar{\bar{R}}_{j,h}^3 = \frac{\bar{R}_{j,1,h} + \bar{R}_{j,2,h}}{2}$$

when $j = 7\ or\ 8$.

Tables 3 and 4 display the first two aggregate measures of school climate seen above, as well as their disaggregation for the three perspectives being investigated – students', teachers' and administrators' – for both the sample of schools assessed at the end of the Program's first year, 2015, and for the same sample of schools together with the universe of schools assessed at the end of the second year of implementation, 2016. Table 5 presents the third aggregated measure of school climate for all dimensions, and for each dimension separately, in the sample of schools and in the universe of schools assessed at the end of the Program's first year, 2015, and at the end of the second year of implementation, 2016.

Table 3 – Aggregation of data from Measure 1						
Universe	Type of school	Indicator	Aggregation by stakeholder group			Total aggregation
			Students	Teachers	Administrators	
2015 (sample)	Beneficiary	Mean (sd)	2.7 (0.1)	2.8 (0.2)	2.9 (0.2)	**2.8 (0.1)**
	Non-beneficiary	Mean (sd)	2.8 (0.1)	2.9 (0.2)	3.0 (0.2)	**2.9 (0.2)**
2016 (sample)	Beneficiary	Mean (sd)	2.7 (0.1)	2.8 (0.2)	3.0 (0.2)	**2.8 (0.1)**
	Non-beneficiary	Mean (sd)	2.7 (0.2)	2.9 (0.2)	3.0 (0.3)	**2.9 (0.2)**
2016 (full universe)	Beneficiary	Mean (sd)	2.7 (0.1)	2.9 (0.2)	3.0 (0.1)	**2.9 (0.1)**
	Non-beneficiary	Mean (sd)	2.7 (0.1)	2.9 (0.2)	3.0 (0.2)	**2.9 (0.1)**

Source: Authors' concept

Table 4 – Aggregation of data from Measure 2						
Universe	Type of school	Indicator	Aggregation by stakeholder group			Total aggregation
			Students	Teachers	Administrators	
2015 (sample)	Beneficiary	Mean (sd)	2.6 (0.1)	2.8 (0.2)	2.9 (0.2)	**2.8 (0.1)**
	Non-beneficiary	Mean (sd)	2.7 (0.1)	2.8 (0.2)	3.0 (0.2)	**2.8 (0.2)**
2016 (sample)	Beneficiary	Mean (sd)	2.6 (0.1)	2.8 (0.2)	3.0 (0.2)	**2.8 (0.1)**
	Non-beneficiary	Mean (sd)	2.6 (0.2)	2.9 (0.2)	3.0 (0.3)	**2.8 (0.2)**
2016 (full universe)	Beneficiary	Mean (sd)	2.7 (0.1)	2.9 (0.2)	3.0 (0.1)	**2.9 (0.1)**
	Non-beneficiary	Mean (sd)	2.7 (0.2)	2.9 (0.2)	3.0 (0.2)	**2.8 (0.1)**

Source: Authors' concept

Table 5 – Aggregation of data from Measure 3											
Universe	Type of school	Indicator	Aggregation by stakeholder group								Total aggre-gation
			D1	D2	D3	D4	D5	D6	D7	D8	
2015 (sample)	Beneficiary	Mean	2.7	3.0	3.1	2.5	2.8	3.0	2.8	2.4	**2.8**
		(sd)	(0.1)	(0.1)	(0.2)	(0.2)	(0.1)	(0.2)	(0.2)	(0.3)	**(0.1)**
	Non-beneficiary	Mean	2.8	3.1	3.2	2.6	2.9	3.0	2.8	2.6	**2.9**
		(sd)	(0.2)	(0.2)	(0.1)	(0.2)	(0.1)	(0.2)	(0.3)	(0.4)	**(0.2)**
2016 (sample)	Beneficiary	Mean	2.8	3.1	3.1	2.5	2.8	3.0	2.8	2.5	**2.8**
		(sd)	(0.1)	(0.1)	(0.2)	(0.2)	(0.1)	(0.2)	(0.2)	(0.3)	**(0.1)**
	Non-beneficiary	Mean	2.8	3.1	3.1	2.5	2.9	3.1	2.8	2.5	**2.9**
		(sd)	(0.2)	(0.2)	(0.2)	(0.2)	(0.1)	(0.2)	(0.2)	(0.4)	**(0.2)**
2016 (full universe)	Beneficiary	Mean	2.8	3.1	3.1	2.6	2.9	2.9	2.8	2.6	**2.9**
		(sd)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.3)	**(0.1)**
	Non-beneficiary	Mean	2.8	3.1	3.1	2.5	2.9	2.9	2.8	2.5	**2.8**
		(sd)	(0.2)	(0.1)	(0.1)	(0.2)	(0.1)	(0.2)	(0.2)	(0.4)	**(0.2)**

Source: Authors' concept

Graphs 1a, 1b and 1c display the distribution of schools according to the three aggregate measures of school climate and of stakeholders, both for the sample of schools assessed at the end of the Program's first year and for the same sample of schools together with universe of schools assessed at the end of the second year of implementation.

Graph 1: Distribution of aggregate responses in schools, by type of measure

2015 sample

2016 sample

2016 total

Source: Authors' concept
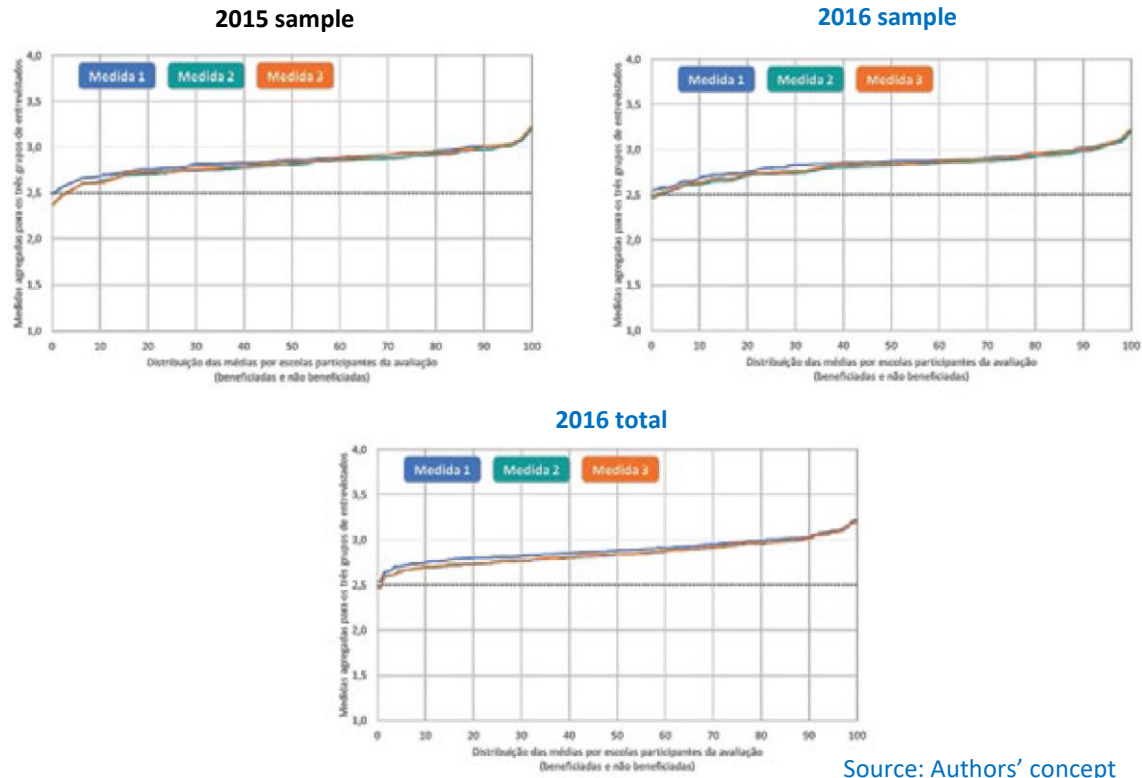
These tables show that, overall, the aggregate perception of school climate of the three stakeholders is above the middle of the scale (2.5). This fact reveals that, typically, each respondent *"agrees"* (third alternative) with what three quarters of the queries state and *"agrees somewhat"* (second alternative) with what one quarter of the queries state. Therefore, this is a scale with discriminatory potential, in which schools are clustered neither at the lower nor at the upper limit. Indeed, whatever the measure and the moment in time – the end of either the first or the second year of the Program's implementation – more than 90% of schools displayed climate indicators between 2.5 and 3.0, very distant from edge limits of the scale, 1.0 and 4.0.

8. Analysis of the precision of school climate measurement

As highlighted in Section 2, the quality of a measure can be assessed along three dimensions, including precision (or reliability), which can be defined as the capacity of a measure to remain unchanged when the construct it seeks to gauge does not change either. In this section, we analyze the precision of the measure of school climate used in this study.

As emphasized, we used a measure of climate that considers the perception of three groups of stakeholders on eight dimensions of school climate. Assuming that, for the same group of stakeholders, all queries of the same dimension measure the same construct, we have,

$$R_i = a_i + b_i C + U_i$$

where C denotes a given dimension of school climate according to the perspective of a group of stakeholders, Ri is the response to query i, and Ui is the measurement error incurred when assessing school climate using query i. When measuring school climate, the undesirable variability may be indicated by the variance of the mean of measurement errors (σ^2), which is equivalent to,

$$\sigma^2 \equiv var(\bar{U})$$

where

$$\bar{U} \equiv \frac{1}{n}\sum_{i=1}^{n} U_i$$

$$\sigma^2 = var(\bar{U}) = var\left(\frac{1}{n}\sum_{i=1}^{n} U_i\right) = \frac{1}{n^2}\sum_{i=1}^{n} var\,(U_i)$$

which denotes the number of queries used to capture the school climate. Ideally, σ^2 should be the smallest possible. If we denote by n_i^2 the error variance associated with query i, we have,

$$\pi_i^2 = var(U_i)$$

and, therefore,

$$\sigma^2 = \frac{1}{n^2} \sum_{i=1}^{n} var\,(U_i) = \frac{1}{n^2} \sum_{i=1}^{n} \pi_i^2$$

Although n_i^2 and σ^2 are good measures of the query's precision and of the aggregate measure of school climate calculated as the mean of the queries, it is difficult to interpret their absolute value because this value depends on the scale used. In order to obtain a relative measure that can be interpreted more easily, we chose to gauge precision as the percentage of the measure's variability that is indeed a consequence of variations in the construct. Next, we show how we made this calculation.

Since the variability of the construct is given by,

$$\tau^2 = var(C)$$

we measured the precision of the instrument with the ratio,

$$\alpha = \frac{\tau^2}{\delta^2}$$

where δ^2 denotes the total variability of the measure of school climate and, therefore,

$$\delta^2 = Var(\bar{R}) = Var\left(\frac{1}{n}\sum_{i=1}^{n} R_i\right) = Var\left(\frac{1}{n}\sum_{i=1}^{n}(a_i + b_i C + U_i)\right)$$

$$= Var\left(\left(\frac{1}{n}\sum_{i=1}^{n} b_i\right)C\right) + Var\left(\frac{1}{n}\sum_{i=1}^{n} U_i\right)$$

$$= \bar{b}^2 Var(C) + \frac{1}{n^2}\sum_{i=1}^{n} Var(U_i) = \bar{b}^2\tau^2 + \frac{1}{n^2}\sum_{i=1}^{n} \pi_i^2 = \bar{b}^2\tau^2 + \sigma^2$$

where

$$\bar{b} = \frac{1}{n}\sum_{i=1}^{n} b_i$$

$$\alpha = \frac{\bar{b}^2\tau^2}{\delta^2} = 1 - \frac{\sigma^2}{\delta^2}$$

which represents a relative measure of precision. When $b_i = b^*$ for every $i = 1, ..., n$, this measure is usually called Cronbach's Alpha.

Traditionally, a scale is deemed precise when the variability of the construct represents at least three quarters of the variance of its measure. In other words, a scale is said to be precise when its Cronbach's Alpha is less than three-quarters. It is worth noting that this is equivalent to stating that a scale is precise when the measurement error variability (σ^2) is less than one quarter of the total variance of the measure (δ^2).

Table 6 shows estimates of the precision of the instruments applied to students, teachers and administrators, considering each climate dimension separately. For the instrument used with the students, Cronbach's Alpha was not less than 75% in any of the dimensions. In the case of teachers and administrators, the precision of the subscales that seek to capture "situations of intimidation among students" and "rules, sanctions and safety in school" was precarious, with Cronbach's Alpha below 75%.

Table 6 – Performance of the queries used, by dimension (Cronbach's Alpha)			
	Cronbach's Alpha		
Dimension	**Students**	**Teachers**	**Administrators**
1. Relationship with teaching and learning	80%	86%	87%
2. Social relations and conflicts in school	85%	85%	85%
3. Situations of intimidation among students	87%	66%	69%
4. Family, school and community	75%	84%	87%
5. Rules, sanctions and safety in school	79%	77%	66%
6. Relationship with work	–	84%	88%
7. Management and participation	–	91%	87%
8. School infrastructure and physical facilities	82%	81%	86%

Source: Authors' concept

The imprecision of the subscales that constitute the third dimension and seek to capture "Situations of intimidation among students" can be seen in Table 6: for teachers and administrators, Cronbach's Alpha was below 75%. The

imprecision is a consequence of the low number of queries: the subscales that make up this dimension contain only two queries, certainly insufficient to capture how these stakeholders perceive the construct under consideration. The same cannot be said of the "rules, sanctions and safety in school" subscale: although imprecise (with a Cronbach's Alpha of 66%), this subscale of the instrument applied to administrators contains 26 queries, and therefore it is not possible to state that, in this case, the low number of queries impaired measurement precision.

The graphs in Annex 3 present the precision measures of all the queries that make up the school climate scale that we used.

With regard to "Relationship with teaching and learning", four types of queries contribute little to the reliability and precision of the scale. First, we have the queries related to "Teacher turnover",[29] possibly more germane to the dimension "Relationship with work" than to the dimension "Relationship with teaching and learning". Second, we have the query related to "Distribution of students in classes according to their level of proficiency",[30] which is in no way positively related to school climate. The queries pertaining to "Student use of computers and other internet-connected devices" also do not seem to contribute at all to the reliability of the scale in the first dimension.[31] Finally, "Considering the behavior of students in the evaluations"[32] does not contribute to assess school climate; possibly, this query should be included in the scale of the dimension "Rules, sanctions and safety in school".

With regard to "Social relations and conflicts at school", all the queries of the instrument applied to students are reliable. In the case of administrators and

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[29] The 9th query of the instrument applied to teachers and administrators.

[30] The 11th query of the instrument applied to administrators.

[31] The 8th and 19th queries of the instrument applied to administrators and students, respectively.

[32] The 3rd and 10th queries of the instrument applied to students and teachers, respectively.

teachers, three queries contribute very little. One is the "Students are afraid of me",[33] which for administrators has no relevance in the dimension "Social relations and conflicts at school". The two other do not seem to make a pertinent contribution in the case of teachers: "When I have a conflict with a student, I don't think it's necessary to justify my position"[34] and "When I have a conflict with a colleague, I seek someone who can help me".[35]

As mentioned above, the dimension concerning the school's organizational climate, "Rules, sanctions and safety", has the worst performance in terms of precision, with the instruments for teachers and administrators being particularly imprecise. Therefore, it is not surprising that several queries of these scales do not perform adequately. First, we should mention the poor performance of queries related to "Informing the family about an occurrence so that they can take action".[36] Likewise, the query "Students receive an admonition"[37] has no bearing on the school's organizational climate. A further aspect that does not affect the organizational component is the query "Rules are created mainly by the pedagogical and administrative team".[38]

In addition to these aspects, extreme attitudes such as "Suspension" and "Referral to youth protection service" have no relation to the school's organizational component.[39] Surprisingly, perhaps, rules aimed at "Encouraging students to seek solutions to problems or correct their errors"[40]

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[33] The 38th query.

[34] The 39th query.

[35] The 37th query.

[36] The 72nd and 81st queries of the instrument applied to teachers, the 61st and 72nd of that applied to students, and the 65th of that applied to administrators.

[37] The 68th query of the instrument applied to students, the 60th of that applied to administrators, and the 76th of that applied to teachers.

[38] The 53rd query of the instrument applied to administrators and the 59th of that applied to teachers.

[39] The 63rd and 67th queries of the instrument applied to administrators.

[40] The 75th and 80th queries of the instrument applied to teachers.

also do not provide information on organizational climate. Finally, we found that the same applies to the selective grouping of students, defined by the queries "Separating disciplined and undisciplined students"[41] and "Ignoring transgression of rules and conflicts among students".[42]

The fourth dimension investigated involves intimidation or bullying among students. Although both teachers and administrators answered a couple of queries, information on this dimension of school climate comes fundamentally from the perspective of the students themselves. Of the 17 queries, the two pertaining to demonstrations of trust in the other members of the school prove to be completely uninformative about this dimension. Indeed, as the rest of the scale essentially deals with the frequency of intimidations, it is not surprising that these two queries, concerning how to deal with these intimidations, do not reflect the same construct as the other queries that make up the scale.

As for the climate of the school's relationship with families and the community, two types of queries provide no information on this dimension. On the one hand, and quite clearly, the query on the existence of "Excessive family interference in school"[43] bears no relation to the climate construct underlying the other queries. On the other hand, "Offering activities outside school hours"[44] also proves to be uninformative about the climate of the relationship between family, community and school.

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[41]   The 54th query of the instrument applied to administrators.

[42]   The 69th query of the instrument applied to teachers

[43]   The 81st query of the instrument applied to administrators.

[44]   The 100th query of the instrument applied to administrators, and the 96th of that applied to teachers.

In the dimension of school climate related to infrastructure, all the queries used to capture the perspective of the three groups of stakeholders are informative.

As for the work environment at school, queries related to the administrators' perception of their ability to deal with school challenges are quite uninformative on this dimension – for instance, "Feeling exhausted", "Responsible for school performance", "Qualified to perform one's role" and "Impotent to deal with teachers and staff who carry out their duties poorly".[45] The query that indicates discouragement, "If I could, I'd stop being a teacher",[46] also proves to have little information value.

At last, the scale to measure the "participatory management" school climate contains some queries that are not very informative. From the administrator's perspective, the query "The gap between PPP[47] and what is practiced"[48] seems to measure an aspect of management that is distinct from its participatory nature. From the teachers' viewpoint, the 126th query, "Availability of a sufficient number of teachers", as might be expected, is not very informative about the participatory nature of school management. Truly surprising, and deserving more attention, is the lack of any relation between the query that deals directly with how teachers' view the "Authoritarian management style of the school"[49] and the participatory climate of the school.

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[45] The 99th, 101st and 106th queries of the instrument applied to administrators, and 113th of that applied to teachers.

[46] The 111th query of the instrument applied to teachers.

[47] Political Pedagogical Project.

[48] The 120th query of the instrument applied to teachers.

[49] The 123rd query of the instrument applied to teachers.

9. Impact evaluation methodology

Two complementary strategies were used to assess the impact of Program Jovem de Futuro on school climate. Both strategies are based on the contrast between the quality of the climate at beneficiary and non-beneficiary schools in the same evaluation cluster. We detail below the methodology of each of these strategies.

The first strategy does not aim to estimate the magnitude of the impact, but rather to find evidence that the Program does have an impact. To do so, we count the number of clusters where school climate is better at beneficiary than at non-beneficiary schools. If the Program has no impact, then, in a given cluster, the probability that school climate will be better at beneficiary or non-beneficiary schools is identical. This fact, to be sure, does not depend on the Program; it is merely a result of the raffle to define the beneficiary schools: if the Program has no impact, the probability that school climate will be better at the beneficiary school will be 50% in each cluster. Thus, under the hypothesis that the Program has no impact, the number of groups in which school climate is better at beneficiary school derives from a binomial distribution with a 50% probability of success[50] and the number of attempts is equal to the number of clusters. Therefore, a number m exists such that, under the hypothesis that the Program has no impact, the probability of the number of clusters being greater than m is less than $\alpha\%$, where m is implicitly determined by,

$$\left(\frac{1}{2}\right)^n \sum_{k=m}^{n} C_n^k \le \alpha < \left(\frac{1}{2}\right)^n \sum_{k=m-1}^{n} C_n^k$$

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[50] Understood as the situation in which school climate is better at the beneficiary than at the non-beneficiary school.

where n denotes the total number of clusters. Thus, m is the critical value of a test with probability α of rejecting the null hypothesis when the latter is true (type I error), where the test statistic is the number of clusters in which school climate is better at the beneficiary school.

Furthermore, still under the hypothesis that the Program has no impact, when each cluster has two beneficiary schools and one non-beneficiary, the probability that the non-beneficiary school will have the worst climate is ⅓ and the probability that it will not have the best climate is ⅔. Thus, in this case, under the hypothesis that the Program has no impact, both the number of clusters in which school climate is worse at the non-beneficiary school and the number of clusters in which the climate is better at one of the beneficiary schools follow binomial distributions with probabilities of ⅓ and ⅔, respectively. Therefore, values m_1 and m_2 exist such that,

$$\sum_{k=m_1}^{n} C_n^k \left(\frac{1}{3}\right)^k \left(\frac{2}{3}\right)^{n-k} \leq \alpha < \sum_{k=m_1-1}^{n} C_n^k \left(\frac{1}{3}\right)^k \left(\frac{2}{3}\right)^{n-k}$$

and

$$\sum_{k=m_2}^{n} C_n^k \left(\frac{2}{3}\right)^k \left(\frac{1}{3}\right)^{n-k} \leq \alpha < \sum_{k=m_2-1}^{n} C_n^k \left(\frac{2}{3}\right)^k \left(\frac{1}{3}\right)^{n-k}$$

As seen above, n denotes the total number of clusters. Thus, m_1 is the critical value of a test with probability α of rejecting the null hypothesis when the latter is true (type I error), where the test statistic is the number of clusters in which climate is worse at the non-beneficiary school than at the two beneficiary schools of the same cluster. Similarly, m_2 is the critical value of a test with probability α of rejecting the null hypothesis when the latter is true (type I error), where the test statistic is the number of clusters in which climate is better at one of the two beneficiary schools than at the non-beneficiary one of

the same cluster. The first strategy is composed by these three tests that assess whether the Program has an impact.

The second strategy aims to estimate the magnitude of the impact. To do so, we used the mean, across all clusters, of the differences in school climate between beneficiary and non-beneficiary schools. To gauge the precision of our estimate, we used the standard error associated with this mean across clusters. In other words, if $L_{i,t}$ denotes the mean of school climate indicators of the beneficiary schools in a cluster and $L_{i,c}$ denotes the corresponding school climate indicator of the non-beneficiary school in cluster i, then the magnitude of the impact of the Program, Δ , is estimated by,

$$\Delta = \frac{1}{n}\sum_{i=1}^{n}\delta_i$$

where $\delta_1 = L_{i,t} - L_{i,c}$ and the corresponding standard error is obtained by,

$$\frac{1}{n-1}\sum_{i=1}^{n}(\delta_i - \Delta)^2$$

As mentioned above, we assessed school functioning and climate for a sample of schools at the end of the first year, 2015, and for all schools at the end of the second year, 2016. School climate was also assessed at the end of 2017, but, because this information is not yet available, they are not included in this report.

Thus, it is possible to estimate the impact on school climate after one or two years of the Program, as well as the impact of only the second year of implementation. The one-year or two-year impact is based on the contrast between climates at beneficiary and non-beneficiary schools at the end of the 2015 and 2016 school years, respectively. In turn, impact evaluation of the Program's second year was based on the contrast of school climate

improvements in the end of 2015 and of 2016 at beneficiary and non-beneficiary schools. Thus, both the one-year impact evaluation and the second-year evaluation of the Program depend on measuring school climate at the end of the first year of implementation and, therefore, can only be performed using the sample of schools for which climate was estimated at the end of 2016. The two-year impact evaluation of the Program, on the other hand, can be performed using all schools of the target population. However, to facilitate comparing the Program's two-year impact with its one-year impact and with its second-year impact, we also estimated the two-year impact restricted to the sample of schools whose climate was assessed at the end of 2015.

In this study, we investigate eight dimensions of school climate from the perspective of three groups of stakeholders – students, teachers and administrators – and, for each school, we obtained three aggregate measures of school climate, which vary according to how the stakeholders' perspectives and the climate dimensions are aggregated, as seen in Section 7. In the following sections, we investigate the Program's impact on each climate measure and their disaggregation by dimension and perspective. Taking these three measures into account, we will present here the results of a total of 17 measures: (i) for Measure 1, three measures are considered, estimated from the aggregation of dimensions for each of the three groups of stakeholders, as well as a measure of total aggregation; (ii) likewise, for Measure 2, three measures are estimated by aggregating the dimensions of each of the three groups, plus a measure of total aggregation; and (iii) for Measure 3, eight measures are estimated, this time aggregating the perceptions of the stakeholder groups in each of the eight dimensions of school climate, as well as a measure of total aggregation.

More specifically, Section 10 analyzes the evidence of the impact of Program Jovem de Futuro on school functioning and school climate two years

after being implemented in the state of Espírito Santo. Sections 11 and 12 analyze, respectively, the impact of only the second year of the Program, 2016, and at the end of the first year, 2015. Finally, Section 13 revisits and reinterprets evidence of the Program's impact separately for the first and second year, using only the total aggregated measures of school functioning and school climate.

10. Two years after the Program's implementation: Is there evidence of improvement in school climate?

Evidence of the impact of Program Jovem de Futuro on school functioning and school climate two years after implementation – at the end of the 2016 school year – is presented in Table 7. This table reveals that there is no statistically significant evidence of impact on any of the eight assessed dimensions of school functioning and school climate, regardless of the stakeholders – students, teachers or administrators. As a result, there is also no evidence of the Program's impact on the three aggregate measures of school climate that consolidate the eight dimensions and the three groups of stakeholders.

Table 7 – Estimated impact of Program Jovem de Futuro on school climate (2016 total)						
	On the existence of positive impact			On the magnitude of the impact		
Measure	Number of analyzed extracts	Number of extracts where treatment is better than control	P-value (%)	Mean impact	Standard error	P-value (%)
Measure 1						
Students	70	39	20	0.02	0.02	16
Teachers	70	32	80	0.00	0.02	45
Administrators	70	38	28	0.02	0.03	26
Aggregate	70	37	36	0.01	0.02	26
Measure 2						
Students	70	39	20	0.02	0.02	16
Teachers	70	34	64	0.00	0.03	43
Administrators	70	40	14	0.02	0.03	22
Aggregate	70	41	9	0.02	0.02	22
Measure 3						
Dimension 1 – Relationship with teaching and learning	70	36	45	0.00	0.02	49
Dimension 2 – Social relations and conflicts at school	70	39	20	0.01	0.02	24
Dimension 3 – Situations of intimidation among students	70	34	64	0.02	0.02	19
Dimension 4 – Family, school and community	70	38	28	0.02	0.03	24
Dimension 5 – Rules, sanctions and safety in school	70	36	45	0.00	0.01	45

Table 7 – Estimated impact of Program Jovem de Futuro on school climate (2016 total)						
Dimension 6 – Relationship with work	70	36	45	0.02	0.02	21
Dimension 7 – Management and participation	70	35	55	0.01	0.03	31
Dimension 8 – School infrastructure and physical facilities	70	37	36	0.05	0.05	19
Aggregate	70	40	14	0.02	0.02	21

Source: Authors' concept

Nevertheless, it is true that, two years after the Program's implementation, in the overwhelming majority of cases – more than half of the 70 clusters used in the evaluation – school functioning and school climate were better at beneficiary than in non-beneficiary schools. Analyzing all measures, we found better climate at the beneficiary schools in, at most, 41 clusters. Although more than half, this number of clusters is not statistically enough to reject the hypothesis that the Program has no impact on school functioning or climate, since the maximum admitted probability for a false rejection of the null impact hypothesis is set at 5%. Indeed, if the Program has no impact on school climate, the probability of better climate occurring at beneficiary schools in 41 or more of the 70 clusters would be 9%.[51]

Admitting only a 5% probability of incorrect rejection, the null impact hypothesis should only be rejected when, in at least 43 clusters, school climate is better at beneficiary that at non-beneficiary schools.[52]

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[51] As we saw in Section 8, under the hypothesis that the program has no impact on school functioning and climate, the probability that the beneficiary school will do better than the non-beneficiary school in a cluster is 50%. Thus, under this same hypothesis, the probability of finding at least 41 among the 70 clusters in which the beneficiary school presents better results than the non-beneficiary school is given by $\left(\frac{1}{2}\right)^{70} \sum_{k=41}^{70} C_{70}^k$ (or 9%).

[52] Likewise, under the null impact hypothesis, the probability of finding at least 43 of the 70 clusters where the beneficiary school does better than the non-beneficiary is $\left(\frac{1}{2}\right)^{70} \sum_{k=43}^{70} C_{70}^k$ (or 4%). In this case, the risk of falsely rejecting the null impact hypothesis is lower than the maximum probability we established (5%). Please note that the probability of finding at least 42 clusters where the beneficiary school does better, even under the null impact hypothesis, is higher than our maximum limit for the probability of a false rejection, $\left(\frac{1}{2}\right)^{70} \sum_{k=42}^{70} C_{70}^k$ (or 6%).

It should be noted that the point estimate of impact magnitude is positive in all cases, but not statistically significant – at most, equal to 0.02, as shown in Table 7. The only exception is the impact on dimension 8 – school infrastructure – where the magnitude is greater (0.05) although likewise not statistically significant.

This result is to be expected, since the magnitude of a statistically demonstrable and substantively detectable[53] impact ought be at least 0.07, given the number of schools participating in the evaluation. However, as can be seen in Table 7, if the Program Jovem de Futuro has had any impact on school climate and functioning, the magnitude of that impact is less than what would be substantively relevant and statistically detectable. We should keep in mind that, in a group of 100 schools,[54] an impact of the magnitude found in this study – 0.02 – might take a median school from the 50th position to the 46th position in terms of climate improvement, whereas a substantively relevant impact,[55] of at least 0.07, corresponds to 44% of the standard deviation of the distribution of schools according to climate, for Measures 2 and 3, and 49% for Measure 1.

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[53] It is our understanding here that it would be worth detecting impacts of magnitudes capable of effecting substantial changes in the context of a school, that is, impacts that might actually change the school's reality.

[54] Sorted by climate in descending order, that is, the school in position 1 would be the one with the best climate and the one in position 100 would have the worst climate.

[55] We believe that for the Program's impact to be substantively relevant, it would have to move a beneficiary school upward at least 12 positions. Using a distribution of schools based on proficiency in Mathematics or Portuguese Language on the Saeb scale, that would be equivalent to requiring a minimum detectable magnitude of five points. Furthermore, it should be noted that this impact-based calculation follows the standard deviation observed in the universe of non-beneficiary schools for the aggregate of Measure 3, giving us an estimated impact of 0.02 (0.159).

11. The second year of the Program's implementation:

Is there evidence of improvement in school climate?

Table 8 shows evidence of the impact of the second year of implementation of Program Jovem de Futuro – the 2016 school year – on school functioning and school climate. As we have seen, at the end of the first year of implementation, 2015, school climate was assessed in only 24 of the 70 clusters. In each one, school climate was assessed at two schools, one beneficiary of the Program, the other non-beneficiary. The impact during the second year of implementation was measured by contrasting progress in school climate at beneficiary and non-beneficiary schools only of the 2015 sample, that is, by calculating the difference between measures of school climate at the end of the 2016 and 2015 school years for the 48 schools that participated in the 2015 data collection.

Table 8 – Estimated impact of Program Jovem de Futuro on school climate (2015/2016 sample)						
	On the existence of positive impact			On the magnitude of the impact		
Measure	Number of analyzed extracts	Number of extracts where treatment is better than control	P-value (%)	Mean impact	Standard error	P-value (%)
Measure 1						
Students	24	15	15	0.08	0.04	2
Teachers	24	8	97	-0.02	0.04	34
Administrators	24	10	85	-0.03	0.07	33
Aggregate	24	13	42	0.01	0.03	38
Measure 2						
Students	24	13	42	0.08	0.04	4
Teachers	24	9	92	-0.01	0.05	44
Administrators	24	11	73	-0.02	0.07	41
Aggregate	24	15	15	0.02	0.04	32
Measure 3						
Dimension 1 – Relationship with teaching and learning	24	12	58	-0.01	0.03	34
Dimension 2 – Social relations and conflicts at school	24	14	27	0.01	0.04	44
Dimension 3 – Situations of intimidation among students	24	16	8	0.03	0.05	30

Table 8 – Estimated impact of Program Jovem de Futuro on school climate (2015/2016 sample)						
Dimension 4 – Family, school and community	24	12	58	0.05	0.05	20
Dimension 5 – Rules, sanctions and safety in school	24	13	42	0.01	0.03	42
Dimension 6 – Relationship with work	24	8	97	-0.07	0.06	12
Dimension 7 – Management and participation	24	13	42	0.00	0.05	47
Dimension 8 – School infrastructure and physical facilities	24	15	15	0.08	0.08	16
Aggregate	24	14	27	0.01	0.04	38

Source: Authors' concept

If the Program has no impact on school climate, the number of clusters where school climate improved more at beneficiary than at non-beneficiary schools should be equal to or greater than 17 in only 3% of situations.[56] Therefore, we considered as evidence of impact the fact that the number of clusters where school climate improved more at beneficiary than at non-beneficiaries schools was equal to or greater than 17.[57] As shown in Table 8, in 17 or more clusters, none of the 17 measures analyzed improved more at beneficiary than at non-beneficiary schools. Thus, there is no evidence that the Program has a statistically significant impact on the climate of beneficiary schools.

However, when analyzing this table, it becomes evident that, although not statistically significant, the students' perception, when compared to that of teachers and administrators, is more auspicious to the existence of some impact. In fact, according to the students, in more than half of clusters – between 13 and 15 – progress in climate measures was greater at beneficiary than at non-

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[56] This analysis is similar to the one performed in the previous section. In this case, under the null impact hypothesis, the probability of finding at least 17 of the 24 clusters where the beneficiary school fares better than the non-beneficiary is $\left(\frac{1}{2}\right)^{24} \sum_{k=17}^{24} C_{24}^{k}$ (or 3%).

[57] Note that the probability of finding 16 clusters where the beneficiary school fared better than the non-beneficiary is $\left(\frac{1}{2}\right)^{24} \sum_{k=16}^{24} C_{24}^{k}$ (or 8%), greater than the limit set for the maximum probability of falsely rejecting the null impact hypothesis.

beneficiary schools. With regard to teachers and administrators, the opposite occurred: in less than half of the clusters was progress in climate measures greater at beneficiary than at non-beneficiary schools.

Although insufficient to reject the hypothesis that the Program has no impact on school climate, it is worth noting that when one analyzes the dimensions individually, Table 8 shows us that in dimension 3 ("Situations of intimidation among students") and dimension 8 ("Infrastructure and physical facilities") progress was much greater at beneficiary than at non-beneficiary schools in well over half the clusters – in 16 and 15 of them, respectively.

Table 8 also presents the point estimates and their statistical significance for the Program's impact on the 17 measures of school climate. Except where the students' perception is concerned, in every other case the Program's impact on school climate, although mostly positive,[58] is not statistically significant. According to the students' perception, however, the Program had, throughout the second year of implementation, a positive, substantively relevant and statistically significant impact of about 0.08. An impact of this magnitude is capable of taking a median school – one in the 50th position in a group of 100 schools – to the 35th position in terms of climate quality.

It is worth noting that when the perspectives of all three stakeholders are taken into account, Table 8 also shows that, of the eight dimensions of school climate, only the estimated impact on "Infrastructure and physical facilities" was substantive, even if not statistically significant. In short, there seems to be some evidence that the second year of the Program, from the students' perspective, had a positive impact on school climate, at least as it relates to the dimension "Infrastructure and physical facilities".

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[58]   In 12 of the 17 measures analyzed, we found more than 12 clusters in which the beneficiary school attained better results than the non-beneficiary.

12. The first year of the Program's implementation:
Is there evidence of improvement in school climate?

Evidence of the impact of Program Jovem de Futuro on school climate throughout the 2015 school year can be obtained by contrasting the climate at beneficiary and non-benefited schools in the 24 clusters assessed at the end of that year. The results for the 17 measures used in this study are shown in Table 9. The table reveals evidence that the first year of the Program's implementation had a negative, statistically and substantively significant impact on various climate dimensions, particularly from the students' perspective.

Table 9 – Estimated impact of Program Jovem de Futuro on school climate (2015 Sample)						
	On the existence of positive impact			On the magnitude of the impact		
Measure	Number of analyzed extracts	Number of extracts where treatment is better than control	P-value (%)	Mean impact	Standard error	P-value (%)
Measure 1						
Students	24	5	100	-0.11	0.03	0
Teachers	24	10	85	-0.07	0.05	7
Administrators	24	12	58	-0.01	0.06	42
Aggregate	24	18	97	-0.06	0.03	3
Measure 2						
Students	24	6	100	-0.11	0.03	0
Teachers	24	11	73	-0.08	0.05	7
Administrators	24	11	73	-0.03	0.06	33
Aggregate	24	8	97	-0.07	0.04	3
Measure 3						
Dimension 1 – Relationship with teaching and learning	24	8	97	-0.05	0.04	9
Dimension 2 – Social relations and conflicts at school	24	7	99	-0.06	0.03	3
Dimension 3 – Situations of intimidation among students	24	6	100	-0.09	0.04	2
Dimension 4 – Family, school and community	24	11	73	-0.08	0.05	6
Dimension 5 – Rules, sanctions and safety in school	24	5	100	-0.05	0.03	4
Dimension 6 – Relationship with work	24	9	92	-0.04	0.05	23

Table 9 – Estimated impact of Program Jovem de Futuro on school climate (2015 Sample)						
Dimension 7 – Management and participation	24	12	58	-0.03	0.08	35
Dimension 8 – School infrastructure and physical facilities	24	7	99	-0.14	0.11	11
Aggregate	24	11	73	-0.07	0.04	5

Source: Authors' concept

If the Program has no impact on school climate, the number of clusters where school climate is better at non-beneficiary than at beneficiary schools should be equal to or greater than 17 in only 3% of situations. Therefore, when the Program has no impact on school climate, the number of clusters where the climate is better at beneficiary than at non-beneficiary schools should be equal to or less than 7 in only 3% of situations.[59] Therefore, we consider as evidence that the Program has a negative impact on school climate when school climate measures improve more at beneficiary schools than at non-beneficiary schools in only 7 clusters, at the most.

As Table 9 reveals, for four dimensions of school climate ("Social relations and conflicts at school", "Situations of intimidation among students", "Rules, sanctions and safety at school" and "School infrastructure and physical facilities" – dimensions 2, 3, 5 and 8, respectively), and also for the aggregate of the climate dimensions, climate was better at beneficiary schools in only seven clusters, at the most, according to the students' perspective. Thus, there is evidence that the first year of implementation of the Program had a negative impact on these four dimensions and, according to the students' perspective, on every other dimension as well.

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[59] As explained in footnote 38, the probability of finding among the 24 clusters at least 17 in which the beneficiary school fares better than the non-beneficiary is 3%. Note that this situation is equivalent to saying that, in at most 7 of the 24 clusters, the non-beneficiary school achieved better results than the beneficiary. And since both situations are equivalent, they have the same probability of occurring.

Even if, according to the perspectives of teachers and administrators, evidence of the Program's negative impact on school climate is not statistically significant for the other four dimensions, school climate at the end of the school year of the Program's implementation was better at beneficiary than at non-beneficiary schools in only half of the clusters, at the most. Thus, from the analysis of the results presented in Table 9, one may conclude that there is evidence that the first year of the Program had negative impact on school climate.

With regard to point estimates of the magnitude of the impact on aggregate school climate, we can see in Table 9 that they are all negative, statistically significant and of some substantive relevance in the first year. Estimated magnitudes of aggregate impact range from -0.06 to -0.07, and estimates of impact on all dimensions are negative. The first five dimensions and the eighth, referring to relationships at school and to infrastructure, have an absolute magnitude equal to or greater than 0.05 and are statistically significant, or at least marginally significant (significant at the 11% significance level).

Table 9 also shows that for the aggregate of school climate dimensions, both from the perspective of teachers and, particularly, from the perspective of students, impact is substantively and statistically significant. This outcome contrasts with the very low point estimates of the Program's impact on school climate during its first year, and are therefore substantively and statistically not significant. In short, Table 9 reveals that, except from the perspective of administrators, the first year of implementation of Program Jovem de Futuro had major negative impacts on most dimensions of school climate, except in the dimensions "Relationships with work" and "Management and participation".

13. Reinterpreting separately the evidence of the Program's first-year and second-year impact

The evidence presented in the three previous sections leads to a certain contradiction, as illustrated in Table 10, namely, how is it possible to reconcile evidence of a strongly negative first-year impact – between -0.06 and -0.07 – with evidence of a null second-year impact – between 0.01 and 0.02 – if the aggregate two-year impact does not have the magnitude of the negative first-year impact? One can see, by analyzing Table 10, that this contradiction exists in the three aggregate measures of school climate. In the following pages, we discuss this difference in detail and examine some possible explanations.

Table 10 – Estimated impact of Program Jovem de Futuro on school climate over time (aggregate measures)						
	On the existence of positive impact			On the magnitude of the impact		
Measure	Number of analyzed extracts	Number of extracts where treatment is better than control	P-value (%)	Mean impact	Standard error	P-value (%)
Measure 1						
First year	24	8	97	-0.06	0.03	3
Second year	24	13	42	0.01	0.03	38
After two years	70	37	36	0.01	0.02	26
Measure 2						
First year	24	8	97	-0.07	0.04	3
Second year	24	15	15	0.02	0.04	32
After two years	70	41	9	0.02	0.02	22
Measure 3						
First year	24	11	73	-0.07	0.04	5
Second year	24	14	27	0.01	0.04	38
After two years	70	40	14	0.02	0.02	21

Source: Authors' concept

Since the first-year impact was calculated as the difference in school climate at beneficiary and non-beneficiary schools at the end of 2015, and the second-year impact was the difference in school climate between the end of

2016 and the end of 2015 at beneficiary and non-beneficiary schools, it would be is expected that the sum of the two impacts would be equal to the difference in school climate at beneficiary and non-beneficiary schools at the end of 2016 – that is, equal to the impact after two years. However, as Table 10 shows, this does not happen.

To explain this non-additivity, we must remember that, when calculating the second-year impact, we contrasted the measures of school climate at the end of 2015 and 2016, and that to assess the 2016 climate we used only the sample of schools from the 24 clusters that had also been assessed in 2015. In turn, to calculate the aggregate two-year impact, we used all the schools from the 70 clusters and contrasted the difference at the end of 2016 for all the schools from all the clusters. This difference in the units used to analyze impact is critical to understand the lack of additivity, as illustrated below.

Table 11 presents all possible impact estimates for the three periods, calculated using different units of analysis – total universe, sample with only two schools from each of the 24 selected clusters[60] and sample with all schools from the 24 clusters.[61 & 62] By analyzing this table, we can seen that, depending on the universe chosen to estimate the second-year and the two-year impacts, the estimated two-year magnitude is not equal to the sum of the first-year and second-year magnitudes. Thus, we can conclude that the non-additivity of the Program's year-on-year impacts results from differences between the school climate estimates made at the end of the 2016 school year for only the 48 schools

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[60] It is important to stress that this was the sample of the 2015 survey. As discussed above, the two schools were chosen at random.

[61] In other words, we used here the 24 selected clusters that participated in the 2015 survey, but all the schools that compose the clusters were analyzed (and not just the 48 that actually participated in the 2015 survey).

[62] Please note that, in Table 11, the title "2016 sample" indicates that although we are dealing with the 24 clusters selected for the 2015 survey, we are analyzing 2016 data. Note also that the number of analyzed schools is indicated between parentheses – either two per cluster, defined at random, or all the schools – as explained in the footnotes of previous pages.

that were also assessed at the end of the 2015 school year and for all schools of the 70 clusters.

Table 11 – Alternative estimates of the magnitude of the impact of Program Jovem de Futuro on school climate over time (aggregate measures)									
	Measure 1			Measure 2			Measure 3		
	Mean impact	Standard error	P-value (%)	Mean impact	Standard error	P-value (%)	Mean impact	Standard error	P-value (%)
First year									
(1) 2015 sample (only 2 schools per cluster)	-0.06	0.03	3	-0.07	0.04	3	-0.07	0.04	5
Second year									
(2) 2015 & 2016 samples (only 2 schools per cluster in both samples)	0.01	0.03	38	0.02	0.04	32	0.01	0.04	38
(3) 2016 & 2015 samples (only 2 schools per cluster in 2015 sample and all schools in 2016 sample)	0.06	0.03	3	0.07	0.03	2	0.07	0.04	4
(4) 2016 total & 2015 sample (only 2 schools per cluster in the sample)	0.07	–	0	0.09	–	0	0.08	–	0
After two years									
(5) 2016 total	0.01	0.02	26	0.02	0.02	22	0.02	0.02	21
(6) 2016 sample (only 2 schools per cluster)	-0.05	0.05	13	-0.06	0.05	15	-0.06	0.05	14
(7) 2016 sample (all the schools per cluster)	0.00	0.04	47	0.00	0.05	49	0.00	0.05	47

Note: See methodological details in Annex 4. **Source:** Authors' concept

Table 12 compares the estimated impact magnitude after two years using three different units of analysis (they are the same ones used in the previous table and are detailed in footnotes 61 and 62). Two comparisons are made: first, the estimated impact on the total universe *versus* the estimated impact on the sample of all schools in the 24 clusters; second, the estimated impact on the total universe *versus* the estimated impact on the sample of only the 48 schools that actually participated in the 2015 survey. We can see in Table 3 that, while the first comparison does not lead to a statistically significant difference, the second shows a high-magnitude and statistically significant difference. In other words, the estimated two-year impact shows statistically significantly variation when the unit of analysis are the 48 schools that participated in the 2015 survey. Note

that this difference should not occur, because the unit of analysis is a random sample and, thus, ought to be representative of the total universe of schools.

Table 12 – Test of the difference between impacts calculated from different universes (aggregate measures)			
Estimate of average impact with 2016 data	Comparison of average impact		
	Measure 1	**Measure 2**	**Measure 3**
After two years / Second year*			
Average impact from 2016 sample (all schools in the cluster)	0.00	0.00	0.00
Average impact from 2016 total	0.01	0.02	0.02
Difference between average impacts (total-sample)	0.01	0.02	0.02
P-value (%)	30	29	33
Average impact from 2016 sample (2 schools per cluster)	-0.05	-0.06	-0.06
Average impact from 2016 total	0.01	0.02	0.02
Difference between average impacts (total-sample)	0.06	0.08	0.08
P-value (%)	5	5	7

Note: See methodological details in Annex 4. **Source:** Authors' concept

* Please note that the results of comparing estimates for two years of Program implementation are equivalent to those of comparing estimates for the second year. The estimated impacts in rows 2 and 3 of Table 11, for instance, are both obtained, for the 2015 data, using the sample with only two schools per cluster. Thus, the difference between these two impacts derives from the difference between the 2016 sample with only two schools by cluster and the sample with all the schools. This comparison is exactly the same as the first difference analyzed in this table.

Before analyzing in detail the reason for this non-representativeness, it is important to underline that the analysis presented in Table 12 shows the results not only of the comparison between the different estimated two-year impacts, but also of the comparison between the estimated second-year impacts. The explanatory note in Table 12 clarifies the reason for this. Thus, we can also state that the estimated second-year impact shows statistically substantively variation when calculated using the 48 schools of the 2015 sample as the unit of analysis.

As described in Section 3, the selection of the sample of schools that would have their climate assessed at the end of the 2015 school year was carried out in two stages: first, the selection of the clusters that would compose the sample; and second, in each cluster, the selection of only one beneficiary school. Below

we analyze how each of these stages contributed to the lack of representativeness.

In the first stage, 24 from the 70 clusters were randomly selected, respecting the proportion of existing clusters in each of the three regions of Espírito Santo (North, South and Greater Vitória). From this first stage onward, the universe of both beneficiary and non-beneficiary schools could be broken down into two groups: one formed by schools from the 24 clusters selected for climate evaluation in 2015, and the other formed by all the schools of the 46 unselected clusters.

Table 13 shows estimates of the three aggregate measures of school climate for these two groups; for each group, we present the results for both beneficiary and non-beneficiary schools. We also present a test of the equality of the aggregate measures of both groups. The results reveal that the differences found are neither statistically nor substantively significant for all three aggregate measures – which was to be expected given the random selection of the 24 clusters. We can thus conclude that there is no difference between using the universe of 70 clusters as the unit of analysis (as we did to calculate the Program's two-year impact) or the sub-universe of 24 clusters (as we did to calculate the Program's second-year impact).

Table 13 – Comparison of means between selected and unselected clusters for the 2015 evaluation sample (aggregated measures)			
Measures of school climate aggregated with 2016 data	Comparison of means		
	Measure 1	**Measure 2**	**Measure 3**
Only beneficiary schools			
Sample (24 clusters)	2.88	2.84	2.86
Non-sample (46 clusters)	2.90	2.87	2.89
Difference between means (sample-non-sample)	-0.02	-0.02	-0.02
P-value (%)	38	36	35
Only non-beneficiary schools			
Sample (24 clusters)	2.89	2.84	2.87

Table 13 – Comparison of means between selected and unselected clusters for the 2015 evaluation sample (aggregated measures)			
Non-sample (46 clusters)	2.88	2.84	2.86
Difference between means (sample-non-sample)	0.00	0.01	0.01
P-value (%)	92	87	83

Note: See methodological details in Annex 4. **Source:** Authors' concept

However, as we can see in Table 11, the magnitude of the second-year impact varies when we consider the total number of schools of the 24 clusters rather than only the 48 that actually participated in the 2015 survey. In the first case, the magnitude of the Program's second-year impact would be much greater and, with proper approximation, the sum of the first-year and second-year impact estimates would be equal to the estimated two-year impact, calculated using the total universe of schools as the unit of analysis. Thus, this simple analysis of Table 11 allows us to conclude that the 48 schools do not seem to be representative of the total number of schools in the 24 clusters. To better understand this point, it is important to recall how these 48 schools were selected, as shown below.

Because every cluster always contained more than one beneficiary school but only one non-beneficiary, a second selection process had to be carried out to define which of the beneficiary schools would have its climate assessed. Table 14 presents estimates for the three aggregate measures of school climate of the sample of 24 clusters, using for this purpose both the selected and unselected schools for the 2015 climate evaluation. As the table reveals, the differences between the two groups are substantively and statistically significant: schools selected for the 2015 survey tended to have much worse climate measures in 2016 than those estimated for beneficiary schools that were not assessed at the end of 2015. In other words, we can conclude that the 48 schools are not representative of the total number of schools of the 24 clusters in the 2015 sample.

Table 14 – Comparison of means between selected and unselected beneficiary schools for the 24 previously selected clusters of the 2015 evaluation sample (aggregated measures)

Measures of school climate aggregated with 2016 data	Comparison of means		
	Measure 1	Measure 2	Measure 3
Only beneficiary schools of the 24 clusters			
Selected schools	2.83	2.79	2.81
Unselected schools	2.93	2.89	2.91
Difference between means (selected--non-sample)	-0.09	-0.10	-0.10
P-value (%)	1	1	1

Note: See methodological details in Annex 4. **Source:** Authors' concept

The differences shown in Table 14 are substantial and fully explain why the sum of the first-year and second-year impacts does not reproduce the estimated value of the two-year impact. That is to say, the contradiction identified at the beginning of this section derives almost entirely from the unexpected and significant differences in school climate between the beneficiary schools that were selected and were not selected for the 2015 survey.

It is noteworthy that these differences are unexpected, because the selection of schools for climate evaluation was carried out randomly and independently within each cluster. In addition, as shown in Table 15, when other parameters are used – e.g.. school size,[63] the evolution of the School Development Index (IDE) for Espírito Santo[64] or proficiency in Mathematics and Portuguese Language – no significant difference is found. In other words, the 48 schools are very similar to the total universe of schools of the 24 clusters in terms of several major variables, but are not similar in terms of measuring school climate in 2016.

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[63]   Understood here as the number of secondary school students.

[64]   The School Development Index (IDE) considers both the performance of students in the Espírito Santo Basic Education Assessment Program (Paebes) and the socioeconomic level of students. (Source: <http://sedu.es.gov.br/Media /sedu/pdf%20e%20arquivos/notaexplicativabonus.pdf>. Accessed on 18.jun.2018.)

Table 15 – Comparison of means between selected and unselected beneficiary schools for the 24 clusters of the 2015 evaluation sample (other educational indicators)

Other educational indicators	Comparison of means			
	Number of secondary school students	IDE evolution (2013-2012)	Proficiency in Mathematics (2016)	Proficiency in Portuguese Language (2016)
Only beneficiary schools of the 24 clusters				
Selected schools	546	3.16	277	281
Unselected schools	515	1.21	282	282
Difference between means (selected--unselected)	31	1.95	-5	0
P-value (%)	74	28	39	93

Note: See methodological details in Annex 4. **Source:** Authors' concept

In short, the observed inconsistency between the measurements of first-year, second-year and two-year impacts stems from a single factor, namely, that the school climate estimates performed in the end of 2016 for the 24 beneficiary schools from the 24 clusters selected for the 2015 survey are not representative of the full universe of schools benefiting from the Program in those same 24 clusters. This lack of representativeness has various consequences on the estimated impacts, depending on how we treat its reflection on the school climate estimate at the end of 2015. Two antipodal interpretations are possible for this lack of representativeness.

On the one hand, we can say that this lack of representativeness affects the results obtained at the end of 2016, but not those obtained at the end of 2015. If so, the sample of 48 schools should not be used in 2016 to calculate the second-year impact, which should instead be calculated as the progress of school climate measures estimated for the 2015 sample[65] and those estimated for the entire universe of schools at the end of 2016. This was the procedure used in Table 16.

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[65]   In this approach, for argument's sake, the sample of 24 clusters continues to be representative of the total universe.

Universe of analysis	Measure 1			Measure 2			Measure 3		
	Mean impact	Standard error	P-value (%)	Mean impact	Standard error	P-value (%)	Mean impact	Standard error	P-value (%)
First year									
2015 sample (only 2 schools per cluster)	-0.06	0.03	3	-0.07	0.04	3	-0.07	0.04	5
Second year									
2016 total & 2015 sample (only 2 schools per cluster)	0.07	–	0	0.09	–	0	0.08	–	0
After two years									
2016 total	0.01	0.02	26	0.02	0.02	22	0.02	0.02	21

Table 16 – Estimate of the magnitude of the impact of Program Jovem de Futuro according to interpretation 1

Note: See methodological details in Annex 4. **Source:** Authors' concept

This approach preserves both the estimate of the Program's negative first-year impact on school climate and its null two-year impact. What changes is the Program's estimated second-year impact: from tenuous, it becomes positive, of substantive magnitude and statistically significant. In other words, according to this interpretation, the Program would have had a significant negative impact in the first year of implementation and a positive impact, of approximately the same magnitude, in the second year, so that the aggregate two-year impact would be close to nil.

On the other hand, an alternative interpretation would be to assume that, as attested at the end of 2016, the lack of representativeness of the climate measure of beneficiary schools is structural and, therefore, would equally affect the climate measure obtained for beneficiary schools at the end of 2015. In this case, the first-year impact estimate would be skewed, although a correct measure could be obtained by subtracting the Program's estimated second-year impact from its two-year impact. With this in mind, the units of analysis would be the universe of schools (used to estimate the two-year impact) and the 48

schools that participated in the 2015 evaluation[66] (used to estimate the second-year impact). Estimates based on this approach are shown in Table 17.[67]

Table 17 – Estimate of the magnitude of the impact of Program Jovem de Futuro according to interpretation 2									
Universe of analysis	**Measure 1**			**Measure 2**			**Measure 3**		
	Mean impact	**Standard error**	**P-value (%)**	**Mean impact**	**Standard error**	**P-value (%)**	**Mean impact**	**Standard error**	**P-value (%)**
First year									
Difference between impact after two years and second year impact	0.00	–	47	0.00	–	47	0.01	–	43
Second year									
2016 % 2015 samples (only 2 schools per cluster in both samples)	0.01	0.03	38	0.02	0.04	32	0.01	0.04	38
After two years									
2016 total	0.01	0.02	26	0.02	0.02	22	0.02	0.02	21

Note: See methodological details in Annex 4. **Source:** Authors' concept

As a consequence of this approach, the school climate impact estimates remain null for the whole two years of the Program, with a very limited second-year impact. Thus, the estimated first-year impact is small and statistically insignificant. According to this interpretation, the Program had no significant impact on school climate either in the first nor in the second year of implementation.

In conclusion, we found evidence that, although the selection of the 24 clusters of the 2015 school climate survey generated a representative sample, the selection of one beneficiary schools from each cluster did not, at least in terms of school climate measurement in 2016. Because this skew affects the estimated impact on the climate at the beneficiary schools within each cluster, but not the estimated impact at non-beneficiary schools, any estimate of the

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[66] There is no skew when the second-year impact is calculated as the difference between the 2016 and 2015 climate measures for the 48 schools that participated in the evaluation. After all, since both the 2015 and 2016 estimates are skewed, the skew is nullified when these differences are duly distinguished.

[67] For argument's sake, climate impact estimates remain null for two years of the Program and quite limited in the second year, implying a small and statistically insignificant first-year impact. The first-year impact estimate is obtained here as the difference between the estimated two-year impact and the estimated second-year impact.

Program's two-year impact will be skewed if it uses only the 2016 climate information for the schools included in the 2015 survey. Regardless of which of these two proposed approaches we adopt to deal with this skew, we will always find that the Program had no substantively and statistically significant impact after two years of implementation. In turn, the first-year and second-year impacts depend on the chosen approach: if we assume that the lack of representativeness is structural, which seems the most likely hypothesis, we are led to conclude that the Program had no substantive and statistically significant impact in either its first or second year.

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Annex 1 – National Center on Safe Supportive Learning Environments surveys with students, staff and families that can be used to assess school climate

Survey Name	Constructs Measured	Links to More Information	Reports
Student Surveys			
Alaska School Climate and Connectedness Survey	High expectations; School safety; School leadership and student involvement; Respectful climate; Peer climate; Caring adults; Parent and community involvement; Social and emotional learning; Student delinquent behaviors; Student drug and alcohol use	This survey instrument is not publicly available. Please contact Kim Kendziora at kkendziora@air.org for more information about this survey.	American Institutes for Research. (2010). *2010 school climate and connectedness survey statewide report: Student and staff results*. Washington, DC. American Institutes for Research. (2009). *Alaska School Climate and Connectedness student survey spring 2009 scale reliabilities.* Unpublished. KENDZIORA, K., & SPIER, E. (2011). *Memo regarding the Alaska School Climate and Connectedness survey*. Unpublished.
American Institutes for Research Conditions for Learning Survey	Safe and respectful climate; High expectations; Student support; Social and emotional learning	There is no charge for using this survey. Please contact David Osher at dosher@air.org for more information about this survey.	American Institutes for Research. (2007). *Cronbach's alpha reliability analysis student connection survey Chicago 2007*. Unpublished. OSHER, D. (2011). *AIR's 2007 Conditions for Learning survey*. Unpublished memo. OSHER, D. (2011). *Non-original items in AIR's 2007 Conditions for Learning survey*. Unpublished memo. OSHER, D., KENDZIORA, K., and CHINEN, M. (2008). *Student connection research: Final narrative report to the Spencer Foundation.* Washington, DC: American Institutes for Research. Retrieved from http://www.air.org/expertise/index/?fa=viewContent&content_id=383
Arizona YRBS and S3 School Climate Survey	Violence-related behaviors; Bullying; Depression; Suicide; Tobacco use; Alcohol use; Drug use; Sexual behavior; Body image; Physical activity; Student- teacher	This survey is publicly available. Please contact Rani Collins at rani.collins@azed.gov or Nadia Ghani at nadia.ghani@azed.gov	Centers for Disease Control and Prevention. (2013). *Methodology of YRBSS – 2013*. Online publication. Retrieved from http://www.cdc.gov/mmwr/pdf/rr/rr6201.pdf.

	relationships; Safety; School connectedness; Academic support; Order and discipline; Physical environment	for more information about this survey.	Centers for Disease Control and Prevention. (2011). *YRBSS 2011 item rationale*. Online publication. Retrieved from http://www.cdc.gov/healthyyouth/yrbs/pdf/questionnaire/2011_standard_itemrationale.pdf

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| **Authoritative School Climate Survey** | Disciplinary structure; Academic expectations; Student support (respect for students, willingness to seek help); Student engagement (affective, cognitive); Prevalence of teasing and bullying; Bullying victimization; General victimization; Aggressive attitudes; Positive values (personal conviction, concern for others) | These instruments are publicly available at http://curry.virginia.edu/research/projects/virginia-secondary-school-climate- study. | CORNELL, D. (2014). *Overview of the Authoritative School Climate Survey.* Charlottesville, VA: Curry School of Education, University of Virginia.

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California Healthy Kids Survey	School connectedness; School supports (caring relationships, high expectations, opportunities for meaningful participation); Community supports (caring relationships, high expectations, opportunities for meaningful participation); Tobacco, alcohol, or drug use at school; Physical/verbal/emotional violence victimization; Physical/verbal/emotional violence perpetration; Harassment victimization; Peer supports (caring relationships, high expectations); Home supports (caring relationships, high expectations, opportunities for meaningful participation); Problem solving; Self-efficacy; Cooperation and communication; Empathy; Self-awareness	Please note that while a copy of the survey instrument is publicly available at http://chks.wested.org/ad minister/download, it is copyright protected. Information on obtaining the survey instrument can be found at: http://chks.wested.org/.	FURLONG, M. J., L. M. O'BRENNAN, & YOU, S. (2011). *Psychometric properties of the add health school connectedness scale for 18 socio-cultural groups.* Psychology in the Schools, 48(10), 986- 997. HANSON, T.L. (n.d.). *School climate domains and Cal-SCHLS measures to assess them*. Unpublished. HANSON, T.L., & AUSTIN, G. (2011). *Internal consistency reliabilities for Healthy Kids School Climate Survey instruments*. Unpublished. HANSON, T. L., & KIM, J. O. (2007). *Measuring resilience and youth development: the psychometric properties of the Healthy Kids Survey*. (Issues & Answers Report, REL 2007– No. 034). Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory West. Retrieved from http://www.ies.ed.gov/ncee/edlabs/regions/west/pdf/REL_2007 034_sum.pdf
Classroom Climate Evaluation Instrument – Secondary Student (CCAI-S-S)	Discipline environment; Student interactions; Learning evaluation; Attitude and culture	This survey instrument is not publicly available. Please contact John Schindler, Director of the Alliance for the Study of School Climate, at jshindl@calstatela.edu for additional information on the CCAI.	Alliance for the Study of School Climate. (2011). *Examining the reliability and validity of the ASSC/WASSC School Climate Evaluation Instrument (SCAI).* Unpublished. SHINDLER, J. (2011). Untitled memo with psychometric information. Unpublished. SHINDLER, J., JONES, A., WILLIAMS, A.D., Taylor, C., & Cadenas, H. (2009). *Exploring the school climate-student achievement connection: And making sense of why the first*

			precedes the second. Los Angeles: Alliance for the Study of School Climate. Retrieved from http://www.calstatela.edu/centers/schoolclimate/research/School_Climate_Achievement_Connection_v4.pdf
Communities That Care Youth Survey	Community risk factors (low neighborhood attachment, community disorganization, transitions and mobility, perceived availability of drugs, perceived availability of handguns, laws and norms favorable to drug use); Community protective factors (opportunities for prosocial involvement, rewards for prosocial involvement); Family risk factors (family history of antisocial behavior, poor family management, family conflict, parental attitudes favorable toward drug use, parental attitudes favorable toward antisocial behavior); Family protective factors (attachment, opportunities for prosocial involvement, rewards for prosocial involvement); School risk factors (academic failure, low commitment to school); School protective factors (opportunities for prosocial involvement, rewards for prosocial involvement); Peer-individual risk factors (rebelliousness, gang involvement, perceived risks of drug use, early initiation of drug use, early initiation of antisocial behavior, favorable attitudes toward drug use, favorable attitudes toward antisocial behavior, sensation seeking, rewards for antisocial involvement,	The 2010 survey instrument is not publicly available. Please contact Shelley Logan at slogan@uw.edu for information about this survey.	ARTHUR, M. W. (2011) *The Communities That Care Youth Survey: Additional information for checklist criteria*. Unpublished memo. CALKINS, S. D. (2009). *Psychobiological models of adolescent risk: Implications for prevention and intervention.* Developmental Psychobiology, 213-215. Community Youth Development Study. (2010). *Communities That Care Youth Survey item construct dictionary*. FAGAN, A. A., HORN, M. L. V., HAWKINS, J. D., & ARTHUR, M. (2007). *Using community and family risk and protective factors for community-based prevention planning.* Journal of Community Psychology, 35(4), 535-555. HAWKINS, J. D., CATALANO, R. F., & ARTHUR, M. W. (2002). *Promoting science-based prevention in communities.* Addictive Behaviors, 905, 1-26. HAWKINS, J. D., CATALANO, R. F., KOSTERMAN, R., ABBOTT, R. D., & HILL, K .G. (1999). *Preventing adolescent health risk behaviors by strengthening protection during childhood*. Archives of Pediatric and Adolescent Medicine, 153(3), 226-234. HAWKINS, J. D., CATALANO, R. F., & MILLER, J. Y. (1992). *Risk and protective factors for alcohol and other drug problems in adolescence and early adulthood: Implications for substance abuse prevention.* Psychological Bulletin, 112(1), 64-105. JOHNSTON, L.D., O'MALLEY, P. M., Bachman, J. G., & Schulenberg, J. E. (2011). *Monitoring the future national results on adolescent drug use: Overview of key findings, 2010*. Ann Arbor: Institute for Social

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Comprehensive School Climate Inventory (CSCI)	Orderly school environment; Administration provides instructional leadership; Positive learning environment; Parent and community involvement; Instruction is well-developed and implemented; Expectations for students; Collaboration between administration, faculty, and students	This survey is not publicly available. You can learn more about it at http://www.schoolclimate.org/climate/csci.php. Please contact Darlene Faster, COO & Director of Communications, at the National School Climate Center at dfaster@schoolclimate.org or (212) 707-8799 x22 for more information on these surveys.	GUO, P., CHOE, J., & HIGGINS-D'ALESSANDRO, A. (2011). *Report of construct validity and internal consistency findings for the Comprehensive School Climate Inventory*. Fordham University. HIGGINS-D'ALESSANDRO, A., FASTER, D. & COHEN, J. (2010). *School growth and change: A report comparing schools in 2007 and 2010*. Fordham University and the National School Climate Center. Unpublished report. SANDY, S.V., COHEN, J. & FISHER, M.B. (2007). *Understanding and assessing school climate: Development and validation of the Comprehensive School Climate Inventory (CSCI)*. National School Climate Center. Unpublished paper.
The Consortium on Chicago School: Research Survey of Chicago Public Schools	Academic engagement; Academic press; Peer support for academic achievement; Teacher personal attention; School-wide future orientation; Student sense of belonging; Safety; Incidence of disciplinary action; Student-teacher trust; Teacher personal	The student surveys are free and publicly available at http://ccsr.uchicago.edu/downloads/17242009_my_voice-9th-11th_student_codebook_.pdf and http://ccsr.uchicago.edu/downloads/23532009_my_voice_senior_student_codebook.pdf. Please contact Elaine	Consortium on Chicago School Research. (n.d.). *2007 Consortium survey measures*. Chicago. Consortium on Chicago School Research. (n.d.). *Alignment of the five fundamentals for school success with other research.* Chicago. Consortium on Chicago School Research. (n.d.). *Dimensions of the*

	support; Student classroom behavior	Allensworth at elainea@uchicago.edu for more information about these surveys.	*five fundamentals for school success.* Chicago. Consortium on Chicago School Research. (n.d.). *A primer on Rasch analysis*. Chicago. Retrieved from http://ccsr.uchicago.edu/downloads/9585ccsr_rasch_analysis_primer.pdf MONTGOMERY, N. (2010). *CCSR 5 essentials surveys – 2007 scoring sample.* Unpublished.
Culture of Excellence & Ethics Evaluation (CEEA) – High/Middle School Student Survey	Competencies (Version 4.2 only) (excellence, ethics); School culture (excellence, ethics); Faculty practices (excellence, ethics); Student safety; Faculty support for and engagement of students	These survey instruments can be used free of charge, subject to the conditions of the User Agreement, and can be found at: http://excellenceandethics.org/assess/ceea-samples.php. Please contact Vlad Khmelkov at vkhmelkov@excellenceand ethics.org for more information about this survey.	KHMELKOV, V.T. (2011). *Memo regarding Culture of Excellence & Ethics Evaluation (CEEA) surveys, version 4.5*. Unpublished. KHMELKOV, V.T., DAVIDSON, M.L. (2011). *Culture of Ethics and Excellence Evaluation student and faculty/staff survey psychometric data: High school sample.* Institute for Excellence and Ethics, Inc. KHMELKOV, V.T., DAVIDSON, M.L, et al. (2011). *Culture of Excellence & Ethics Evaluation Survey conceptual description*. Institute for Excellence and Ethics, Inc. KHMELKOV, V.T., DAVIDSON, M.L, BAKER, K., Lickona, T., & PARISI, R. (2011). *Survey components and scale matrix*. Institute for Excellence and Ethics, Inc. Retrieved from http://www.excellenceandethics.com/assess/CEEA_v4.5_matrix.pdf KHMELKOV, V. (2010). *Culture of Excellence & Ethics Evaluation student and faculty survey: Reliability, validity & other psychometric data, high school sample* Presentation slides.
Delaware Bullying Victimization Student Scale	Physical bullying; Verbal bullying; Social/relational bullying; Cyberbullying	Please note, these survey instruments and related resources, including interpretation guidelines and post-survey action planning tools, are publicly available at the Delaware Positive Behavior Support Project website: delawarepbs.org	BEAR, G., YANG, C., MANTZ, L., PASIPANODYA, E., HEARN, S., & BOYER,D. (2014). *Technical Manual for Delaware School Survey: Scales of School Climate, Bullying Victimization, Student Engagement, and Positive, Punitive, and Social Emotional Learning Techniques.* Delaware Positive Behavior Support (DE-PBS) and School Climate Transformation Projects. http://wordpress.oet.udel.edu/pbs/technical-manual-for-school- climate-surveys/

			BEAR, G.G., MANTZ L. S. Mantz, GLUTTING, J.J, YANG C. , & BOYERM D.E. (2015) *Differences in Bullying Victimization Between Students With and Without Disabilities.* School Psychology Review: March 2015, Vol. 44, No. 1, pp. 98-116. Available at: https://www.researchgate.net/profil e/Chunyan_Yang5/publication/2742 52635_Differences_in_Bullying_Victi mization_Between_Students_With_ and_Without_Disabilities/links/5519 acfc0cf26c bb81a2afdb.pdf
Delaware School Climate Student Survey	School climate (teacher-student relations, student-student relations, respect for diversity, clarity of expectations, fairness of rules, school safety, student engagement schoolwide, bullying schoolwide, total school climate); Positive, punitive, and SEL techniques (positive behavior techniques, punitive techniques, social emotional learning techniques); Bullying victimization (physical bullying, verbal bullying, social/relational bullying, cyberbullying); Student engagement (cognitive and behavioral, emotional)	Please note, these survey instruments and related resources, including interpretation guidelines and post-survey action planning tools, are publicly available at the Delaware Positive Behavior Support Project website: delawarepbs.org	BEAR, G., YANG, C., MANTZ, L., PASIPANODYA, E., HEARN, S., & BOYER, D. (2014). *Technical Manual for Delaware School Survey: Scales of School Climate, Bullying Victimization, Student Engagement, and Positive, Punitive, and Social Emotional Learning Techniques*. Delaware Positive Behavior Support (DE-PBS) and School Climate Transformation Projects. http://wordpress.oet.udel.edu/pbs/t echnical-manual-for-school- climate-surveys/ BEAR, G., GASKINS, C., BLANK, J., & CHEN, F. (2011). *Delaware School Climate Survey—Student: Its factor structure, concurrent validity, and reliability.* Journal of School Psychology 49, 157-174.
Effective School Battery	Safety; Respect for students; Planning and action; Fairness of rules; Clarity of rules; Student influence	Additional information and order forms for these survey instruments can be found at: http://www.education. umd.edu/CHSE/resourc es/Assessme nt/ESB.html. Please contact Eva Yui at climate-assess@umd.edu for additional information.	GOTTFREDSON, G. D. (1999). *The Effective School Battery user's manual*. College Park, MD. Retrieved from http://www.education.umd.edu/CHS E/resources/Evaluation/schoolassess /Tools/ESB/ESBManualA-UMD-all.pdf. GOTTFREDSON, G.D. (n.d.). *Selected research related to the Effective School Battery*. Unpublished.
Flourishing Children Survey Social Competence Adolescent Scale	Social competence	The survey scale items can be found at: http://www.childtrends .or g/our-research/positive-indicators/positive-indicators-	Child Trends. (2012). *Social competence*. Retrieved from http://www.childtrends.org/our-research/positive-indicators/positive-indicators-project/social-competence/

		project/social-competence/. The complete survey instrument is publicly available and can be requested by emailing Kristen Darling-Churchill at kchurchill@childtrends.org.	LIPPMAN, L., MOORE, K. A., GUZMAN, L., RYBERG, R., MCINTOSH, H., CALL, S., RAMOS, M., CARLE, A., & KUHFELD, M. (2013). *Flourishing Children: Defining and testing indicators of positive development*. Unpublished. LIPPMAN, L., GUZMAN, L., & MOORE, K. A. (2012). *Measuring flourishing among youth: Findings from the Flourishing Children Positive Indicators Project.* Retrieved from http://www.childtrends.org/wpcontent/uploads/2013/05/FlourishingChildren.pdf RYBERG, R., & LIPPMAN, L. (2013). *Item sources for the Flourishing Children Study Social Competence scale.* Unpublished.
Maryland S3 Climate Survey	Safety (perceived safety, bullying and aggression, general drug use); Engagement (connection to teachers, student connectedness, academic engagement, whole- school connectedness, culture of equity, parent engagement); Environment (rules consequences, physical comfort, support, disorder)	Please note that while the survey instrument is publicly available, it is copyright protected. Information on obtaining the survey instrument can be obtained from Catherine Bradshaw, PhD at cbradsha@jhsph.edu.	BRADSHAW C.P., WAASDORP T.E., DEBNAM K.J., LINDSTROM J.S. *Measuring school climate in high schools: a focus on safety, engagement, and the environment*. Journal of School Health. 2014; 84: 593-604.
Perceived School Experiences Scale	Academic motivation; Academic press; School connectedness	There is no charge for using this survey. Please contact Dawn Anderson-Butcher at anderson-butcher.1@osu.edu for more information.	ANDERSON-BUTCHER, D., AMOROSE, A., IACHINI, A., & BALL, A. (2011). *The development of the Perceived Schools Experiences Scale*. Unpublished. ANDERSON-BUTCHER, D., AMOROSE, A., IACHINI, A., & BALL, A. (2011). *The development of the Perceived Schools Experiences Scale –* Response memo. Unpublished.
Pride Learning Environment Survey	School climate; Teacher and student respect; Student discipline; School safety; Teacher to student relationships; Teacher collaboration; Student engagement; Student encouragement; Frequency of substance use; Effect of alcohol,	Please note that while a copy of the survey instrument is publicly available at http://dbdemo.pridesurveys.com, it is copyright protected. Information on obtaining the survey instrument can be found at: http://www.pridesurve	HALL, D. (2011). *Analytic strategies employed for Pride Surveys Learning Environment Surveys.* Unpublished. HALL, D. (2011). *Documentation report for OSDFS-TES-LES.* Unpublished. HALL, D. (2011). *Factor analysis results 2011*. Unpublished.

	tobacco, and other drugs; Age of first substance use; Perceived harmful effects of alcohol, tobacco, and other drugs; Parents' feelings towards alcohol, tobacco, and other drugs; Place of substance use; Time of substance use; Violence; Bullying	ys.com/index.php/products/.	HALL, D. (2011). *Learning Environment Survey theoretical framework*. Unpublished. International Survey Associates. (2010). *LES item dictionary.* Unpublished.
REACH Survey	Relationships with teachers (express care, challenge growth, provide support, share power, expand possibilities, connect sparks to learning); Effort (mastery vs. performance orientation, belief in malleable intelligence, academic self- efficacy); Aspirations (goal orientation, future-mindedness, internal locus of control); Cognition (focus, academic delayed gratification, positivity in the face of challenge); Heart (spark development, spark shaping, presence of sparks); Other covariates (belonging, perceived discrimination; quality and character of instruction, cultural inclusion, school climate)	The REACH Survey is available for purchase directly from Search Institute. Information on purchasing the survey instrument can be found here: http://www.search-institute.org/surveys/REACH.	Search Institute. (March 2016). *Technical Summary: Search Institute's REACH Survey*. Retrieved from http://www.search-institute.org/sites/default/files/a/REACH-Survey-Tech-Summary.pdf ROSKOPF, J. (July 2016). *The REACH Survey – Additional Vetting Information*. Unpublished. Search Institute. (n.d.) *REACH Survey codebook*. Unpublished.
School Climate Evaluation Instrument – Elementary Student (SCAI-E-S)	Physical environment; Student interactions; Management and discipline; Learning and evaluation; Attitude and culture; Parents and community; Special education (optional); Project- based learning (Optional)	All Alliance for the Study of School Climate (ASSC) school and classroom surveys are available for use by a school, district or state. All instruments are copyrighted. Permission is required for use. Surveys are available by paper or using the ASSC online system. Student research requests are welcome. Please contact John Shindler, Director of the Alliance	SHINDLER, J. (2016). *Examining the efficacy of the ASSC School Climate Evaluation Instrument (SCAI) to promote improved school climate, psychological factors related to high functioning schools and students, and student achievement and why it's uniquely qualified to do so when compared to other climate survey instruments*. Los Angeles: Alliance for the Study of School Climate. Retrieved from http://web.calstatela.edu/centers/schoolclimate/evaluation/Comparison

		for the Study of School Climate, at jshindl@calstatela.edu for more information.	_and_Efficacy_of_the_ASSC_SCAI.pdf Alliance for the Study of School Climate. (2016). *Examining the Reliability and Validity of the ASSC/WASSC School Climate Evaluation Instrument (SCAI)*. Unpublished memo. SHINDLER, J. (2016). *Additional vetting information*. Unpublished. SHINDLER, J. (2011). *Sample for psychometric analyses*. Unpublished.
School Climate Evaluation Instrument – Secondary Student (SCAI-S-S)	Physical appearance of the school; Student interactions; Discipline environment; Learning/evaluation; Attitude and culture; Community relations	This survey instrument is not publicly available. Please contact John Schindler, Director of the Alliance for the Study of School Climate, at jshindl@calstatela.edu for additional information on the SCAI.	Alliance for the Study of School Climate. (2011). *Examining the reliability and validity of the ASSC/WASSC School Climate Evaluation Instrument (SCAI)*. Unpublished. SHINDLER, J. (2011). *Untitled memo with psychometric information*. Unpublished. SHINDLER, J., JONES, A., WILLIAMS, A.D., TAYLOR, C., & CADENAS, H. (2009). *Exploring the school climate-student achievement connection: And making sense of why the first precedes the second.* Los Angeles: Alliance for the Study of School Climate. Retrieved from http://www.calstatela.edu/centers/schoolclimate/research/School_Climate_Achievement_Connection_v4.pdf
U.S. Department of Education School Climate Survey (EDSCLS)	Engagement (cultural and linguistic competence, relationships, school participation); Safety (emotional safety, physical safety, bullying/cyberbullying, substance abuse); Environment (physical environment, instructional environment, mental health, discipline)	The survey platform is free and publicly available at https://safesupportivelearning.ed.gov/edscls/administration. (Note: Emergency Management/Readiness items are included in the student survey, but were not designed to form a scale. Physical Health items are also included, but the data did not form a scale for the student survey. Thus, physical health items should be examined at only the item level for students [i.e., analysis of individual survey questions]. The survey is appropriate for any	National Center for Education Statistics (NCES). (2015). *Appendix D: EDSCLS pilot test 2015 report*. Washington, DC. Retrieved from http://www.reginfo.gov/public/do/DownloadDocument?objectID=61438201 NCES. (2015). *Supporting statement Part B and Part C: Collection of information employing statistical methods.* Washington, DC. Retrieved from https://www.regulations.gov/contentStreamer?documentId=ED-2015-ICCD-0081-0018&attachmentNumber=2&disposition=attachment&contentType=pdf WANG, Y., MURPHY, K., & KANTAPARN, C. (2016). *Technical and administration user guide for the ED School Climate Surveys (EDSCLS)*. Washington, DC. Retrieved from

		school with grades 5-12.)	https://safesupportivelearning.ed.gov/sites/default/files/EDSCLS%20User Guide%20042116.pdf
		Staff Surveys	
Academic Optimism of Schools Surveys	Student-teacher relationships; Safety; School connectedness; Academic support; Order and discipline; Physical environment; Parent involvement; Trust	This survey is publicly available at http://www.waynekhoy.com/collective-ao.html.	HOY, W. K., TARTER, C. J., & WOOLFOLK Hoy, A. (2006). *Academic optimism of schools: A force for student achievement.* American Educational Research Journal, 43(3), 425-446. MCGUIGAN, L. & HOY, W. K. (2006). *Principal leadership: Creating a culture of academic optimism to improve achievement for all students.* Leadership and Policy in Schools, 5, 203-229. SMITH, P. A. & HOY, W. K. (2007). *Academic optimism and student achievement in urban elementary schools.* Journal of Educational Administration, 45, 556-568.
Alaska School Climate and Connectedness Survey (SCCS)	School leadership and involvement; Staff attitudes; Student involvement; Respectful climate; School safety; Parent and community involvement; Student delinquent behaviors; Student drug and alcohol use	This survey instrument is not publicly available. Please contact Kim Kendziora at kkendziora@air.org for more information on this survey.	American Institutes for Research. (2010). 2010 school climate and connectedness survey statewide report: Student and staff results. Washington, DC. American Institutes for Research. (2009). *Alaska School Climate and Connectedness student survey spring 2009 scale reliabilities.* Unpublished. KENDZIORA, K., & SPIER, E. (2011). *Memo regarding the Alaska School Climate and Connectedness survey.* Unpublished.
Authoritative School Climate Survey	Disciplinary structure (fairness, justness); Student support (respect for students, willingness to seek help); Student engagement (affective, cognitive); Prevalence of teasing and bullying	These instruments are publicly available at http://curry.virginia.edu/research/projects/virginia-secondary-school-climate-study. (Note: The ASCS is designed to measure the degree to which a school has authoritative characteristics such as fair discipline, supportive teachers, and high academic expectations, as well as associated characteristics such as low rates of bullying and high student engagement. The	CORNELL, D. (2014). *Overview of the Authoritative School Climate Survey.* Charlottesville, VA: Curry School of Education, University of Virginia. CORNELL, D. (2016). *The Authoritative School Climate Survey and the School Climate Bullying Survey: Research summary.* Charlottesville, VA: Curry School of Education, University of Virginia. Retrieved from http://curry.virginia.edu/uploads/resourceLibrary/Authoritative_School_Climate_Survey_Research_Summary_January_2016.pdf CORNELL, D., HUANG, F., KONOLD, T., MEYER, P., SHUKLA, K., LACEY, A., NEKVASIL, E., HEILBRUN, A., &

		survey is appropriate for any school with grades 7-12.)	DATTA, P. (2014). *Technical Report of the Virginia Secondary School Climate Survey: 2014 Results for 9th - 12th Grade Students and Teachers*. Charlottesville, VA: Curry School of Education, University of Virginia. Retrieved from http://curry.virginia.edu/uploads/resourceLibrary/State_Technical_Report_for_2014_high_school_survey_8-14-14.pdf CORNELL, D., HUANG, F., SHUKLA, K., HEILBRUN, A., DATTA, P., MALONE, M., JIA, Y., KONOLD, T., & MEYER, P. (2015). *Technical Report of the Virginia Secondary School Climate Survey: 2015 Results for 7th–8th Grade Students and School Staff*. Charlottesville, VA: Curry School of Education, University of Virginia. Retrieved from http://curry.virginia.edu/uploads/resourceLibrary/2015_MS_Technical_Report_for_release_7-8-15.pdf
California School Climate Survey	Collegiality; Resource provisions and training; Professional development (instruction, cultural competence, meeting student needs); Positive student learning environment; Caring and respectful relationships; High expectations of students; Opportunities for meaningful participation; Cultural sensitivity; Clarity and equity of discipline policies; Perceived school safety; Learning facilitative behavior; Learning barrier (risk behavior, interpersonal conflict and destructive behavior)	Please note that while a copy of the survey instrument is publicly available at http://cscs.wested.org/training_support, it is copyright protected. Information on obtaining the survey instrument can be found at: http://cscs.wested.org/.	HANSON, T.L. (n.d.). *School climate domains and Cal-SCHLS measures to assess them*. Unpublished. HANSON, T., & AUSTIN, G. (2011). *Internal consistency reliabilities for Healthy Kids School Climate Survey instruments*. Unpublished. YOU, SUKKYUNG, & FURLONG, M. (n.d.). *A psychometric evaluation of staff version of school climate survey*. University of California, Santa Barbara. YOU, SUKKYUNG, O'MAL- LEY, MEAGAN D.; FURLONG, MICHAEL J. *Preliminary development of the Brief California School Climate Survey: dimensionality and measurement invariance across teachers and administrators*. School Effectiveness and School Improvement, [n.p.], v.25, no.1, p.153-173, 29.Apr.2013. Informa UK Limited.
The Center for Research in Education Policy School Climate Inventory	Orderly school environment; Administration provides instructional leadership; Positive learning environment; Parent and community involvement; Instruction is well-developed and implemented;	This survey instrument is not publicly available. Please contact the Center for Research in Education Policy at CREP@memphis.edu or 1-866-670-6147 for more information.	BUTLER, E.D., & ALBERG, M.J. (1991). *Tennessee School Climate Inventory: A resource manual*. Memphis, TN: Center for Research in Education Policy. FRANCESCHINI III, L.A. (2009). *Convergent validity study of the School Climate Inventory (SCI) using archived Tennessee Department of Education indicators*. Memphis, TN:

	Expectations for students; Collaboration between administration, faculty, and students		Center for Research in Educational Policy. STRAHL, J.D. (2011). *SCI/SCI-R missing values protocols.* Unpublished. STRAHL, J.D., & ALBERG, M.J. (n.d.). *SCI-R reliability coefficients on the seven dimensions.* Unpublished. STRAHL, J.D., & ALBERG, M.J. (n.d.). *School Climate Inventory.* Unpublished.
Classroom Climate Evaluation Instrument – Secondary Staff (CCAI- S-G)	Discipline environment; Student interactions; Learning evaluation; Attitude and culture	Please note that while a copy of the survey instrument is publicly available at http://www.calstatela.edu/centers/schoolclimate/evaluation/classroom_survey.html, it is copyright protected. Users must obtain copyright authorization through a site license from the Alliance for the Study of School Climate. Please contact John Schindler, Director of the Alliance for the Study of School Climate at jshindl@calstatela.edu for additional information on the CCAI.	Alliance for the Study of School Climate. (2011). *Examining the reliability and validity of the ASSC/WASSC School Climate Evaluation Instrument (SCAI).* Unpublished. SHINDLER, J. (2011). *Untitled memo with psychometric information.* Unpublished. SHINDLER, J., JONES, A., WILLIAMS, A.D., TAYLOR, C., & CADENAS, H. (2009). *Exploring the school climate-student achievement connection: And making sense of why the first precedes the second.* Los Angeles: Alliance for the Study of School Climate. Retrieved from http://www.calstatela.edu/centers/schoolclimate/research/School_Climate_Achievement_Connection_v4.pdf
Comprehensive School Climate Inventory (CSCI)	Rules and norms; Physical and emotional bullying; Physical surroundings; Social and civic learning; Professional relationships; Respect and diversity; Openness; Outreach to family members; Support for learning; Administrator and teacher relationships	This survey is not publicly available. You can learn more about it at http://www.schoolclimate.org/climate/csci.php. Please contact Darlene Faster, COO & Director of Communications, at the National School Climate Center at dfaster@schoolclimate.org or (212) 707-8799 x22 for more information on these surveys.	GUO, P., CHOE, J., & HIGGINS-D'ALESSANDRO, A. (2011). *Report of construct validity and internal consistency findings for the Comprehensive School Climate Inventory.* Fordham University. HIGGINS-D'ALESSANDRO, A., FASTER, D. & COHEN, J. (2010). *School growth and change: A report comparing schools in 2007 and 2010.* Fordham University and the National School Climate Center. Unpublished. SANDY, S.V., COHEN, J. & FISHER, M.B. (2007). *Understanding and assessing school climate: Development and validation of the Comprehensive School Climate Inventory (CSCI).* National School Climate Center. Unpublished.

The Consortium on Chicago School Research Survey of Chicago Public Schools	Teacher-principal trust; Collective responsibility; Teacher-teacher trust; School commitment; Student responsibility; Disorder and crime; Teacher-parent interaction; Teacher-parent trust; Principal instructional leadership; Teacher influence in policy	The staff survey is free and publicly available at http://ccsr.uchicago.edu/downloads/2009/HS_Teacher_Survey 09Cdbk_8-6.pdf. Please contact Elaine Allensworth at elainea@uchicago.edu for additional information on this survey.	Consortium on Chicago School Research. (n.d.). *2007 Consortium survey measures*. Chicago. Consortium on Chicago School Research. (n.d.). *Alignment of the five fundamentals for school success with other research.* Chicago. Consortium on Chicago School Research. (n.d.). *Dimensions of the five fundamentals for school success.* Chicago. Consortium on Chicago School Research. (n.d.). *A primer on Rasch analysis*. Chicago. Retrieved from http://ccsr.uchicago.edu/downloads/9585ccsr_rasch_analysis_primer.pdf MONTGOMERY, N. (2010). *CCSR 5 essentials survey – 2007 scoring sample.* Unpublished.
Culture of Excellence & Ethics Evaluation (CEEA) – Faculty/Staff Survey	Competencies (Version 4.2 only) (excellence, ethics); School culture (excellence, ethics); Faculty practices (excellence, ethics); Student safety; Faculty support for and engagement of students; Leadership practices; Faculty beliefs and behaviors; Home- school communication and support	These survey instruments can be used free of charge, subject to the conditions of the User Agreement, and can be found at http://excellenceandethics.org/assess/ceea-samples.php. Please contact Vlad Khmelkov at vkhmelkov@excellenceandethics.org for additional information.	KHMELKOV, V.T. (2011). *Memo regarding Culture of Excellence & Ethics Evaluation (CEEA) surveys, version 4.5*. Unpublished. KHMELKOV, V.T., DAVIDSON, M.L. (2011). *Culture of Excellence & Ethic Evaluation student and faculty/staff survey psychometric data: High school sample.* Institute for Excellence and Ethics, Inc. KHMELKOV, V.T., DAVIDSON, M.L, et al. (2011). *Culture of Excellence & Ethics Evaluation Survey conceptual description*. Institute for Excellence and Ethics, Inc. KHMELKOV, V.T., DAVIDSON, M.L, BAKER, K., LICKONA, T., & PARISI, R. (2011). *Survey components and scale matrix*. Institute for Excellence and Ethics, Inc. Retrieved from http://www.excellenceandethics.com/assess/CEEA_v4.5_matrix.pdf KHMELKOV, V. (2010). *Culture of Excellence & Ethics Evaluation student and faculty survey: Reliability, validity & other psychometric data, high school sample* [Presentation slides].
Delaware School Climate Teacher and Staff Survey	School climate (teacher-student relations, student-student relations, respect for diversity, clarity of	Please note, these survey instruments and related resources, including interpretation guidelines and post-	BEAR, G., YANG, C., MANTZ, L., PASIPANODYA, E., HEARN, S., & BOYER, D. (2014). *Technical Manual for Delaware School Survey: Scales of School Climate, Bullying*

	expectations, fairness of rules, school safety, student engagement schoolwide, bullying schoolwide, teacher-home communications, teacher-staff relations, total school climate); Positive, punitive, and SEL techniques (positive behavior techniques, punitive techniques, social emotional learning techniques)	survey action planning tools, are publicly available at the Delaware Positive Behavior Support Project website: http://delawarepbs.org.	*Victimization, Student Engagement, and Positive, Punitive, and Social Emotional Learning Techniques*. Delaware Positive Behavior Support (DE- PBS) and School Climate Transformation Projects. http://wordpress.oet.udel.edu/pbs/technical-manual-for- school-climate-surveys/ BEAR, G., YANG, C., PELL, M., & GASKINS, C. (2014). *Validation of a brief measure of teachers' perceptions of school climate: relations to student achievement and suspensions*. Learning Environments Research 17: 3, 339-354.
Effective School Battery	Safety; Morale; Planning and action; Smooth administration; Resources for instruction; Good race relations; Parent and community involvement; Student influence; Avoidance of grades as sanction	Additional information & order forms for these survey instruments can be found at: http://www.education.umd.edu/CHSE/resources/Evaluation/ESB.html. Please contact Eva Yui at climate-assess@umd.edu for additional information.	GOTTFREDSON, G. D. (1999). *The Effective School Battery user's manual*. College Park, MD. Retrieved from http://www.education.umd.edu/CHSE/resources/Evaluation/schoolassess/Tools/ESB/ESBManualA-UMD-all.pdf. GOTTFREDSON, G.D. (n.d.). *Selected research related to the Effective School Battery*. Unpublished.
The Organizational Climate Description for Elementary Schools (OCDQ-RE)	Supportive principal behavior; Directive principal behavior; Restrictive principal behavior; Collegial teacher behavior; Intimate teacher behavior; Disengaged teacher behavior	See Wayne Hoy's website for information on the OCDQ survey series and for the elementary school instrument: www.waynekhoy.com	HOY, W. K. (2013). *The Organizational Climate Description for Elementary Schools (OCDQ-RE)*. Available at http://waynekhoy.com/ocdq-re.html HOY, W. K., TARTER, C. J., & KOTTKAMP, R. B. (1991). *Open schools/healthy schools: Measuring organizational climate*. Beverly Hills, CA: Sage. pp. 20-38, 138-146 http://www.waynekhoy.com/pdfs/open_schools_healthy_schools_book.pdf. HOY, W.K. (2014). *Description of Sampling and Data Treatment*. Unpublished.
The Organizational Climate Description for Middle Schools (OCDQ-RM)	Supportive principal behavior; Directive principal behavior; Restrictive principal behavior; Collegial teacher behavior; Committed teacher behavior; Disengaged teacher behavior	See Wayne Hoy's website for information on the OCDQ survey series and for the middle school instrument: www.waynekhoy.com	HOY, W. K. (2013). *The Organizational Climate Description For Middle Schools (OCDQ-RM)*. Available at: http://waynekhoy.com/ocdq-rm.html. HOY, W. K., TARTER, C. J., & KOTTKAMP, R. B. (1991). *Open schools/healthy schools: Measuring organizational climate*. Beverly Hills, CA: Sage. pp. 1-19. Available at:

			http://www.waynekhoy.com/pdfs/open_schools_healthy_schools_book.pdf.
			HOY, W. K., HOFFMAN, J., SABO, D., & BLISS, J. (1996). *The organizational climate of middle schools. The development and test of the OCDQ-RM*. Journal of Educational Administration, 34(1), 41-59.
			HOY, W.K. (2014). *Description of Sampling and Data Treatment.* Unpublished.
The Organizational Climate Description for Secondary Schools (OCDQ-RS)	Supportive principal behavior; Directive principal behavior; Engaged teacher behavior; Frustrated teacher behavior; Intimate teacher behavior	See Wayne Hoy's website for information on the OCDQ survey series and for the secondary school instrument: www.waynekhoy.com	HOY, W. K. (2010). *The Organizational Climate Description for Elementary Schools (OCDQ-RS)*. Available at: http://www.waynekhoy.com/ocdq-rs.html.
			HOY, W. K., TARTER, C. J., & KOTTKAMP, R. B. (1991). *Open schools/healthy schools: Measuring organizational climate*. Beverly Hills, CA: Sage. pp. 1-19, 38-52, 146-154. http://www.waynekhoy.com/pdfs/open_schools_healthy_schools_book.pdf.
			HOY, W.K. (2014). *Description of Sampling and Data Treatment*. Unpublished.
Pride Teaching Environment Survey	Like teaching; Like administrators (my school, instructional leadership); Effective teaching; Teacher evaluation; Principal support; Teacher respect; Participatory decision-making; Staff collegiality; Desired involvement in improving teaching practices; Current involvement in school policies and practices; Desired involvement in teaching practice policies; Student discipline; Student conduct rules/policies; Teacher stress; Classroom support; Teacher attitude; Interpersonal relationships; Student engagement; Teacher pay; Facilities and	Please note that while a copy of the survey instrument is publicly available at http://dbdemo.pridesurveys.com, it is copyright protected. Information on obtaining the survey instrument can be found at: http://www.pridesurveys.com/index.php/products/.	HALL, D. (2011). *Analytic strategies employed for Pride Survey's TES survey effort*. Unpublished.
			HALL, D. (2011). *Documentation report for OSDFS-TES- LES*. Unpublished.
			HALL, D. (2011). *Teaching Environment Survey (TES) theoretical framework.* Unpublished.
			HALL, D. (2010). *TES factor analysis result - Summary.* Unpublished.
			International Survey Associates. (2010). *TES item dictionary.* Unpublished.

	resources; Teacher workload		
School Climate Evaluation Instrument – Elementary General (SCAI-E-G)	Physical environment; Teacher relations; Student interactions; Leadership and decisions; Management and discipline; Learning and evaluation; Attitude and culture; Parents and community; Special education (optional); Project-based learning (optional)	All Alliance for the Study of School Climate (ASSC) school and classroom surveys are available for use by a school, district or state. All instruments are copyrighted. Permission is required for use. Surveys are available by paper or using the ASSC online system. Student research requests are welcome. Please contact John Shindler, Director of the Alliance for the Study of School Climate, at jshindl@calstatela.edu for more information.	SHINDLER, J. (2016). *Examining the efficacy of the ASSC School Climate Evaluation Instrument (SCAI) to promote improved school climate, psychological factors related to high functioning schools and students, and student achievement and why it's uniquely qualified to do so when compared to other climate survey instruments.* Los Angeles: Alliance for the Study of School Climate. Retrieved from http://web.calstatela.edu/centers/schoolclimate/evaluation/Comparison_and_Efficacy_of_the_ASSC_SCAI.pdf Alliance for the Study of School Climate. (2016). *Examining the Reliability and Validity of the ASSC/WASSC School Climate Evaluation Instrument (SCAI).* Unpublished. SHINDLER, J. (2016). *Additional vetting information.* Unpublished. SHINDLER, J. (2011). *Sample for psychometric analyses.* Unpublished.
Secondary School Climate Evaluation Instrument – General (SCAI-S-G)	Physical appearance of the school; Faculty relations; Student interactions; Leadership decisions; Discipline environment; Learning/ evaluation; Attitude and culture; Community relations	Please note that while a copy of the survey instrument is publicly available at http://www.calstatela.edu/centers/schoolclimate/evaluation/school_survey.html#faculty, it is copyright protected. Users must obtain copyright authorization through a site license from the Alliance for the Study of School Climate. Please contact John Schindler, Director of the Alliance for the Study of School Climate at jshindl@calstatela.edu for additional information on the SCAI.	Alliance for the Study of School Climate. (2011). *Examining the reliability and validity of the ASSC/WASSC School Climate Evaluation Instrument (SCAI).* Unpublished (will be published on ASSC website). SHINDLER, J. (2011). *Untitled memo with psychometric information.* Unpublished. SHINDLER, J., JONES, A., WILLIAMS, A.D., TAYLOR, C., & CADENAS, H. (2009). *Exploring the school climate-student achievement connection: And making sense of why the first precedes the second.* Los Angeles: Alliance for the Study of School Climate. Retrieved from http://www.calstatela.edu/centers/schoolclimate/research/School_Climate_Achievement_Connection_v4.pdf.
U.S. Department of Education School Climate Survey (EDSCLS)	Engagement (cultural and linguistic competence, relationships, school	The survey platform is free and publicly available at https://safesupportivel	National Center for Education Statistics (NCES). (2015). *Appendix D: EDSCLS pilot test 2015 report.* Washington, DC. Retrieved from

| | participation); Safety (emotional safety, physical safety, bullying/cyberbullying, substance abuse); Environment (physical environment, instructional environment, physical health, mental health, discipline) | earning.ed.gov/edscls/administration. | http://www.reginfo.gov/public/do/DownloadDocument?objectID=61438201

NCES. (2015). *Supporting statement Part B and Part C: Collection of information employing statistical methods*. Washington, DC. Retrieved from https://www.regulations.gov/contentStreamer?documentId=E D-2015-ICCD-0081-0018&attachmentNumber=2&disposition=attachment&content Type=pdf

WANG, Y., MURPHY, K., & KANTAPARN, C. (2016). *Technical and administration user guide for the ED School Climate Surveys (EDSCLS)*. Washington, DC. Retrieved from https://safesupportivelearning.ed.gov/sites/default/files/EDSCLS%20User Guide%20042116.pdf |
|---|---|---|---|
| **Family Surveys** | | | |
| **California School Parent Survey** | Facilitation of parent involvement; Positive student learning environment; Opportunities for meaningful participation; Cultural sensitivity; Clarity and equity of discipline policies; Perceived school safety; Learning barriers | Please note that while a copy of the survey instrument is publicly available at http://csps.wested.org/, it is copyright protected. Information on obtaining the survey instrument can be found at: http://csps.wested.org/ | HANSON, T.L. (n.d.). *School climate domains and Cal-SCHLS measures to assess them*. Unpublished.

HANSON, T., & AUSTIN, G. (2011). *Internal consistency reliabilities for Healthy Kids School Climate Survey instruments*. Unpublished. |
| **Comprehensive School Climate Inventory (CSCI)** | Physical and social bullying;, Respect and diversity; Social support-adults (towards each other and towards students); Social and civic learning; Physical surroundings; Rules and norms; Student-student relationships; Support for learning | This survey is not publicly available. You can learn more about it at http://www.schoolclimate.org/climate/csci.php. Please contact Darlene Faster, COO & Director of Communications, at the National School Climate Center at dfaster@schoolclimate.org or (212) 707-8799 x22 for more information on these surveys. | GUO, P., CHOE, J., & HIGGINS-D'ALESSANDRO, A. (2011). *Report of construct validity and internal consistency findings for the Comprehensive School Climate Inventory*. Fordham University.

HIGGINS-D'ALESSANDRO, A., FASTER, D. & COHEN, J. (2010). *School growth and change: A report comparing schools in 2007 and 2010*. Fordham University and the National School Climate Center. Unpublished.

SANDY, S.V., COHEN, J. & FISHER, M.B. (2007). *Understanding and assessing school climate: Development and validation of the Comprehensive School Climate Inventory (CSCI)*. National School Climate Center. Unpublished. |

Culture of Excellence & Ethics Evaluation (CEEA) – Parent Survey	Perception of school culture; School engaging parents; Parents engaging with school; Learning at home/promoting excellence; Parenting/promoting ethics	These survey instruments can be used free of charge, subject to the conditions of the User Agreement, and can be found at: http://excellenceandethics.org/assess/ceea-samples.php. Please contact Vlad Khmelkov at vkhmelkov@excellenceandethics.org for additional information.	KHMELKOV, V.T. (2011). *Memo regarding Culture of Excellence & Ethics Evaluation (CEEA) surveys, version 4.5*. Unpublished. KHMELKOV, V.T. (2010). *Culture of Excellence & Ethics Evaluation survey: Psychometrics*. Institute for Excellence and Ethics, Inc. Retrieved from http://www.excellenceandethics.com/assess/CEEA_Psychometrics_v4.5_HSMS.pdf. KHMELKOV, V.T., DAVIDSON, M.L. (2011). *Culture of Excellence & Ethics Evaluation: Overview & theory*. Institute for Excellence and Ethics, Inc. Retrieved from http://www.excellenceandethics.com/assess/CEEA_v4.5_Conceptual_Description.pdf. KHMELKOV, V.T., DAVIDSON, M.L., BAKER, K., LICKONA, T., & PARISI, R. (2011). *Survey components and scale matrix*. Institute for Excellence and Ethics, Inc. Retrieved from http://www.excellenceandethics.com/assess/CEEA_v4.5_matrix.pdf.
Delaware Bullying Victimization Parent Scale	Physical bullying; Verbal bullying; Social/relational bullying	Please note, these survey instruments and related resources, including interpretation guidelines and post-survey action planning tools, are publicly available at the Delaware Positive Behavior Support Project website: http://delawarepbs.org.	BEAR, G., YANG, C., MANTZ, L., PASIPANODYA, E., HEARN, S., & BOYER, D. (2014). *Technical Manual for Delaware School Survey: Scales of School Climate, Bullying Victimization, Student Engagement, and Positive, Punitive, and Social Emotional Learning Techniques*. Delaware Positive Behavior Support (DE-PBS) and School Climate Transformation Projects. http://wordpress.oet.udel.edu/pbs/technical-manual-for-school- climate-surveys/. BEAR, G., MANTZ, L., GLUTTING, J., YANG, C. & BOYER, D (2015) *Differences in Bullying Victimization Between Students With and Without Disabilities*. School Psychology Review: March 2015, Vol. 44, No. 1, pp. 98-116. https://www.researchgate.net/profile/Chunyan_Yang5/publication/274252635_Differences_in_Bullying_Victimization_Between_Students_With_and_Without_Disabilities/links/5519acfc0cf26c bb81a2afdb.pdf. Examination of the 2013 *Delaware Bullying Victimization Scale* (DBVS; Bear et al.,2014) in regard to

			Adolescent Peer Relations Instrument: Bullying/Target (APRI-BT; Parada, Marsh, & Craven, 2010).
Delaware School Climate Parent Survey	School climate (teacher-student relations, student-student relations, respect for diversity, clarity of expectations, fairness of rules, school safety, teacher- home communications, total school climate, parent satisfaction); Bullying victimization (physical bullying, verbal bullying, social/relational bullying); Student engagement (cognitive and behavioral, emotional)	Please note, these survey instruments and related resources, including interpretation guidelines and post-survey action planning tools, are publicly available at the Delaware Positive Behavior Support Project website: http://delawarepbs.org.	BEAR, G., YANG, C., MANTZ, L., PASIPANODYA, E., HEARN, S., & BOYER, D. (2014). *Technical Manual for Delaware School Survey: Scales of School Climate, Bullying Victimization, Student Engagement, and Positive, Punitive, and Social Emotional Learning Techniques.* Delaware Positive Behavior Support (DE-PBS) and School Climate Transformation Projects. http://wordpress.oet.udel.edu/pbs/technical-manual-for-school- climate-surveys/ BEAR, G., YANG, C., MANTZ, L., & PASIPANODYA, E. (2014). *Validation of a Brief Measure of the Perceptions of Parents.* Journal of Psychoeducational Evaluation. 33: 2 115-129.
Flourishing Children Survey Social Competence Parent Scale	Social Competence	The survey scale items can be found at: http://www.childtrends.org/our-research/positive-indicators/positive-indicators-project/social-competence/. The complete survey instrument is publicly available and can be requested by emailing Kristen Darling-Churchill at kchurchill@childtrends.org.	Child Trends. (2012). *Social competence.* Retrieved from http://www.childtrends.org/our-research/positive-indicators/positive-indicators-project/social-competence/ LIPPMAN, L., MOORE, K. A., GUZMAN, L., RYBERG, R., MCINTOSH, H., CALL, S., RAMOS, M., CARLE, A., & Kuhfeld, M. (2013). *Flourishing Children: Defining and testing indicators of positive development.* Unpublished. LIPPMAN, L., GUZMAN, L., & MOORE, K. A. (2012). *Measuring flourishing among youth: Findings from the Flourishing Children Positive Indicators Project.* Retrieved from http://www.childtrends.org/wp-content/uploads/2013/05/FlourishingChildren.pdf. RYBERG, R., & LIPPMAN, L. (2013). *Item sources for the Flourishing Children Study Social Competence scale.* Unpublished.
School Climate Evaluation Instrument – Elementary General (SCAI-E-G)	Physical environment; Student interactions; Leadership and decisions; Management and discipline; Learning and evaluation; Attitude and culture;	All Alliance for the Study of School Climate (ASSC) school and classroom surveys are available for use by a school, district or state. All instruments are	SHINDLER, J. (2016). *Examining the efficacy of the ASSC School Climate Evaluation Instrument (SCAI) to promote improved school climate, psychological factors related to high functioning schools and students, and student achievement and why*

	Parents and community; Special education (optional); Project- based learning (optional)	copyrighted. Permission is required for use. Surveys are available by paper or using the ASSC online system. Student research requests are welcome. Please contact John Shindler, Director of the Alliance for the Study of School Climate, at jshindl@calstatela.edu for more information.	*it's uniquely qualified to do so when compared to other climate survey instruments*. Los Angeles: Alliance for the Study of School Climate. Retrieved from http://web.calstatela.edu/centers/schoolclimate/evaluation/Comparison_and_Efficacy_of_the_ASSC_SCAI.pdf. Alliance for the Study of School Climate. (2016). *Examining the Reliability and Validity of the ASSC/WASSC School Climate Evaluation Instrument (SCAI)*. Unpublished. SHINDLER, J. (2016). *Additional vetting information*. Unpublished. SHINDLER, J. (2011). *Sample for psychometric analyses*. Unpublished.
School Climate Evaluation Instrument – Secondary Parent and Community (SCAI-S-P)	Physical appearance of the school; Student interactions; Leadership decisions; Discipline environment; Learning/evaluation; Attitude and culture; Community relations	This survey instrument is not publicly available. Please contact John Shindler, Director of the Alliance for the Study of School Climate at jshindl@calstatela.edu for additional information on the SCAI.	Alliance for the Study of School Climate. (2011). *Examining the reliability and validity of the ASSC/WASSC School Climate Evaluation Instrument (SCAI)*. Unpublished. SHINDLER, J. (2011). *Untitled memo with psychometric information.* Unpublished. SHINDLER, J., JONES, A., WILLIAMS, A.D., TAYLOR, C., & CADENAS, H. (2009). *Exploring the school climate-student achievement connection: And making sense of why the first precedes the second.* Los Angeles: Alliance for the Study of School Climate. Retrieved from http://www.calstatela.edu/centers/schoolclimate/research/School_Climate_Achievement_Connection_v4.pdf.
U.S. Department of Education School Climate Survey (EDSCLS)	The EDSCLS parent survey includes items about Engagement (cultural and linguistic competence, relationships, school participation); Safety (emotional safety, physical safety, bullying/cyberbullying, substance abuse, emergency readiness/management); and Environment (physical environment, instructional	The survey platform is free and publicly available at https://safesupportivelearning.ed.gov/edscls/administration. (Note: Because of the brevity of the parent survey, the data did not form scales. Thus, parent data should be examined at only the item level [i.e., analysis of individual survey questions].)	National Center for Education Statistics (NCES). (2015). *Appendix D: EDSCLS pilot test 2015 report*. Washington, DC. Retrieved from http://www.reginfo.gov/public/do/DownloadDocument?objectID=61438201. NCES. (2015). *Supporting statement Part B and Part C: Collection of information employing statistical methods*. Washington, DC. Retrieved from https://www.regulations.gov/contentStreamer?documentId=ED-2015-ICCD-0081-

environment, physical health, mental health, discipline). However, because of the brevity of the parent survey, the data for these items did not form scales.		0018&attachmentNumber=2&disposition=attachment&contentType=pdf. WANG, Y., MURPHY, K., & KANTAPARN, C. (2016). *Technical and administration user guide for the ED School Climate Surveys (EDSCLS)*. Washington, DC. Retrieved from https://safesupportivelearning.ed.gov/sites/default/files/EDSCLS%20UserGuide%20042116.pdf.

Source: Authors' concept.

Annex 2 – Compilation of student and staff surveys used to assess school climate in Brazil

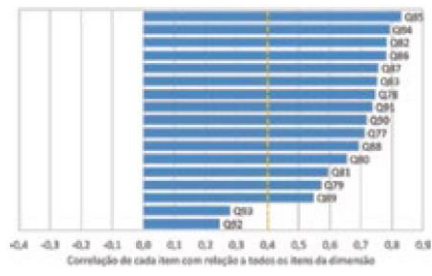| Survey Name	Dimensions measured	Creation & organization
Surveys with students		
Pesquisa Sobre Clima Escolar **[Survey of School Climate]**	Relationship with teaching and learning; social relationships and conflicts at school; rules, sanctions and safety at school; situations of intimidation among students; the family, the school and the community; school infrastructure and physical facilities.	University of Campinas (Telma Vinha and Alessandra de Morais) in partnership with the Lemann Foundation and Fundação de Amparo à Pesquisa *This research has the involvement of 11 institutions, including UFMS, Unesp, Unicamp, Carlos Chagas Foundation, Unoeste
Pesquisa Nacional de Saúde do Escolar – PeNSE **[National Student Health Survey]**	Food; asthma; physical activity; alcoholic beverages; cigarettes; illicit drugs; oral hygiene and health; body image; mental health; sexual and reproductive health; safety; health services; situations at home and at school.	Brazilian Institute of Geography and Statistics (IBGE)
Surveys with educators		
Pesquisa Sobre Clima Escolar (Professores e Gestores) **[Survey of School Climate (teachers and administrators]]**	Relationships with teaching and learning; social relationships and conflicts at school; rules, sanctions and safety at school; situations of intimidation among students; the family, school and community; school infrastructure and physical facilities; relationship with work; management and participation.	University of Campinas (Telma Vinha and Alessandra de Morais) in partnership with the Lemann Foundation and Fundação de Amparo à Pesquisa *This research has the involvement of 11 institutions, including UFMS, Unesp, Unicamp, Carlos Chagas Foundation, Unoeste
Teaching and Learning International Survey, TALIS (Principal)	School leadership; formal faculty evaluation; school climate; induction and guidance of teachers; job satisfaction.	Organization for Economic Cooperation and Development (OECD)
Teaching and Learning International Survey, TALIS (Faculty)	Professional development; feedback to teachers; teaching in general; teaching to a specific class; school climate and job satisfaction.	Organization for Economic Cooperation and Development (OECD)
Pesquisa Nacional de Saúde do Escolar – PeNSE **[National Student Health Survey]**	Characteristics of the school environment; food; beverages and products sold at school canteen; beverages and products sold at alternative point of sale; health	Brazilian Institute of Geography and Statistics (IBGE)

	policies; sports practice; basic sanitation and hygiene; safety.	
Instrumento de Avaliação Perfil e Funcionamento da Escola **[Instrument to Assess School Profile and Functioning]**	Teaching and learning; school climate; parents and community; people management; processes management; infrastructure; results.	School Development Plan (PDE) of the Ministry of Education
Avaliação do Clima na Escola **[School Climate Evaluation]**	Friendship; interpersonal relationships; welcoming and equality; mutual collaboration; pedagogical aspects and interest in teaching; management and transparency; discipline; procedures, assistance and services; infrastructure.	*Escola*-Abril magazine

Source: Authors' concept

Annex 3 – Analysis of the correlation between items of the same dimension

The graphs presented below show the correlation between each item and the other items of a dimension, separately for each stakeholder group. There is, however, no graph for Dimension 3, "Situations of intimidation among students", as it pertains to teachers and administrators. This dimension is measured for these agents with only two null-correlation item and, therefore, a graphical presentation would add no value to the analysis.

Please note that the items are identified here by their numbers in the questionnaire. You may check the sentence assessed in each item in the *Manual de orientação para a aplicação dos questionários que avaliam o clima escolar* (VINHA et al., 2017).

Graph 2: Correlation between each item and the remaining items of the dimension according to the perception of students

a. Relationship with teaching and learning (D1)
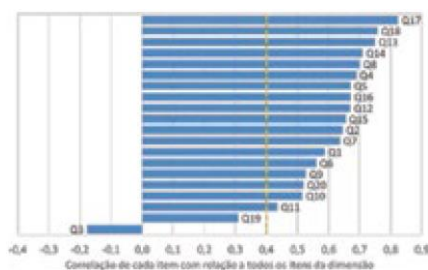
d. Family, school and community (D4)
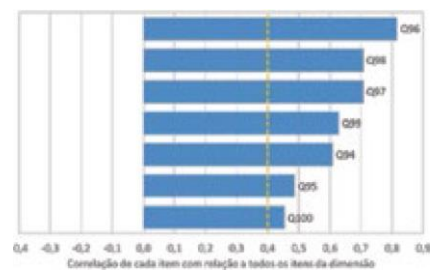
b. Social relations and conflicts at school (D2)
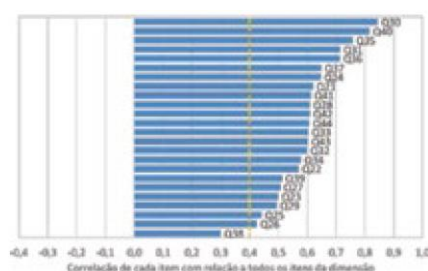
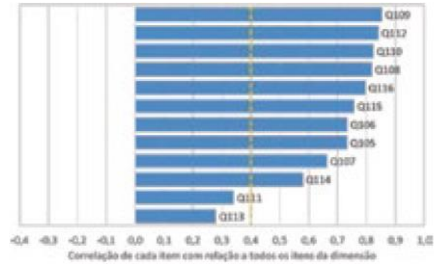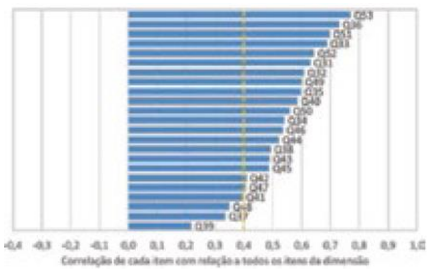
e. Rules, sanction and safety in school (D5)
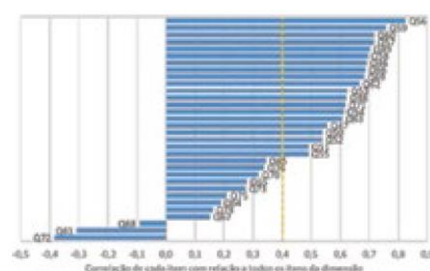
c. Situations of intimidation among students (D3)

Correlação de cada item com relação a todos os itens da dimensão

f. School infrastructure and physical facilities (D8)

Correlação de cada item com relação a todos os itens da dimensão
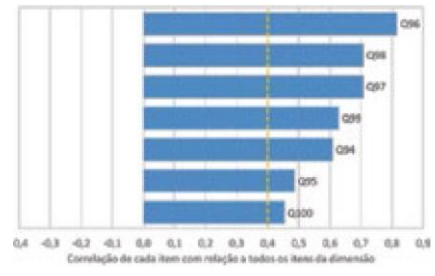
Graph 3: Correlation between each item and the remaining items of the dimension according to the perception of managers

### a. Relationship with teaching and learning (D1)
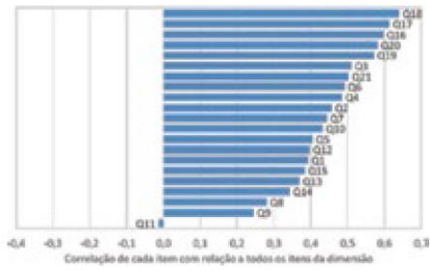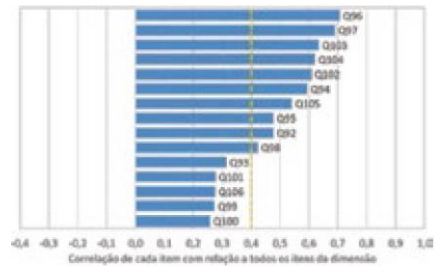
e. Relationship with work (D6)


### b. Social relations and conflicts at school (D2)
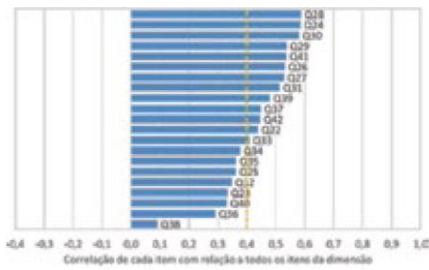
f. Management and participation (D7)
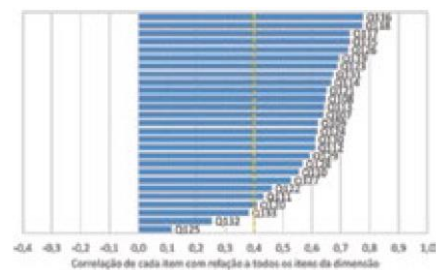
c. Family, school and community (D4)
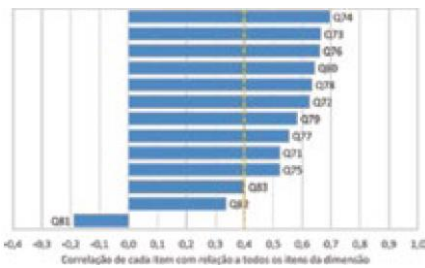
g. School infrastructure and physical facilities(D8)
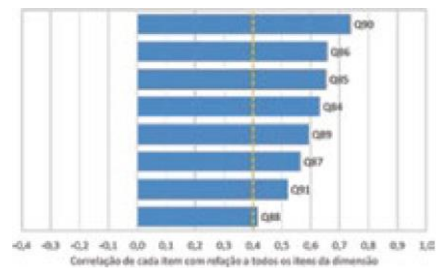
d. Rules, sanctions and safety in school (D5)
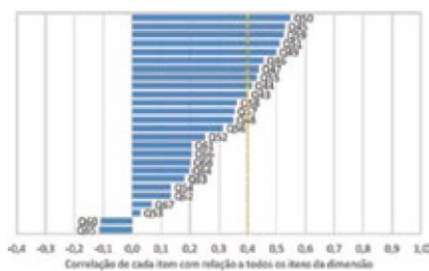
Graph 4: Correlation between each item and the remaining items of the dimension according to the perception of teachers

a. Relationship with teaching and learning (D1)
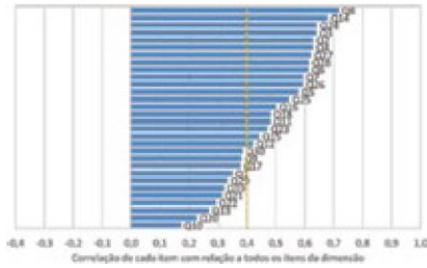
e. Relationship with work (D6)

b. Social relations and conflicts at school (D2)

f. Management and participation (D7)
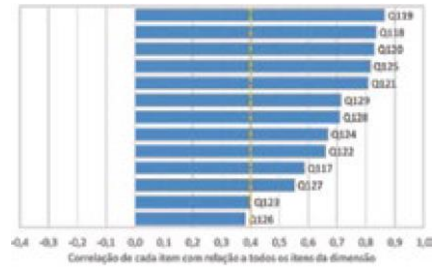
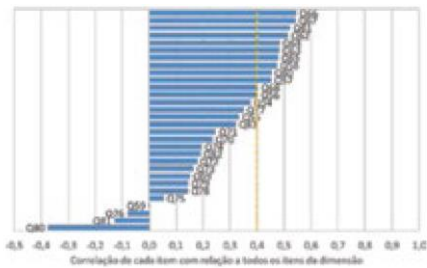**c. Family, school and community (D4)**
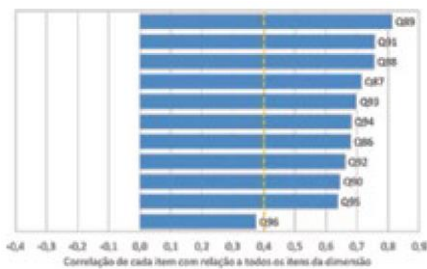
g. School infrastructure and physical facilities(D8)
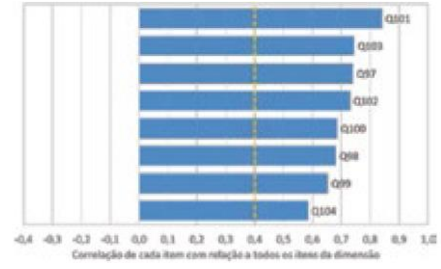
d. Rules, sanctions and safety in school (D5)

Annex 4 – Methodology for calculating the tests in Section 13

Let $\bar{y}_{70}^*$ be the estimated impact within the universe of 70 clusters and $\bar{y}_{24}^*$ the estimated impact within the universe of 24 clusters, considering all schools in the clusters. The difference between these two estimates is given by:

$$\bar{y}_{70}^* - \bar{y}_{24}^* = \frac{1}{70}(46\bar{y}_{46}^* + 24\bar{y}_{24}^*) - \bar{y}_{24}^* = \frac{46}{70}(\bar{y}_{46}^* - \bar{y}_{24}^*)$$

Thus, testing the equality of $\bar{y}_{46}^*$ and $\bar{y}_{24}^*$ is equivalent to testing the equality of $\bar{y}_{46}^*$ and $\bar{y}_{24}^*$. Furthermore, it is possible, from this relationship, to calculate the variance of this difference:

$$Var(\bar{y}_{70}^* - \bar{y}_{24}^*) = \left(\frac{46}{70}\right)^2 \left(Var(\bar{y}_{46}^*) + Var(\bar{y}_{24}^*)\right)$$

Let $\bar{y}_{24}^*$ be the estimated impact for the 24-clusters sample considering only assessed two schools per cluster. In this case, the difference between this estimate and estimated impact for the 70-clusters universe $(\bar{y}_{70}^*)$ is given by:

$$
\begin{aligned}
\bar{y}_{70}^* - \bar{y}_{24} &= \frac{1}{70}(46.\bar{y}_{46}^* + 24.\bar{y}_{24}^*) - \bar{y}_{24} = \frac{46}{70}(\bar{y}_{46}^* - \bar{y}_{24}) + \frac{24}{70}(\bar{y}_{24}^* - \bar{y}_{24}) \\
&= \frac{46}{70}(\bar{y}_{46}^* - \bar{y}_{24}) + \frac{24}{70}\left(\frac{1}{24}\sum_{i=1}^{24}(\bar{y}_i^* - y_i)\right) \\
&= \frac{46}{70}(\bar{y}_{46}^* - \bar{y}_{24}) + \frac{24}{70}\left(\frac{1}{24}\sum_{i=1}^{24}\left(\frac{1}{n_i+1}\sum_{j=0}^{n_i}y_{ij} - y_{i0}\right)\right) \\
&= \frac{46}{70}(\bar{y}_{46}^* - \bar{y}_{24}) + \frac{24}{70}\left(\frac{1}{24}\sum_{i=1}^{24}\left(\frac{1}{n_i+1}\sum_{j=1}^{n_i}(y_{ij} - y_{i0})\right)\right) \\
&= \frac{46}{70}(\bar{y}_{46}^* - \bar{y}_{24}) + \frac{24}{70}\bar{z}_{24}
\end{aligned}
$$

where

$$\bar{z}_{24} = \frac{1}{24}\sum_{i=1}^{24}\left(\frac{1}{n_i+1}\sum_{j=1}^{n_i}(y_{ij}-y_{i0})\right)$$

The variance of this difference can be expressed by:

$$Var(\bar{y}_{70}^* - \bar{y}_{24}) = \left(\frac{46}{70}\right)^2 (Var(\bar{y}_{46}) + Var(\bar{y}_{24})) + \left(\frac{24}{70}\right)^2 Var(\bar{z}_{24})$$

With regard to the estimates proposed in Section 12, we present below the calculation of the Program's second-year impact. This is obtained from the difference between two impacts: the two-year impact (estimated for all schools from all 70 clusters) and the first-year impact (estimated for the 24-clusters sample and considering only two schools per cluster.

$$\bar{y}^*_{70,1} - (\bar{y}_{24,1} - \bar{y}_{24,0}) = (\bar{y}_{70,1} - \bar{y}_{24,1}) + \bar{y}_{24,0} = \alpha\,(\bar{y}_{46,1} - \bar{y}_{24,1}) +$$
$$(1-\alpha)\,\bar{z}_{24,1} + \bar{y}_{24,0} = \alpha\bar{y}_{46,1} + (\bar{y}_{24,0} - \alpha\bar{y}_{24,1} + (1-\alpha)\bar{z}_{24,1}) =$$
$$= \alpha\bar{y}_{46,1} + w_{24}$$

where

$$w_{24} = \bar{y}_{24,0} - \alpha\bar{y}_{24,1} + (1-\alpha)\,\bar{z}_{24,1}$$
$$\bar{y}_{24,0} = \alpha\bar{y}_{46,1} + (1-\alpha)(\bar{y}_{24,1} + \bar{z}_{24,1}) - \bar{y}_{24,0} = \alpha\bar{y}_{46,1} + v_{24}$$

where

$$v_{24} = (1-\alpha)(\bar{y}_{24,1} + \bar{z}_{24,1}) - \bar{y}_{24,0}$$