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Latin America: school bullying and academic achievement

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The work done here involved estimating the extent of bullying in Latin American schools and its impact on the academic achievement of primary school students. Pupils' socio-demographic characteristics were analysed and linked with bullying. Three- and four-multilevel models were applied to data from the Second Regional Comparative and Explanatory Study (SERCE) conducted by the United Nations Educational, Scientific and Cultural Organization (UNESCO), analysing 2,969 schools, 3,903 classrooms and 91,223 sixth-grade students in 16 Latin American countries (not including Mexico for the association between school bullying and academic performance). The study found that bullying is a serious problem throughout the region; students who suffer peer aggression yield a significantly lower performance in reading and math than those who do not; and those in classrooms with more episodes of physical or verbal violence perform worse than those in less violent classroom settings.

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I

Introduction

Aggressive and violent behaviour among school pupils has become a research and public policy priority, owing to its consequences for children's and young people's development and academic performance and outcomes. This type of conduct, which is becoming a daily occurrence in schools and is known and to some extent sanctioned by adults and the students themselves, flies in the face of what is expected from school: a place where young citizens receive ethical, moral, emotional and cognitive education. It also seriously jeopardizes the school's possibility of acting as a forum for the exchange of knowledge in a healthy and socially democratic and fair environment. Students must be able to learn without fear in a secure and reliable environment in order to build skills of all types and absorb the learning they need to develop comprehensively and participate fully in society.

Bullying impinges upon many dimensions; this article examines and discusses its impact on students'

learning and outcomes in the areas of reading and math, using data from the Second Regional Comparative and Explanatory Study (SERCE) (LLECE, 2008). This research compiles data on incidents of theft and physical and verbal violence that directly or indirectly involve sixth-grade students in 16 Latin American countries. The impact of those situations on student performance was analysed for 15 of those 16 countries. Mexico was not included in the analysis because the questionnaire on family-related factors was not administered there.

The second section of the article offers a conceptual framework on the basis of a review of the literature on school bullying and its link with academic learning and outcomes at the regional and international levels. The third section presents the objectives and methodology which structure and underpin the study, while the fourth and fifth sections set forth and discuss the main findings. Lastly, the main conclusions of the work are shared.

II

Theoretical basis

Authors who have studied school bullying in order to understand or try to prevent it, or both, agree that Olweus was the first researcher to develop a framework and a set of criteria for describing violent behaviour among peers in the school setting. In the 1970s, Olweus (1978) raised the alert by denouncing aggression and abuse as a common and systemic practice among pupils in Norwegian schools. Today this phenomenon is known universally as "bullying", which refers to different types of repeatedly occurring intimidation, harassment, abuse, mistreatment and victimization (Rigby, 1996; García, 2010).

Bullying refers to repeated and ongoing situations of injustice and abuse of power (psychological or physical) and it has different, though all equally worrying, consequences for the students involved (Olweus, 1989, 1993, 1998; Smith and Sharpe, 1994; OECD, 2004; Cerezo, 2006; Skrzypiec, 2008). The available evidence distinguishes at least three actors in peer situations: (i) the student or students who do the harassing or bullying; (ii) the student or students who are harassed or bullied;

and (iii) the students who see or are otherwise aware of the bullying (Schäfer and others, 2005). As many as six roles may be identified if we include those who assist the perpetrator, reinforcers of bullying and defenders of victims (Rigby, 2003; Andreou and Metallidou, 2004; Rey and Ortega, 2007; Slee and Mohyla, 2007).

At the root of these behaviours lie cultural patterns of domination and submission among peers living closely together on a daily basis in institutionalized environments. The literature identifies four main forms of bullying: physical, verbal, psychological and social (Rivers and Smith, 1994; Espelage and Swearer, 2003; Smith, 2003; Avilés, 2005; Cerezo, 2006).

1. Climate, school culture and bullying

Researching the form or magnitude of violence among students within schools means exploring more deeply one of the dimensions of the school climate. School bullying is a complex phenomenon arising in the

context of daily life in the school and therefore within the framework of the rules, routines, processes, systems of interaction and exchange, subjectivities and cultural patterns of each institution. Underlying violent conduct are the behaviours, beliefs and attitudes of all the actors involved, be they affection, regard, satisfaction, friendship, collaboration or tolerance, as well as dislike, prejudice, discrimination, exclusion and intolerance (Ortega, 2000; Kuperminc, Leadbeater and Blatt, 2001; Loukas and Robinson, 2004; Blaya and others, 2006; Gazelle, 2006). So bullying and its various forms are an integral part of the school and classroom life and climate which pupils live and breathe. They affect and impinge not only upon the well-being of every member of the educational community, but also upon their practices and performance. The universal presence and magnitude of school bullying and, above all, its consequences for the socio-affective and cognitive development of students, make it a priority in the analysis of school climate and coexistence, which are key to students' learning and development (Ortega, 2005; Orpinas and Horne, 2006).

2. Bullying and school achievement: the international evidence

Bullying as a phenomenon has been extensively researched and analysed over the past two decades, mainly from the standpoint of psychology and educational sociology. From a psychological perspective, attention has centred on practices and behaviours which are associated with and involved in peer harassment, especially aggressive and violent conduct and the problems of different types of victimization and their psychological and social consequences for victims (Hawker and Boulton, 2000; Espelage, Holt and Henkel, 2003; Rigby, 2003; Perren and Alsaker, 2006). From the sociological perspective, efforts have been made to identify the social factors associated with bullying (poverty, social exclusion, youth delinquency, drug and alcohol consumption, youth culture), aiming to recognize and prevent bullying and reduce high-risk behaviour (Martínez-Otero, 2005; Blaya and others, 2006; Barker and others, 2008).

We know that peer violence and bullying is not a new or isolated phenomenon and it is not confined to certain schools or countries (Abramovay and Rua, 2005; Berger, Rodkin and Karimpour, 2008; Plan International, 2008). Bullying is a common and cross-cutting phenomenon that affects a large percentage of students as victims (the majority), perpetrators or observers or spectators and it has been documented in many works of research in different countries and world regions (Olweus, 1978,

1993; Schäfer and others, 2005; Ortega, 2005; Blaya and others, 2006; Smith, Kanetsuna and Koo, 2007).

The most common and frequent forms of bullying found in the evidence are insults, name-calling and nicknames; hitting, direct aggression and theft; and threats, rumour-spreading and social exclusion or isolation (Whitney and Smith, 1993; Owens, Daly and Slee, 2005). Lately there has been an upsurge in cyber bullying, whereby pupils are bullied and denigrated in different ways using mobile phones, websites, blogs, social networks such as Facebook, Hi5 and Twitter, YouTube and other media that are used and shared by school communities on the Internet (Skrzypiec, 2008).

Sex and age are factors in the magnitude and type of bullying. Male students are more likely to be involved in physical bullying (hitting), while female students are more likely to engage in social or psychological bullying (Skrzypiec, 2008). Bullying decreases for both sexes at higher levels of schooling (Pellegrini and Long, 2002; Dake, Price and Telljohann, 2003; Smith, 2003).

The first works of research on the magnitude of bullying in Europe include Whitney and Smith (1993), which found a victimization rate of 10% for the United Kingdom, with 6% admitting to being aggressors. Ten years later, Dake, Price and Telljohann (2003) found bullying rates in European primary schools varying from 11% in Finland to 49% in Ireland, while in the United States the rate was nearly 20%. In Spain, one in four pupils experiences school bullying, with a rate seven times higher in primary school than in secondary school and the main type of violence being psychological (Voors, 2005).

In Australia, 17.4% of pupils aged 7 to 9 reported serious bullying, and 31% reported having suffered mild bullying (Skrzypiec, 2008). Recent figures released by the Organization for Economic Cooperation and Development (OECD, 2009) on its member countries show that an average of 26% suffer bullying in primary school, 20% in lower secondary and 10% in upper secondary.

Studies conducted in Latin America also show differences between countries and levels of schooling. For example, 11% of students in Mexican primary schools have stolen something from or threatened a classmate, and just over 7% have done so in secondary school (Aguilera, Muñoz and Orozco, 2007). In Brazil, the percentage of primary pupils who report being repeatedly threatened in both public and private schools ranges from 21% to 40%, depending on the state (Abramovay and Rua, 2005).

For Peru, the data indicate a bullying rate of 47% (Oliveros and others, 2008), while in Chile 11% of

students report having suffered bullying in the form of continual threats, discrimination or both (National School Violence Survey, 2007). The main forms of aggression reported are psychological (22.2%), physical (17.7%), discrimination or rejection (13.5%), continual threats or harassment (11.1%), attacks on personal property (9.6%), assault with a weapon (4.3%) and sexual violence (3%).

In Argentina, almost a third of secondary students report having school supplies or other objects they have taken to school broken (32%). Between 12% and 14%, depending on the grade, have experienced verbal bullying (shouting, mocking and insults); 10% say they have been threatened by a peer and 8% have experienced social bullying (exclusion). Lastly, just over 7% say they have been struck by a classmate and 4.5% say they have been robbed with intimidation or by force (García, 2010).

3. Effects of bullying on learning and school achievement

This brief review concludes by sharing the main findings of research on bullying and its implications for students' learning and achievement.

On the basis of data for 2001 and 2002, a group of researchers analysed the relationship between bullying, school attendance, academic achievement, self-perception, and sense of belonging and security among primary pupils in urban public schools in the United States (Glew and others, 2005). The results show 22% of students involved in bullying in some capacity (victim, bully or both). The victims showed a greater likelihood of low achievement and lesser sense of belonging and security than those who did not report being bullied. More recently, a study by Holt, Finkelhor and Kantor (2007) found an association between victimization, psychological distress and academic difficulties in fifth-grade urban primary students in the north-east of the United States.

Research carried out with Greek primary students (Andreou and Matallidou, 2004) looked at the relationship between cognitive outcomes and the role played by students in bullying situations (bully, victim, assistant, reinforcer, defender and outsider). The results suggested associations between cognitions and the roles played by children in bullying.

Luciano and Savage (2007) explored bullying risk in Canadian fifth-grade students with and without learning difficulties, and its associations in terms of cognition and self-perception in inclusive school settings. The findings showed that students with learning difficulties, boys and girls alike, experience more bullying than children

without learning difficulties. This study also found that peer rejection and victimization may reflect the social impact of language difficulties in bullied students.

Research by Skrzypiec (2008) involving almost 1,400 seventh-, eighth- and ninth-graders in Australian primary schools examined the effects of bullying on students' learning and their social and emotional well-being and mental health status. The analysis found that a third of students who had been seriously bullied also reported having serious difficulties in concentrating and paying attention in class because of bullying and the fear associated with it.

In 2007, Plan International, a non-governmental organization, conducted a study on school violence in 49 developing and 17 developed countries. The study identified three main types of violence experienced by children at school: corporal punishment, sexual violence and bullying. The report finds that bullying is common in schools throughout the world and that bullied students often develop concentration problems and learning difficulties (Plan International, 2008).

In Latin America, analyses conducted by UNESCO (LLECE, 2001) in the framework of the first international regional comparative study found better performance in students who reported few violent situations (fights and so on) in school and in those who reported that they had friendships at school.

More recently, the results of a study on school violence conducted in 2002 in 13 state capitals in Brazil (Abramovay and Rua, 2005) showed that 45% of primary and secondary pupils reported that violent incidents prevented them from concentrating on their work. A third said they felt nervous and tired, and another third (between 27% and 34%, depending on the state) acknowledged that bullying affected their motivation to go to school.

Lastly, a recently published study by Konishi and others (2010) examines the links between school bullying and student-teacher relationships and academic achievement in Canadian schools. The study worked with data for almost 28,000 15-year-old students participating in the Programme for International Student Assessment (PISA) conducted by OECD in 2006. Results of multilevel analyses showed that math and reading achievement was negatively related to school bullying and positively related to student-teacher connectedness. In other words, students who reported being bullied or suffering some other form of peer mistreatment showed lower math and reading achievements than their non-bullied peers. Students who reported a better rapport with their teachers also showed higher math and reading achievements.

III

Objectives and methodology

The main purpose of this research is to determine the associations between school bullying and academic achievement in primary-school students in Latin America. It also estimates and analyses the magnitude of peer violence in schools in 16 countries of the region, identifying the socio-demographic factors that appear to be linked to bullying.

The data for the work are obtained from the Second Regional Comparative and Explanatory Study (SERCE) conducted by UNESCO between 2005 and 2009 (LECE, 2008), whose main purpose was to gain insights into the learning acquired by Latin American third- and sixth-grade primary students in math and reading. The UNESCO study applied standardized achievement tests to a sample of third- and sixth-graders in 16 countries, along with context questionnaires for the students, their families, teachers and management of the school establishments involved. School bullying was included only for the sixth-graders; consequently, this part of the study does not work with data for third-graders.

The present work uses multilevel analysis at four levels (student, classroom, school and country) for data for the entire region; and at three levels (student, classroom and school) for the analysis at the country level. Since family data were not collected for objective 3 (Determine the relationship between school bullying and academic achievement) in Mexico, data from that country are not used.

1. Variables

The variables used may be classified in three groups: bullying variables, socio-demographic variables and achievement variables.

There were six variables on bullying, grouped in two major blocks. The first consisted of variables relating to direct experiences of bullying in the past month at school: having been robbed, insulted or threatened, or physically struck or mistreated. The second consisted of variables relating to knowledge of bullying of classmates in the past month, with the same elements as the first: having been robbed, insulted or threatened, or physically struck or mistreated. Another two variables were created to examine the impact of bullying on achievement: “victim of bullying”, a dichotomous variable indicating

whether or not the student reports having suffered some type of aggression; and “classroom violence” prepared on the basis of typified average values for the “victim of bullying” variable for all the children in the class.

Seven socio-demographic variables were used: socioeconomic status of the student’s family, a typified variable based on the parents’ professions and the household possessions; the cultural level of the student’s family, obtained by averaging and typifying the highest qualification obtained by both parents; a dichotomous variable for sex; a dichotomous variable for mother tongue (i.e. whether or not the student’s mother tongue was Spanish); years of preschooling (i.e. the number of years the student attended an educational establishment before compulsory education); socioeconomic level of the school, a typified variable based on the opinion of the principal; and the human development index of the country, based on official data from UNESCO for 2006.

Student achievement variables were performance in math and reading. Both were estimated using item response theory and set to a scale with a mean of 500 and a standard deviation of 50.

2. The sample

Four units of analysis were used for the multilevel study model: country, school, classroom and student. Data were obtained for 16 countries, 2,969 schools, 3,903 classrooms and 91,223 sixth-grade primary students (see table 1). Since the family questionnaires were not administered in Mexico, this country was not included in the study on the impact of bullying on academic achievement; hence for this objective the study related to 2,809 schools, 3,683 classrooms and 86,372 students in 15 countries. The sample was selected in each country using stratified random sampling of conglomerates. The stratification criteria were type of management and geographical area (urban public, urban private and rural); school size (small: school with one section in the grade; medium: with two or three sections in the grade, and large: with four or more sections in the grade), and the ratio between sixth grade enrolment and third grade enrolment ($E6/E3 \geq 0.8$; $0 < E6/E3 < 0.8$; $E6/E3 = 0$; and 3rd grade enrolment = 0). The conglomerates were the schools in the universe. A sample of schools was selected in each stratum, in a

single stage with all the schools in the stratum having equal probabilities of selection. The sample of pupils in each stratum consisted of all the pupils in the schools selected in each stratum.

TABLE 1

Latin America (16 countries): number of schools, classrooms and students examined in each country

Country	Schools	Classrooms	Students
Argentina	167	353	6 696
Brazil	157	245	5 456
Colombia	203	207	6 035
Costa Rica	171	150	4 766
Cuba	206	383	5 910
Chile	165	263	7 025
Ecuador	192	215	5 427
El Salvador	182	235	6 346
Guatemala	231	267	5 560
Mexico	160	220	4 861
Nicaragua	205	250	6 789
Panama	155	247	5 655
Paraguay	209	208	4 839
Peru	165	243	4 701
Dominican Republic	183	114	4 646
Uruguay	218	303	6 511
<i>Total</i>	<i>2 969</i>	<i>3 903</i>	<i>91 223</i>

Source: prepared by the authors.

3. Instruments

The variables described were compiled by means of four types of test:

Information on bullying was obtained from a questionnaire administered to the sixth-grade students in the sample.

The output variables (math and reading achievement) were compiled using standardized tests which were validated for all the countries. The tests used matrix sampling, and were divided into different booklets, testing two dimensions: first, curricular elements known to be common to the region and, second, a life-skills approach. The items in the test were designed to assess comprehensive use of the various codes and rules that form the conceptual fields in each discipline evaluated, with an emphasis on the ability to infer meaning and problem-solving in students' day-to-day lives.

Information on the socio-demographic adjustment variables was obtained from questionnaires administered to the students (gender and mother tongue), their families

(cultural level and socioeconomic status of family and student's years of preschooling) and school address (socio-educational level of the school).

The family questionnaire was not administered in Mexico, so no data were obtained on students' cultural level and socio-demographic status. Accordingly, this country had to be excluded from the analysis of relations between bullying and school achievement.

4. Data analysis

The analysis strategy varied depending on the objective. Accordingly, incidence of bullying in Latin American schools was analysed by performing a simple description for each country. The situation for the region overall was estimated by weighting the results for the individual countries. In order to identify the socio-demographic factors associated with school bullying, a contingency coefficient was estimated for the dichotomous variables and a *Student t* statistic for the scale variables.

The statistics used to determine links between school bullying and academic performance were rather more complex, since here multilevel models were used. First, multilevel models with four levels of analysis were applied. The procedure for each of the output variables was: (i) estimate the null model; (ii) calculate the model with the adjustment variables, and (iii) include the bullying variables (two, in this case: one was a construct for victims of bullying and the other referred to classroom violence) in the adjusted model and estimate the contribution of each.

Thus two multilevel models were estimated (one for each output variable) analogous to:

$$y_{ijkl} = \beta_{0,jkl} + \beta_{1,jkl}NSE_{ijkl} + \beta_{2,jkl}NCult_{ijkl} + \beta_{3,jkl}Pr\ eesc_{ijkl} + \beta_{4,jkl}Mujer_{ijkl} + \beta_{5,jkl}Otra_LM_{ijkl} + \beta_{6l}NSE_esc_{kl} + \beta_{7}IDH_pais_l + \epsilon_{ijkl}$$

$$\beta_{0,jkl} = \beta_0 + \varphi_{0l} + v_{0kl} + \mu_{0,jkl}$$

$$\beta_{1,jkl} = \beta_1 + \varphi_{1l} + v_{1kl} + \mu_{1,jkl} \dots$$

$$\beta_{5,jkl} = \beta_5 + \varphi_{5l} + v_{5kl} + \mu_{5,jkl}$$

$$\beta_{6l} = \beta_6 + \varphi_{6l}$$

with:

$$\begin{aligned} [\varepsilon_{0ijkl}] &\sim N(0, \Omega_\varepsilon) : \Omega_\varepsilon = \begin{bmatrix} \sigma_{\varepsilon_0}^2 \end{bmatrix} \\ [\mu_{0,jkl}] &\sim N(0, \Omega_\mu) : \Omega_\mu = \begin{bmatrix} \sigma_{\mu_0}^2 \end{bmatrix} \\ [v_{0kl}] &\sim N(0, \Omega_v) : \Omega_v = \begin{bmatrix} \sigma_{v_0}^2 \end{bmatrix} \\ [\varphi_{0l}] &\sim N(0, \Omega_\varphi) : \Omega_\varphi = \begin{bmatrix} \sigma_{\varphi_0}^2 \end{bmatrix} \end{aligned}$$

where:

- y_{ijk} are the different measures of student achievement
- NSE_{ijkl} is the socioeconomic status of the student's family;
- N_Cult_{ijkl} is the cultural level of the student's family;

- $Prescol_{ijkl}$ is the student's years of preschooling;
- $Mujer_{ijkl}$ if the student is female;
- $Otra_LM_{ijkl}$ if the student's mother tongue is not Spanish;
- NSE_escj_{kl} is the socioeconomic level of the school; and
- IDH_pais_k is the country's human development index ranking.

The two bullying variables were then added to these to calculate the contribution made by each factor. Four four-level multilevel models were thus estimated.

On the basis of this data, the contribution of each variable was calculated for each country. Accordingly, 30 three-level multilevel models were calculated for each of the explanatory variables (15 countries x 2 output variables).

IV Findings

Consistently with the aims of the study, the findings were organized in three main categories: an estimate of the extent of bullying in Latin America, a study of the socio-demographic characteristics associated with bullying and an analysis of its impact on school achievement.

1. Extent of bullying

According to the analyses, just over half (51.1%) of sixth-grade primary students had been robbed, insulted or struck by peers at school during the month prior to the data collection. The most frequent sort of aggression was theft (39.4%), followed by verbal violence (26.6%) and, lastly, physical violence (16.5%). This order is the same in all the countries, but the specific figures vary a great deal (see table 2).

Whereas in Colombia over half of sixth-graders report having suffered some sort of theft in the preceding month, the figure for Cuba is only 1 in 10. In the other countries the figure for this category is at least one in three, showing how serious and widespread theft is. The problem is even worse, however, in Colombia, Ecuador, Nicaragua, Costa Rica, the Dominican Republic and Peru (over 45% in all cases).

The pattern is similar in the case of insults or threats, although here Argentina exhibits the highest

figures, followed by Peru, Costa Rica and Uruguay, in all of which over 30% of students report having suffered verbal abuse from another student during the month before data were collected.

Lastly, five countries should a particularly high rate of physical violence among students: Argentina (23.5%), Ecuador (21.9%), Dominican Republic (21.8%), Costa Rica (21.2%) and Nicaragua (21.2%). At the other extreme, Cuba again figures as the country with the lowest percentage of children reporting having been struck recently (only 4.4%).

Different figures are obtained when students are asked if they know anyone in their class who has been robbed, insulted or struck at school in the past month. 62.4% say they know of or have witnessed a bullying incident, of whatever type, at school involving one of their classmates. Specifically, 46.7% stated that one of their classmates had been robbed, 35.7% reported knowing someone in their class who had been insulted or threatened, while 38.9% reported knowing of a classmate who had been struck or hurt in the period (see table 3). Thus theft and then physical aggression were the most reported acts of violence.

There were large differences between countries in all cases. In four (Colombia, Panama, Argentina and Costa Rica), over 70% of students reported knowing

TABLE 2

Latin America (16 countries): percentage of six-grade primary students who report having been robbed, insulted or struck in the past month, by country

Country	Robbed	Insulted or threatened	Physically bullied	Any bullying incident ^a
Argentina	42.09	37.18	23.45	58.62
Brazil	35.00	25.48	12.94	47.62
Colombia	54.94	24.13	19.11	63.18
Chile	32.54	22.43	11.55	43.08
Cuba	10.55	6.86	4.38	13.23
Costa Rica	47.25	33.16	21.23	60.22
Ecuador	47.60	28.84	21.91	56.27
El Salvador	33.42	18.63	15.86	42.55
Guatemala	35.56	20.88	15.06	39.34
Mexico	40.24	25.35	16.72	44.47
Nicaragua	47.56	29.01	21.16	50.70
Panama	36.99	23.66	15.91	57.32
Paraguay	32.23	24.11	16.93	46.34
Peru	45.37	34.39	19.08	44.52
Dominican Republic	45.79	28.90	21.83	59.93
Uruguay	32.42	31.07	10.10	50.13
<i>Total for Latin America^b</i>	<i>39.39</i>	<i>26.63</i>	<i>16.48</i>	<i>51.12</i>
<i>Average</i>	<i>38.72</i>	<i>25.88</i>	<i>17.20</i>	<i>48.67</i>

Source: prepared by the authors.

^a Percentage of students reporting having suffered some type of bullying (of whatever type) at school during the past month.

^b Results for Latin America as a total calculated by weighting the results for each country.

TABLE 3

Latin America (16 countries): percentage of six-grade primary students who report knowing a classmate who has been robbed, insulted, threatened or struck in the past month, by country

Country	Robbed	Insulted or threatened	Physically bullied	Any bullying incident ^a
Argentina	53.60	49.61	50.23	74.67
Brazil	45.89	36.89	42.27	67.04
Colombia	58.60	33.21	38.29	72.83
Chile	42.04	29.69	25.13	57.36
Cuba	12.07	7.38	7.42	16.25
Costa Rica	63.34	47.67	48.25	78.56
Ecuador	53.25	33.67	38.95	65.99
El Salvador	41.92	24.29	31.52	55.21
Guatemala	43.21	24.93	31.58	57.66
Mexico	47.19	32.88	33.98	56.88
Nicaragua	60.55	39.95	47.08	63.87
Panama	47.64	36.88	38.57	73.99
Paraguay	38.43	29.37	31.73	63.41
Peru	49.40	42.68	42.16	56.00
Dominican Republic	46.55	35.41	38.79	69.98
Uruguay	45.56	45.49	42.98	60.08
<i>Total for Latin America^b</i>	<i>46.72</i>	<i>35.74</i>	<i>38.91</i>	<i>62.42</i>
<i>Average</i>	<i>46.82</i>	<i>34.37</i>	<i>36.80</i>	<i>62.24</i>

Source: prepared by the authors.

^a Percentage of students reporting having suffered some type of bullying (of whatever type) at school during the past month.

^b Results for Latin America as a total calculated by weighting the results for each country.

someone in their class who had been bullied, in whatever way. Cuba alone stood at the other extreme (16%). The rest ranged from 55% (El Salvador) to 70% (Dominican Republic.)

In Costa Rica and Nicaragua, 63.3% and 60.1% of six-graders, respectively, reported that someone in their class had had something stolen recently. The figure was over 50% in another three countries —Colombia, Argentina and Ecuador— and below 40% in only two: Paraguay (38.4%) and Cuba (12.1%).

More than 40% of children in Argentina, Costa Rica, Uruguay and Peru say they know someone in their class who has been insulted or threatened. Over 40% of children reported having experienced physical violence in Argentina, Costa Rica, Nicaragua, Uruguay, Brazil and Peru. Cuba and Chile report the lowest figures in relation to physical violence (7.4% and 25.1%, respectively).

2. Socio-demographic characterization of bullying

The second objective of this study was to identify student socio-demographic variables keyed to bullying. The variables analysed were: gender, family socioeconomic status and cultural level and area of residence (rural or urban).

The data indicate the existence of a statistically significant relationship between gender and having been robbed, insulted, threatened or physically bullied. The chi-squared test clearly shows that the three dependent variables examined (having been robbed, verbally bullied or physically bullied) are statistically related to gender. Boys suffer more thefts, insults, threats, and physical aggression than girls.

These findings were valid for all the countries, but varied from one to another. As shown in table 4, the results of the chi-squared tests performed show an association between bullying and gender in almost all the countries. The exceptions are Cuba, where both genders experience bullying equally across the three dependent variables, and Colombia, Costa Rica, Ecuador, Guatemala, Nicaragua, Panama and Peru, where there are no differences in the number of boys and girls reporting having been robbed in the past month.

The results are clear, too, with respect to area of residence: students in rural areas experience less theft and aggression and fewer insults than those in urban areas. Yet the data show that these differences are the tonic in most countries, but not all (see table 4). In Brazil, Guatemala, Peru and Uruguay no differences were observed at all between rural and urban students for any of the types of bullying.

TABLE 4

Latin America (16 countries): association between bullying and gender and area of residence (rural or urban) by country. Results of contingency coefficient estimation: level of significance

Country	Gender			Area of residence		
	Robbed	Insulted or threatened	Struck	Robbed	Insulted or threatened	Struck
Argentina	0.000	0.000	0.000	0.001	0.006	0.260
Brazil	0.001	0.000	0.007	0.083	0.010	0.738
Colombia	0.117	0.000	0.000	0.000	0.000	0.000
Chile	0.000	0.026	0.000	0.058	0.006	0.417
Cuba	0.179	0.268	0.839	0.000	0.000	0.019
Costa Rica	0.219	0.000	0.000	0.000	0.004	0.222
Ecuador	0.066	0.000	0.000	0.849	0.000	0.000
El Salvador	0.005	0.000	0.000	0.000	0.000	0.003
Guatemala	0.863	0.000	0.000	0.787	0.637	0.601
Mexico	0.000	0.000	0.000	0.001	0.000	0.169
Nicaragua	0.155	0.000	0.010	0.000	0.004	0.007
Panama	0.060	0.001	0.067	0.508	0.002	0.080
Paraguay	0.918	0.000	0.002	0.000	0.000	0.000
Peru	0.513	0.000	0.000	0.665	0.488	0.757
Dominican Republic	0.034	0.007	0.000	0.000	0.020	0.033
Uruguay	0.037	0.000	0.006	0.152	0.054	0.728
<i>Region (16 countries)</i>	<i>0.000</i>	<i>0.000</i>	<i>0.000</i>	<i>0.000</i>	<i>0.000</i>	<i>0.000</i>

Source: prepared by the authors.

The last two analyses sought to determine whether there was any relation between bullying and the cultural and socioeconomic levels of students' families. The findings of the *Student t* statistic for all the students of the region are curious to say the least. These show that:

- There is a relation between having been robbed and the parents' cultural level, but not the family's socioeconomic status.
- There is a relation between having been insulted or threatened and the family's socioeconomic status, but not the parents' cultural level.
- There is a relation between having been struck and the parents' cultural level, but not the family's socioeconomic status.

A detailed review of these relations in each of the countries reveals a rather complex picture (see table 5). Accordingly, family socioeconomic status or cultural level cannot be stated to be linked in any general way with the incidence of bullying, of any type.

3. Impact on academic achievement

As noted earlier, to determine the impact of school bullying on student achievement, first multilevel models were used with four levels to form an overall picture,

then with three levels for the analysis at the individual country level. The first step was to prepare the initial or adjustment models, which include the variables whose effect has to be "discounted" to ascertain the real impact of bullying on academic achievement. Table 6 shows the results of the two initial models. It shows that the seven adjustment variables are linked to student achievement in both disciplines. Reference is also made to both the five student variables (socioeconomic status and family's cultural level, years of preschooling, gender and mother tongue), and the socioeconomic status of the school or human development index of the country.

The two target variables —victim of bullying (student variable, dichotomous) and violence in the classroom (classroom variable, typified)— were then included in each of the two adjusted models. Table 7 shows the contribution of the estimated coefficient in each model, first with each variable separately and then with the two together. Two ideas emerge from the analysis: first, the fact that all the coefficients are statistically significant confirms the relation between bullying and student achievement in reading and math. It may also be observed that the coefficients are practically the same when they are estimated independently and together, which implies that their contribution is additive.

TABLE 5

Latin America (15 countries): relation between bullying and families' cultural level and socioeconomic status by country. Results of *student t* statistic: level of bilateral significance

Country	Family's cultural level			Family's socioeconomic status		
	Robbed	Insulted or threatened	Struck	Robbed	Insulted or threatened	Struck
Argentina	0.000	0.228	0.006	0.000	0.244	0.095
Brazil	0.360	0.797	0.874	0.500	0.189	0.348
Colombia	0.584	0.252	0.345	0.046	0.028	0.926
Chile	0.207	0.377	0.063	0.111	0.076	0.306
Cuba	0.510	0.456	0.020	0.009	0.094	0.207
Costa Rica	0.000	0.012	0.090	0.000	0.020	0.118
Ecuador	0.546	0.135	0.961	0.515	0.916	0.214
El Salvador	0.892	0.981	0.570	0.000	0.002	0.823
Guatemala	0.514	0.438	0.113	0.814	0.463	0.001
Nicaragua	0.002	0.109	0.171	0.000	0.007	0.277
Panama	0.050	0.144	0.951	0.440	0.000	0.218
Paraguay	0.099	0.004	0.016	0.600	0.022	0.007
Peru	0.000	0.038	0.000	0.000	0.021	0.000
Dominican Republic	0.092	0.069	0.954	0.181	0.774	0.214
Uruguay	0.000	0.064	0.757	0.000	0.000	0.007
<i>Region (15 countries)</i>	<i>0.000</i>	<i>0.124</i>	<i>0.000</i>	<i>0.088</i>	<i>0.000</i>	<i>0.167</i>

Source: prepared by the authors.

Note: Mexico is not included, because the family questionnaire was not administered in that country.

TABLE 6

Results of four-level adjusted multilevel models for math and reading achievement

	Math achievement	Reading achievement
	Coefficient (s.e.)	Coefficient (s.e.)
Constant		
Intercept	502.53 (9.25)	495.78 (6.93)
Family's socioeconomic status	2.53 (0.51)	3.27 (0.47)
Family's cultural level	9.20 (0.49)	10.65 (0.45)
Preschooling	1.89 (0.277)	1.96 (0.26)
Gender (male or female)	-7.58 (0.77)	6.31 (0.72)
Mother tongue (Spanish or other)	-14.01 (2.04)	-20.74 (1.80)
School's socioeconomic status	16.67 (1.51)	21.58 (1.26)
Country's human development index	30.66 (9.52)	26.37 (7.11)
Random		
Between countries	1 332.08 (482.25)	741.00 (269.47)
Between schools	2 071.47 (108.92)	1 400.70 (73.03)
Between classrooms	681.89 (53.98)	417.05 (32.17)
Between students	6 459.38 (42.74)	6 185.30 (39.14)

Source: prepared by the authors.

Note: all coefficients are significant at $\alpha=0.05$.

s.e.: standard error.

TABLE 7

Coefficients and standard error of bullying variables based on multilevel models for each of the variables examined, estimated independently and together

	Independent estimation		Combined estimation	
	Math achievement	Reading achievement	Math achievement	Reading achievement
	Coefficient (s.e.)	Coefficient (s.e.)	Coefficient (s.e.)	Coefficient (s.e.)
Victim of bullying (level 1)	-9.55 (0.81)	-9.68 (0.75)	-9.40 (0.81)	-9.53 (0.75)
Violence in the classroom (level 2)	-7.32 (1.05)	-5.92 (0.83)	-6.88 (1.05)	-5.60 (0.84)

Source: prepared by the authors.

Note: all coefficients are significant at $\alpha=0.05$.

s.e.: standard error.

Two conclusions may be drawn from this:

- A primary student in Latin America who reports having been robbed or physically or verbally bullied has a significantly lower level of reading and math achievement than students who have not.
- Students in classroom settings with a higher incidence of theft or physical or verbal bullying also score worse in reading and math than those in classrooms with a lower level of violence.

The procedure for analysing the impact of bullying on student achievement in each of the 15 Latin American countries examined is the same as that used for the countries as a group, except that three-level models are used for the data.

The findings of the study on the effect of being a victim of bullying on student achievement in each country (see table 8) clearly indicate that the impact exists to a greater or lesser extent throughout the region. The data show that the contribution of this variable is significant for reading but not for math in Chile, Ecuador and the Dominican Republic, and significant for math but not for reading in Colombia and Cuba.

It is also readily observed that the countries with a higher level of bullying also show a lower impact of bullying on achievement. It may be supposed that where bullying is widespread it makes less difference to performance inasmuch as it affects all students equally.

The impact of the variable “classroom violence” on student achievement in each country was also examined (see table 9). The results place the countries in three groups: (i) those in which reading and math achievement are clearly influenced by violence in the classroom setting (Brazil, Chile, Cuba, Ecuador, Nicaragua, Paraguay and Uruguay); (ii) those in which classroom violence shows no impact on either measure

of achievement (El Salvador, Guatemala, Panama and Peru), and (iii) those in which the impact is seen in either reading (Argentina and Colombia) or math (Dominican Republic).

The study therefore produced clear empirical evidence on the relation between bullying and school achievement for the Latin American countries as a group and for each of the 15 countries individually.

TABLE 8

Latin America (15 countries): coefficients of the variable “victim of bullying” based on three-level multilevel models, by country

Country	Achievement	
	in math	in reading
Argentina	-7.84*	-13.19*
Brazil	-12.21*	-9.85*
Chile	-9.57	-8.07*
Colombia	-6.68*	-2.44
Costa Rica	-17.61*	15.97*
Cuba	-16.32*	-7.88
Ecuador	0.19	-8.99*
El Salvador	-7.61*	-9.95*
Guatemala	-9.52*	-11.37*
Nicaragua	-6.93*	-7.65*
Panama	-8.90*	-12.78*
Paraguay	-13.82*	-13.78*
Peru	-6.74*	-10.03*
Dominican Republic	0.64	-7.17*
Uruguay	-10.32*	-9.80*
<i>Total for Latin America</i>	-9.55	-9.68

Source: prepared by the authors.

Note: bold type denotes coefficients significant at $\alpha=0.05$.

Data for Mexico are not included because the family questionnaire was not administered in that country.

* Indicates that the variable is significant at $\alpha=0.05$.

TABLE 9

Latin America (15 countries): coefficients of the variable “violence in the classroom” on the basis of three-level multilevel models, by country

Country	Achievement	
	in math	in reading
Argentina	-11.46*	-6.31
Brazil	-11.17*	-11.49*
Chile	-18.48*	-9.40*
Colombia	-6.47*	-1.61
Costa Rica	-6.62	-12.49*
Cuba	-13.45*	-5.33*
Ecuador	-12.54*	-7.89*
El Salvador	-3.31	-3.00
Guatemala	1.27	-0.57
Nicaragua	-6.20*	-5.87*
Panama	-4.06	-6.41
Paraguay	-7.82*	-8.24*
Peru	-1.14	-1.34
Dominican Republic	-3.55	-8.48*
Uruguay	-8.04*	-5.18*
<i>Total Latin America</i>	-7.32	-5.92

Source: prepared by the authors.

Note: bold type denotes coefficients significant at $\alpha=0.05$.

Data for Mexico are not included because the family questionnaire was not administered in that country.

* Indicates that the variable is significant at $\alpha=0.05$.

V

Discussion

The outcomes of this research are consistent with the findings of regional and international studies and reviews on the problem of bullying, its magnitude and its impact on learning and academic achievement. As well as backing up earlier findings, however, it also contributes a specific perspective for Latin American students and a comparison between the countries of the region.

1. Scope or magnitude of bullying

This study reports on and analyses the phenomenon of bullying from two different perspectives: being a victim of bullying, and knowing of or having witnessed a classmate being bullied. The figures show that just over half of sixth-graders in Latin American primary schools had directly suffered some sort of violence at the hands of their peers in the month before the data collection, and almost 62% had witnessed such an incident. It is therefore possible that more students are victims than the study outcomes suggest, since children often do not like to acknowledge that they have been bullied, even in an anonymous questionnaire.

These results coincide with the findings of previous research inasmuch as they show that bullying in all its forms is present and widespread in schools throughout the world (Abramovay and Rua, 2005; Ortega, 2005; Blaya and others, 2006; Smith, Kanetsuna and Koo, 2007; Berger, Rodkin and Karimpour, 2008). They differ, however, with respect to the magnitude of the phenomenon in other regions. For example, the study by Dake, Price and Telljohann (2003) for Europe found bullying rates ranging from 11% among primary students in Finland to 49% in Ireland. Skrzypiec (2008) looked at different degrees of bullying and found that it affected 48% of primary students in Australia, who reported being seriously or mildly bullied. For the group of OECD countries, the percentage of students reporting primary school bullying is 26% (OECD, 2009). In the case of the United States, the figures show that around 20% of students have been bullied (Glew and others, 2005; Dake, Price and Telljohann, 2003).

This comparison suggests that school bullying in Latin America is of a greater magnitude than in other regions, and is especially serious and complex in some of the region's countries. Whereas 63% of primary students

report having suffered bullying in Colombia, the figure is only 13% in Cuba. This broad spectrum may be divided into three groups of countries. In the first, over half of students report having experienced some type of bullying (Colombia, Costa Rica, Argentina, Ecuador, Panama and the Dominican Republic); in the second, bullying victims represent between 40% (Uruguay, Paraguay, Nicaragua) and 50% (Brazil, Peru, Mexico, Guatemala, El Salvador and Chile) of the total, and third is Cuba on its own, with only 13%. Accordingly, preventive action and measures to reduce bullying need to be different from one country to another.

With regard to Latin America, there are still few studies examining the magnitude of school bullying at the national level and none at the regional level, which makes the research conducted here all the more important.

2. Type of bullying

The study identifies and researches three main types of bullying: robbery, insults or threats and physical aggression. The analysis found that the acts of bullying most reported were robbery, followed by insults and threats. After that came physical aggression in any of its forms. The results are also consistent with those on the main forms of school bullying reported in the international literature. The evidence available shows that among the most significant forms are insults (verbal aggression), name-calling and nicknames, physical aggression, blows, robbery, threats, rumour-spreading and social exclusion or isolation (Whitney and Smith, 1993; Owens, Daly and Slee, 2005, García, 2010).

3. Variables associated with bullying

Based on the analyses of student socio-demographic variables and their relation with physical or verbal aggression, it may be concluded that more boys than girls suffer all forms of bullying (physical, psychological and verbal) in Latin American schools and it is more widespread in urban than in rural areas. These findings again reaffirm those reported in the international research, which report that both gender and age affect the magnitude of bullying and the form it takes. Male students are found to be involved mostly in physical

aggression, and female students mostly in social or psychological forms of bullying (Pellegrini and Long, 2002, Skrzypiec, 2008). This difference does not emerge in the present study, in which it can be affirmed only that in Latin America primary schools boys experience more robbery, insults, threats and physical aggression than girls. It was also found that robbery, insults, threats and physical aggression are less frequent among pupils of rural schools than those attending urban schools.

4. Impact of bullying on achievement

The study supports the conclusion that primary students who have been bullied at school show significantly poorer math and reading achievement than those who have not. Students in classes in which physical or verbal aggression is more common also show lower achievement levels than students in less violent classroom settings. Consequently, it may be argued that both being bullied and witnessing the bullying of a classmate have a negative impact on achievement levels among Latin American primary students.

These important findings bear out the contributions of international literature and research in which it is found that bullying has a deleterious effect on student achievement, regardless of the role played by individual students in the aggression. First, they ratify the findings of the first regional comparative and explanatory study in Latin America and the Caribbean (LLECE, 2001), which

showed better school performance among students who reported little bullying at school.

Similar conclusions were reached by Glew and others (2005), whose study found a greater probability of low achievement among primary students who had been bullied in the United States. Lastly, our findings coincide fully with the recently published study by Konishi and others (2010) on the links between bullying and school achievement in Canadian students. By means of a multilevel analysis, the present study concludes that those students reporting being bullied achieved lower scores in math and reading than peers who did not report being bullied.

Lastly, the data support the statement that countries with a higher rate of school bullying are also those in which students' achievement is the least affected by bullying. It appears that the effect of bullying on achievement is cancelled out where bullying is generalized or, put in another way, in contexts of widespread bullying the effect on school achievement is smaller and in some cases disappears altogether.

Unfortunately, no information is available from other studies with which to compare the findings of this research. Further research is therefore needed, not only because of the importance of the issue in relation to students' cognitive performance, but also because of its implications for school settings in which bullying is part of the ways of relating and coexistence of the student body overall, i.e. the school culture.

VI Conclusions

This section offers a number of conclusions that, far from closing the discussion, point up the importance of taking bullying seriously at both the global and local levels, and generating relevant alternatives to help prevent and reduce it.

1. School bullying: a new challenge for schools and teachers in Latin America

One of the basic conditions that must be fulfilled in order for students to develop fully, learn and acquire knowledge is the ability to attend school without fear, in a safe and motivating environment. Promoting and strengthening positive and non-violent peer relations

is therefore essential for students to co-exist happily at school and learn. Children who are bullied are significantly affected not only emotionally and behaviourally, but also in terms of their ability to learn and achieve in disciplines that are essential for their education and development.

Yet episodes of violence and acts of bullying are most often invisible to teaching staff, which makes it more difficult to respond and intervene to prevent or eradicate them. It is not easy, nor can it be, for teachers to recognize the codes, languages, signs and practices through which students bully or harass each other. Nevertheless, bullying must be eradicated as a matter of urgency in the interest of achieving quality education.

2. School systems and their responsibility in the forms and magnitude of bullying

The significant differences observed in bullying from one country to another invite us to reflect upon the factors within schools and education systems that could influence this serious and complex phenomenon. We must at least ask which elements or dynamics in school systems could be generating or encouraging violent or aggressive forms of relating: perhaps, for example, more competitive or success- or achievement-oriented national systems or practices of exclusion. In other words, the education system and schools must not only take responsibility in preventing and reducing bullying, but also hold themselves accountable for its origin and forms of expression.

3. Relevant and differentiated strategies for preventing and reducing bullying

In the past few years many programmes and policies have been put in place with the aim of improving the day-to-day relations within schools. Most of these, however, focus on the institution and seek to regulate—through teaching staff— acceptable and desirable student behaviour. It is quite clear that these strategies will not work unless they are designed and built in way that is student-centred, based on the dynamics and subjectivities of students and their interests, motivations, strengths and weaknesses.

School bullying also needs to be approached differently depending on the level of schooling, the school

setting and the gender of the students. The outcomes of this research confirm international findings on the alarming figures relating to bullying in primary schools, and the differences in the type of violence between boys and girls and between rural and urban schools.

4. The risk of treating bullying as a normal type of peer relations

The small effect of victimization on student achievement in countries with high rates of bullying raises at least two questions. First, the seriousness of treating bullying and aggressive forms of relating with peers as normal and habitual and, consequently, failing to take action to denounce, reduce or prevent it. Usually the existence or gravity of a problem is brought to light through its impacts or consequences. Accordingly, it is much more difficult to prevent or reduce violent behaviour when it appears to have no effect on school achievement.

Second, it is important to understand and turn a spotlight on the consequences for students' personal and social development. Growing and learning in a hostile setting is a far cry from doing so in a positive and non-violent environment, however true it is that "most of my classmates are in the same situation". Schools in which violence and bullying has become the norm are in no position to build the tolerance, cooperation, solidarity and other principles and values which are essential pillars for fairer, more democratic and inclusive societies.

(Original: Spanish)

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