Effects of Perceived Discrimination on the School Satisfaction of Brazilian High School Graduates

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School satisfaction studies derive from a substantive line of research within sociology and social psychology related to subjective well-being. Whereas life satisfaction is perceived as an overall evaluation of life circumstances, school satisfaction is conceptualized as an evaluation of a particular life domain experience (Baker 1998; Diener 2000) that often presages satisfaction with overall life satisfaction later in life (Suldo et al., 2006; Natvig et al., 2003; Huebner & McCullough, 2000). In this paper we analyze satisfaction with the school environment in Brazilian high schools. Controlling for variables known to affect satisfaction, including race, gender, and socioeconomic status (Myers, 2000; Valente & Berry 2016a, 2016b) we focus on the effects of perceived discrimination on seniors' satisfaction with their schools and compare these with the effects recalled by older graduates deciding to apply to college later in life (hereafter the "nontraditionals").

Our analysis builds upon an increasing body of research that has dealt with children and adolescents' well-being, including their perception of the overall quality of their lives and of their schooling (Baker, 1998; Huebner, 1994; Huebner et al., 2009). This school satisfaction literature deals primarily with developed countries. In these studies, adolescents report their overall life satisfaction similarly to adults (Proctor et al., 2009; Diener & Diener, 1996; Epstein & McPartland, 1976; Huebner et al 2001) and those who

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are very satisfied with their lives extend this satisfaction over a range of intrapersonal, interpersonal, and school-related domains (Gilman & Huebner, 2003). Those who report dissatisfaction also evidence risky behavior (c.f. alcohol and drug use, sexual risk-taking) and a range of detrimental attitudes (suicide thinking, eating disorders, aggressive behavior, etc.; Proctor et al., 2009).

Comparable research on Latin America is almost nonexistent. Graham and Pettinato (2001) were the pioneers, finding that the determinants of happiness in Latin America are remarkably similar to those in the United States. One large scale study of high school students in the United States found that nearly one-quarter of the students reported dissatisfaction with their overall school experiences and an additional nine percent described their school experience as awful (Huebner & McCullough, 2000). The authors concluded that school dissatisfaction could contribute to a decreased quality of life and be a significant source of stress. Of Latin American studies, none have focused on school satisfaction however (Rojas, 2006; Graham & Felton, 2006; Lora, 2008; Ateca-Amestoy et al., 2014; Valente & Berry, 2016a, 2016b;) and few on the effects of discrimination.

DeSouza et al. (2005) investigated bullying and sexual harassment among 400 Brazilian high school students from two high schools (one private and one public) focusing on the characteristics and motivations of bullies. Marriel et al. (2006) studied the relationship between self-esteem and acts of physical and psychological violence among high school students in Rio de Janeiro. Students with low self-esteem were found to be more likely to have been victims of violence in school and to have found it more difficult to adjust to school. Two other Brazilian studies used discrimination and prejudice to measure prevalence of bullying and violence in schools. Grossi and Santos (2009) associated "perceived prejudice" with bullying in middle school in Porto Alegre, Brazil, finding that prejudice was observed by 70 percent of students surveyed while de

Almeida et al. (2009) researched middle schools in São Paulo and found that 93,3 percent of teachers surveyed (n=28) witnessed some form of discrimination during the school year, the different types of prejudice including age, sexual orientation, style of clothing, race, socioeconomic status, religion, physical appearance, etc.

Most forms of harassment in schools originate from discrimination manifested as bullying of the disadvantage person, based on how the student looks, dresses, acts, speaks, where s/he is from, or simply by being him/herself (Center, 2013). This can lead to physical violence, exclusion, peer harassment, sexual and psychological abuse, and cyber-bullying. Such discrimination is detrimental to students' performance, contributes to dissatisfaction with the school experience, and leads to low self-esteem, dropouts, and more serious consequences like suicides (Marriel et al. 2006).

Much of the extant research on this topic deals with European cases (Glover et al., 2000; Smith & Brain, 2000; Aviles Martinez & Monjas Casares, 2005; Baldry & Farrington, 2005), and North America (Nansel et al., 2001; Berthold & Hoover, 2000; Pellegrini & Long, 2002; Rosenbloom & Way, 2004; Newman et al., 2005). Apart from the studies already cited, Brazilian research on the topic is scant. We therefore aim in this paper to bolster the available research by analyzing the effects of perceived discrimination on the school satisfaction of an entire cohort of 2.4 million graduating high school seniors. We explore the consequences for school satisfaction of the perception of having been discriminated against and of observing acts of discrimination against someone else. Six types of discrimination are identified[3] (by race, socioeconomic status, gender, sexual preference, religion and disability) in models that control for a variety of other factors known to affect school satisfaction. A novel feature of our models is that they enable us

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[3]The ENEM survey only covers 6 questions on discrimination.

to associate differences in school satisfaction with each different type of discrimination and to scale the types by the relative magnitude of their impact.

Method – Data and Model

At the center of our research is the ENEM questionnaire. The Exame National do Ensino Médio (The National Exam of Secondary Education- ENEM) was created in 1998 by the Instituto Nacional de Estudos e Pesquisas Educacionais (National Institute of Studies and Educational Research- INEP) in cooperation with the Brazilian Ministry of Education to assess the performance of students as they conclude high school, analyze their school satisfaction, and determine whether or not the schools had prepared their students for college.

ENEM is given yearly to graduating seniors and older high school graduates looking to attend college. From 1998 to 2008 the exam was divided into two parts: an objective part with 63 multiple-choice questions and an essay part. In 2009 the exam changed and now has 180 multiple-choice questions in five main areas (natural sciences, social sciences, math, Portuguese, foreign language and an essay). Many universities use the ENEM score as a supplement to their admission exam, while others use it as the sole criterion for admission. Thus, although not mandatory, the ENEM has a high turnout rate of students seeking to secure a university spot. In 2012, about 6.5 million students took the exam (INEP, 2012).

Once the student registers to take the ENEM, a socio-economic questionnaire along with a student manual is sent to the candidate's home. The students are asked to fill out the questionnaire and turn it in at the site of examination before taking the ENEM exam. The questionnaires for the years of 2004-2008 have a total of 223 multi-choice questions,

divided into five sections titled: 'You and Family' 'You and Work' 'You and School' 'Values' and an extra section only for students who had already graduated from high school. In 2010, the socio-economic questionnaire was drastically changed and reduced to only 25 questions and questions about discrimination were excluded. Because for the years of 2004 to 2008 all questions relevant for this study were exactly the same, this time frame was selected for our investigation. The individual students who took the examination are the units of analysis.[4]

Our concern is the effect of discrimination perceived by students on their school satisfaction, and we thus began our research by formulating a null hypothesis which states:

> There is no difference in the relationship between school satisfaction and
>
> the perception of being a victim of discrimination, ceteris paribus.

Rejection of the null implies that a relationship exists, although with some chance (measured by the significance level) that the null might still be true.

The structural model tested has the following form:

$$y_{id}^* = \beta_0 + \beta_1 victim_{id} + \boldsymbol{\beta}_i \boldsymbol{X}_i + \varepsilon_i$$

The dependent variable *satisfaction, y_{id}* , where *i* is the observation, and *d* is the type of discrimination, is defined as the student's judgment of his or her school experience as a whole (Huebner, 1994), and is derived from the last question in the questionnaire after a series of 45 other questions[5] regarding school related experiences including teacher's performance, course curriculum, school infrastructure, school administration, time and location of school, classroom environment, and students' relations with teachers . It is measured on a scale of 0 (low) to 10 (high) based on individual responses to the question

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[4]The rough data can be found at: http://portal.inep.gove.br/basica-levantamentos-acessar

[5]These questions are available in the ENEM Leia-Me files under the section "Você e os Estudos."

"Overall score for evaluation of secondary education received"[6] so that

$$
y_{id} = \begin{cases}
0 \; if \; \tau_0 = -\infty \leq y_{id}{}^* < \tau_1 \\
1 \; if \; \tau_1 \leq y_{id}{}^* < \tau_2 \\
2 \; if \; \tau_2 \leq y_{id}{}^* < \tau_3 \\
3 \; if \; \tau_3 \leq y_{id}{}^* < \tau_4 \\
4 \; if \; \tau_4 \leq y_{id}{}^* < \tau_5 \\
5 \; if \; \tau_5 \leq y_{id}{}^* < \tau_6 \\
6 \; if \; \tau_6 \leq y_{id}{}^* < \tau_7 \\
7 \; if \; \tau_7 \leq y_{id}{}^* < \tau_8 \\
8 \; if \; \tau_8 \leq y_{id}{}^* < \tau_9 \\
9 \; if \; \tau_9 \leq y_{id}{}^* < \tau_{10} \\
10 \; if \; \tau_{10} \leq y_{id}{}^* < \tau_{11} = \infty
\end{cases}
$$

Because such scale is ordinal[7] (it is unknown what the relative difference between the categorical levels of perceived quality of education is) the proper model to test the hypothesis is ordered logit (Scott, 1997).

In the model the main independent variable $victim_{id}$ is based on a serious of answers to the question, *"Have you ever been discriminated against due to (type of discrimination)?"* (coded 1=*yes*, 0=*no*) i.e. by the perception/judgment students had of being discriminated against. Previous studies have found that name calling and teasing are among the most common forms of peer victimization, along with social exclusion (Smith & Brain, 2000; Verkuyten & Thijs, 2001; Borg, 1999; Verkuyten & Thijs, 2006). Since many forms of peer victimization tend to be interpreted as discrimination

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[6]Original in Portuguese: "Nota para a formação que obteve no ensino médio."

[7]Since satisfaction is measured from 1 (low) to 10 (high) the order of categories is meaningful, but the distances between them are arbitrary. Using OLS with an ordinal dependent variable violates many of the OLS regression assumptions and may lead to model errors and incorrect data interpretation, as it assumes that the distance from 1 to 2 equals that of 7 to 8, for example.

(Verkuyten & Thijs, 2006), we examine all perceived types[8] asked in the ENEM survey: racial/ethnic, socioeconomic, gender, sexual, religious, disability and others.[9] Although relying on perception can underestimate or overestimate discrimination it is an important way to capture cognitions, norms and values (Pager & Shepherd, 2008; Reis, 2011).

The control variables[10] included in X_i include age, race,[11] gender, income, and marital status. These are all correlated with subjective well-being (Myers, 2000). We also include type of high school, public vs. private, and attendance in prep courses,[12] parent's education and others listed in Table 1. When mothers' and fathers' educations were listed as unknown, a dummy variable was created for the missing data. A *favela* variable was created to identify students who live in *favelas* based on three criteria, students who lived in an urban area, and had no running water and no pavement on the street of their homes.[13] We also control for regional differences by including regional dummies in all models that fix effects for omitted variables.

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[8]According to Leão and Carvalho (2011) individual characteristics that heighten risks of being victimized in Brazilian schools include sexual orientation, handicap, race, weight, height, hygiene and physical appearance.

[9]"Other" includes discrimination due to age, origin, or other characteristics such as weight, height, and hygiene.

[10]Data limitations prevented the use of multilevel modeling to account for the variability associated with the clustering of students within a given school, since individual school data was not available, except for type of high school (private vs. public).

[11]The racial classification nonwhites should, in theory, also include indigenous people and Asians. However, because these groups are so small in Brazil and because the Asian group tends to be privileged in its socio-economic characteristics, they were excluded from the analysis.

[12]There is clear evidence that the performance of students in public school is much inferior to students in private schools, and that the quality of public schools is inferior to private schools (Valente 2016a, 2016b; Valente & Berry, forthcoming; Telles 2014; Guimarães & Sampaio 2007; Sampaio & Guimarães 2009). In addition, wealthier students are able to afford preparatory courses (curso pré-vestibular) that are specifically designed to prepare students to take the *vestibular* exam and can be very expensive.

[13]Favelas are squatter settlements, or slums, in urban areas.

The complete dataset comprises students who registered for the ENEM exam throughout the 27 states of Brazil during the years of 2004-2008. Since the data come from different years, all models also include time fixed effects. Such a specification simply tests whether there are contextual effects due to yearly differences that are unaccounted for.

On average, one-third of students who registered for the ENEM exam either did not complete the socio-economic questionnaire or did not show up to take the test. Thus, these respondents were not included in the analysis. The remaining two-thirds are students who aspire to go to the university. Of these, we analyzed students who graduated during the 3 years prior to taking the exam or graduated in the year of the exam. This yielded about i=2.5 million students. In addition, there were older students who joined the work force and took the ENEM exam later when they decided to try to get into college. These nontraditional students are also analyzed for comparison purposes. In the literature there is little agreement regarding how those students should be defined[14] (Hughes, 1983; Johnson & Nussbaum 2012; Kim et al., 2010). Most studies consider non-traditional students to be older than 25, so we used this age cut-off, thus analyzing nontraditional students between the ages of 25 and 65 who had graduated high school more than three years prior to taking the ENEM exam (Bill 2003; Christie 2009, Hudson et al., 2008, Mello 2004, Norris 2011). This resulted in roughly i=78.7 thousand nontraditional students for our analysis.

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[14]Nontraditional student's is a fluid concept within the literature and its meaning is likely to vary depending on the societal, geographical and systematic context in which the research is conducted (Chung et al. 2014).

Table 1: Student-level variables included in **X**.

Variable	Definition and Source
Victim	Comprises the following:
Race	Have you ever suffered racial or ethnicity discrimination? 1(yes); 0(no)
Socioeconomic Status	Have you ever suffered discrimination due to socioeconomic status? 1(yes); 0(no)
Gender	Have you ever suffered gender discrimination (or discrimination for being a women or men?) 1(yes); 0(no)
Homosexual	Have you ever suffered discrimination because you are (or appear to be) homosexual? 1(yes); 0(no)
Religion	Have you ever suffered religious discrimination? 1(yes); 0(no)
Disability	Have you ever suffered discrimination for being handicap or having special needs? 1(yes); 0(no)
Other	Suffered discrimination for another reason(s)? 1(yes); 0(no)
If any applies	If any of the above applies: 1(yes); 0(no)
Non-white	Non-white (Black, Mulatto): 1(yes); 0(white)
Female	1(female); 0(male)
Age	Student's age
Family Income	All wages and other incomes by monthly minimum wage:
less than 2 mw	1(yes); 0 (otherwise) (Reference Category)
2 to 5 mw	1(yes); 0 (otherwise)
5 to 10 mw	1(yes); 0 (otherwise)
10 to 30 mw	1(yes); 0 (otherwise)
30 or more mw	1(yes); 0 (otherwise)
Public School	Type of high school attended: 1(public school); 0(private school)
Prep Course	Did you do a preparatory course for the vestibular examination? 1(yes); 0(no)
Father's education	
Less than High School	1(yes); 0 (otherwise) (Reference Category)
High School Graduate	1(yes); 0(otherwise)
Some College	1(yes); 0(otherwise)
College Graduate	1(yes); 0(otherwise)
Unknown	Student does not know father education 1(yes); 0(otherwise)
Mother's education	
Less than High School	1(yes); 0 (otherwise) (Reference Category)
High School Graduate	1(yes); 0(otherwise)
Some College	1(yes); 0(otherwise)
College Graduate	1(yes); 0(otherwise)
Unknown	Student does not know mother education 1(yes); 0(otherwise)
Married	1 (married or living together as married); 0(otherwise)
Children	1(have children); 0(no children)
Work	Did you work while in high school? 1(yes); 0(no)
Southeast	If students are from the following states: SP, RJ, MG and ES 1(yes); 0(no)
Urban	Location of school is in Urban area 1(yes); 0(otherwise)
Favela	Comprises the following:
Pavement	Is your house on a paved street? 1(no); 0(yes)
Water	Does your house have running water? 1(no); 0(yes)
Location	Do you live in an urban area? 1(yes); 0(otherwise)

Findings: Traditional Students

The mean school satisfaction rating was 7.13 (min 0, max 10, s.d. 1.64), indicating that overall, graduating seniors in Brazilian high schools were quite satisfied with their school experience, but students who claimed to have experienced discrimination had lower levels of school satisfaction, as shown in Figure 1 by type of perceived discrimination. Those who identified as disabled or homosexual were the most dissatisfied.[15]
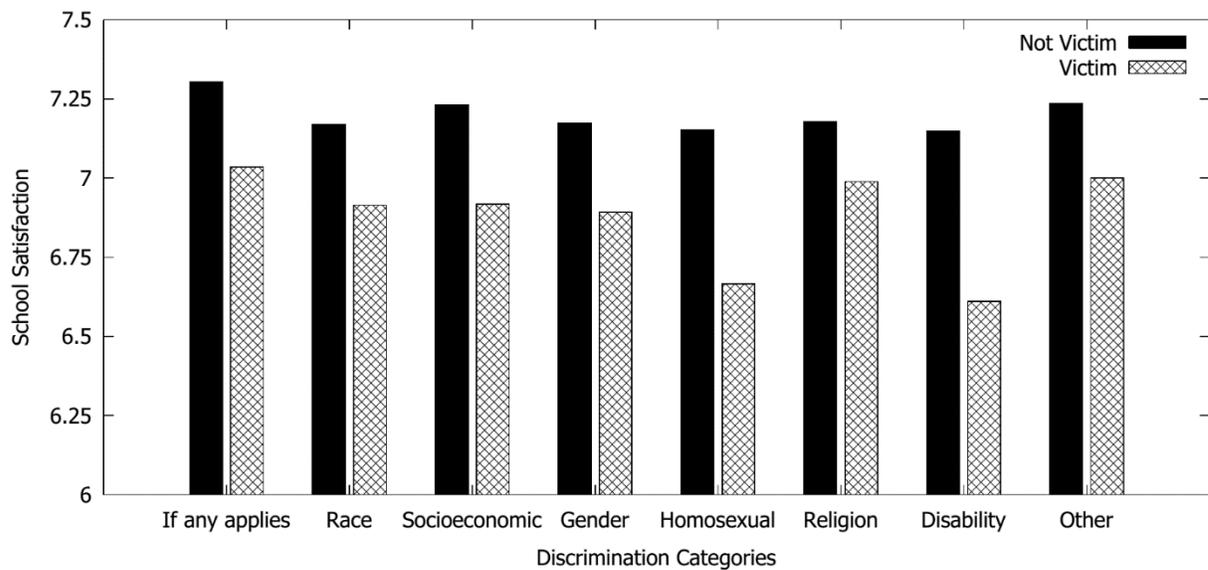

Figure 1: School satisfaction by different discrimination categories. Source: ENEM

Table 2 provides the ordered logistic regressions (OLR). The coefficients in these models are odds ratios, where a value greater than one indicates a positive relationship

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[15]Summary statistics for traditional students are provided in Appendix A.

and a value less than one points to a negative relationship.[16] For all categories of discrimination, affected students rated their school satisfaction lower than other students, holding constant the variables in X_i. In every case the null hypothesis is rejected. The ranking of dissatisfaction by type extends from the greatest, homosexuality (A5 - odds ratio 0.674), through disability (A7 - odds ratio 0.679), through gender (A4 - odds ratio 0.722), through socioeconomic status (A3 - odds ratio 0.730), through other (A7 - odds ratio 0.772), through religion (A6 - odds ratio 0.843), to the lowest source of unhappiness, race (A2 - odds ratio 0.804).

Table 2: Ordered Logistic Regressions of School Satisfaction -Victim (Odds ratios)

Variable	A1	A2	A3	A4	A5	A6	A7	A8
Victims								
if any applies	0.747***							
Race		0.804***						
Socioeconomic			0.730***					
Gender				0.722***				
Homosexual					0.674***			
Religion						0.843***		
Disability							0.679***	
Other								0.772***
Nonwhite	0.988***	0.994*	0.975***	0.967***	0.967***	0.974***	0.965***	0.975***
Female	1.160***	1.142***	1.135***	1.201***	1.137***	1.154***	1.144***	1.152***
Age	0.979***	0.978***	0.983***	0.977***	0.977***	0.977***	0.978***	0.977***
Income								
2 to 5 MW	0.848***	0.856***	0.842***	0.860***	0.857***	0.857***	0.857***	0.852***
5 to 10 MW	0.828***	0.842***	0.815***	0.846***	0.842***	0.841***	0.843***	0.835***
10 to 30 MW	0.927***	0.946***	0.908***	0.949***	0.947***	0.944***	0.948***	0.938***
more than 30 MW	1.109***	1.135***	1.088***	1.140***	1.135***	1.130***	1.139***	1.125***
Publicschool	0.441***	0.442***	0.440***	0.439***	0.441***	0.442***	0.441***	0.439***
Prepschool	1.048***	1.040***	1.045***	1.046***	1.043***	1.043***	1.040***	1.046***
father education								
high school	0.876***	0.880***	0.875***	0.882***	0.881***	0.882***	0.880***	0.876***
some college	0.829***	0.830***	0.827***	0.833***	0.830***	0.831***	0.829***	0.829***
Bachelor	0.915***	0.920***	0.912***	0.921***	0.920***	0.918***	0.918***	0.916***
Graduate	1.034**	1.035**	1.027*	1.039***	1.034**	1.033**	1.033**	1.034**
Unknown	0.825***	0.824***	0.822***	0.822***	0.824***	0.821***	0.820***	0.824***

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[16]For all models we ran the vce (variance-covariance) robust option that does not assume homoscedasticity and normality of the random error terms. In addition, the multicollinearity test collin was run for the model and all variables had very low vif coefficients, well below the threshold that would indicate multicollinearity.

mother education								
high school	0.862***	0.865***	0.863***	0.869***	0.866***	0.866***	0.866***	0.864***
some college	0.860***	0.859***	0.859***	0.864***	0.860***	0.860***	0.859***	0.861***
Bachelor	0.935***	0.939***	0.935***	0.942***	0.938***	0.936***	0.939***	0.939***
Graduate	1.029***	1.032***	1.028***	1.039***	1.031***	1.028***	1.033***	1.036***
Unknown	0.870***	0.877***	0.865***	0.876***	0.878***	0.877***	0.880***	0.875***
Married	1.062***	1.056***	1.066***	1.054***	1.052***	1.064***	1.054***	1.056***
Children	0.956***	0.953***	0.962***	0.963***	0.952***	0.951***	0.953***	0.960***
Work	0.848***	0.834***	0.851***	0.840***	0.831***	0.834***	0.829***	0.842***
Southeast	0.804***	0.813***	0.805***	0.811***	0.813***	0.813***	0.812***	0.804***
Urban	0.733***	0.737***	0.739***	0.735***	0.738***	0.737***	0.736***	0.729***
Favela	1.174***	1.163***	1.170***	1.160***	1.162***	1.161***	1.166***	1.182***
year dummies	yes	yes	yes	yes	yes	yes	yes	yes
N	2483398	2483398	2476395	2469989	2455525	2474400	2463048	2482894

*$p<0.05$, ** $p<0.01$, *** $p<0.001$

The control variables in X_i reveal other important predictors of school satisfaction. In agreement with findings in developed countries (Epstein, 1981; Okun et al., 1990), female students were more likely to be more satisfied with school than male students and younger students are more satisfied than older students. However, nonwhites were more likely to rate their schooling lower than white students. We also find that students from public high schools were extremely dissatisfied with school (coefficients 0.439 - 0.442), whereas those who could afford a prep school were more satisfied (coefficients 1.040 - 1.048). Even after controlling for victimization, income, and parents' education, public school students were on average 55 percent less likely to rate their school satisfaction in higher categories than other students. Income and parents' education also played an interesting role: as parents' education and income increased, students were more satisfied with their school experience. Overall, the more satisfied students belonged to households where parents could afford paying for a better high school education in the private system. Students who work and had children were dissatisfied with school, whereas married students were satisfied. The subjective wellbeing literature concludes that married people are happier than those who are single,

divorced, or who are separated (Myers, 2000). In the Brazilian case it seems that marriage improves students' satisfaction with their schools, whereas having to balance work and child-care decreases it.

The question also arises as to whether *witnessing* discrimination has the same effects on school satisfaction as *experiencing* it. In the ENEM survey, the related question reads, *"Have you ever witnessed a student being discriminated against due to (type of discrimination)?"* (coded 1=*yes*, 0=*no*). Figure 2 shows the on-average relationships. Student witnesses are less satisfied than others with their schools, but not as much as the victims themselves, as seen in Figure 1. Table 3 provides the modeled confirmation. For all categories, students who witnessed discrimination were more likely to give a lower score for school satisfaction than those who did not. The ranking of dissatisfaction by type of discrimination extends from "other" (A7 - 0.820), through gender (A4 - 0.827), through socioeconomic status (A3 - 0.831), through religion (A6 - 0.856), through homosexual (A5 - 0.863), through race (A2 - 0.894), to the least source of unhappiness, disability (A7 - 0.896). Unlike the victims of discrimination, the range of coefficients is very narrow, as may be seen in Table 4. Observing discrimination negatively affects school satisfaction, but being a victim affects it far more, particularly if the source of discrimination is homosexuality or disability.
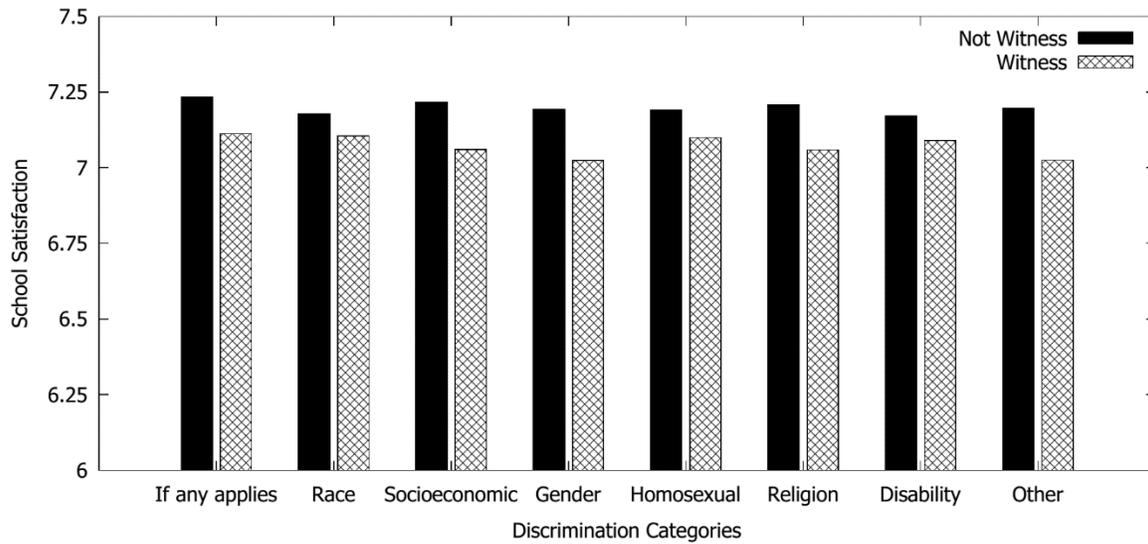
Figure 2: School satisfaction by observed type of discrimination. Source: ENEM

Table 3: Ordered Logistic Regressions of School Satisfaction - Witness (Odds ratios)

Variable	A1	A2	A3	A4	A5	A6	A7	A8
Witness								
if any applies	0.840***							
race		0.894***						
socioeconomic			0.831***					
gender				0.827***				
homosexual					0.863***			
religion						0.856***		
disability							0.896***	
other								0.820***
nonwhite	0.969***	0.967***	0.966***	0.968***	0.971***	0.972***	0.969***	0.972***
female	1.155***	1.152***	1.143***	1.153***	1.153***	1.150***	1.153***	1.147***
age	0.976***	0.975***	0.977***	0.976***	0.975***	0.976***	0.976***	0.977***
income								
2 to 5 MW	0.859***	0.860***	0.860***	0.861***	0.860***	0.859***	0.859***	0.858***
5 to 10 MW	0.844***	0.846***	0.845***	0.849***	0.845***	0.845***	0.844***	0.845***
10 to 30 MW	0.949***	0.952***	0.952***	0.956***	0.950***	0.948***	0.949***	0.950***
more than 30 MW	1.135***	1.140***	1.142***	1.152***	1.141***	1.134***	1.138***	1.140***
publicschool	0.441***	0.440***	0.436***	0.438***	0.440***	0.441***	0.441***	0.440***

prepschool	1.041***	1.041***	1.046***	1.047***	1.043***	1.045***	1.041***	1.045***
father education								
high school	0.880***	0.881***	0.881***	0.882***	0.882***	0.881***	0.881***	0.879***
some college	0.830***	0.831***	0.834***	0.833***	0.832***	0.832***	0.829***	0.830***
bachelor	0.917***	0.919***	0.919***	0.921***	0.919***	0.918***	0.917***	0.916***
graduate	1.031**	1.032**	1.033**	1.038***	1.033**	1.033**	1.032**	1.032**
unknown	0.821***	0.821***	0.819***	0.821***	0.823***	0.821***	0.821***	0.822***
mother education								
high school	0.866***	0.867***	0.869***	0.868***	0.868***	0.867***	0.867***	0.866***
some college	0.860***	0.861***	0.866***	0.864***	0.862***	0.861***	0.861***	0.862***
Bachelor	0.939***	0.940***	0.943***	0.942***	0.941***	0.937***	0.940***	0.939***
Graduate	1.031***	1.032***	1.038***	1.038***	1.032***	1.030***	1.033***	1.034***
unknown	0.872***	0.874***	0.869***	0.875***	0.873***	0.874***	0.875***	0.872***
Married	1.060***	1.058***	1.061***	1.057***	1.056***	1.062***	1.059***	1.058***
Children	0.953***	0.953***	0.957***	0.957***	0.954***	0.953***	0.955***	0.955***
Southeast	0.808***	0.811***	0.806***	0.810***	0.810***	0.812***	0.808***	0.806***
Work	0.835***	0.835***	0.842***	0.838***	0.836***	0.836***	0.834***	0.838***
Urban	0.738***	0.738***	0.738***	0.737***	0.740***	0.738***	0.738***	0.734***
Favela	1.159***	1.158***	1.157***	1.159***	1.157***	1.159***	1.159***	1.167***
year dummies	yes	yes	Yes	yes	Yes	yes	yes	yes
N	2483398	2483398	2474511	2474781	2473898	2476006	2475116	2482373

* p<0.05, ** p<0.01, *** p<0.001

Table 4: Discrimination Coefficients for Victims and Witnesses

Type of Discrimination	Victim	Witness
If any applies	0.747***	0.840***
Race	0.804***	0.894***
Socioeconomic Status	0.730***	0.831***
Gender	0.722***	0.827***
Homosexuality	0.674***	0.863***
Religion	0.843***	0.856***
Disability	0.679***	0.896***
Other type	0.772***	0.820***

* p<0.05, ** p<0.01, *** p<0.001

Nontraditional Students

The mean school satisfaction rating for the nontraditional students was 6.7 (min 0, max 10), but those who claimed to have suffered discrimination had lower levels of school satisfaction, as shown in Figure 3 by type of discrimination. Again, those who identified as disabled or homosexual were the most dissatisfied.
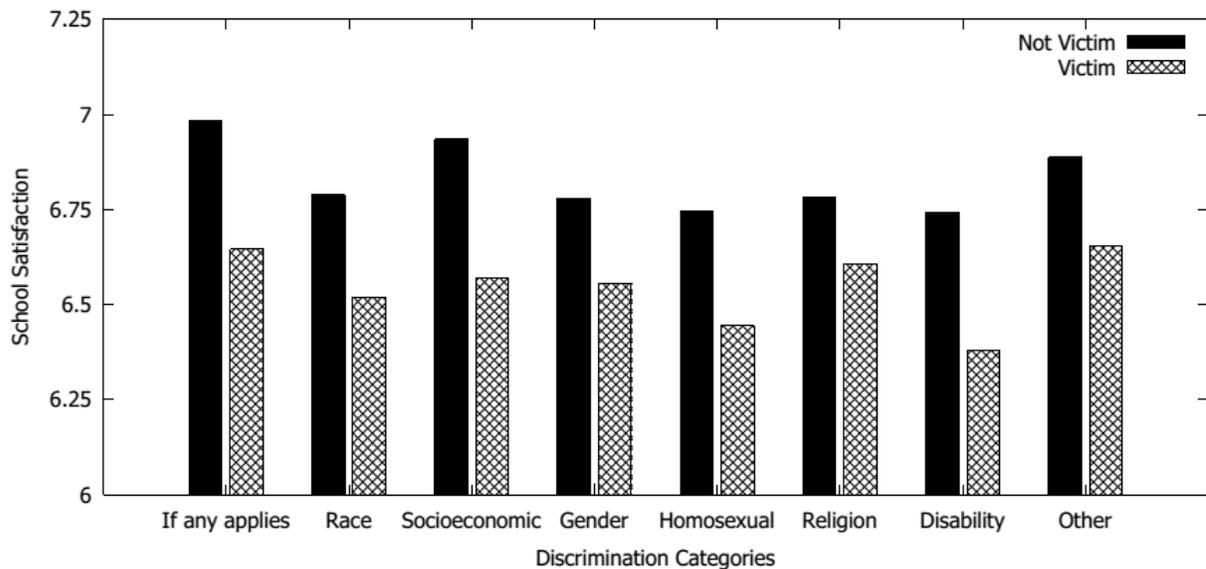

Figure 3: School satisfaction by different discrimination categories for Nontraditional Students. Source: ENEM

Table 5 provides the ordered logistic regressions (OLR) that confirm this pattern. There are eight models labeled A1–A8. The first model (A1) pulls all forms of discrimination, models A2 to A8 deal in turn with specific causes. The coefficients in these models are odds ratios, where a value greater than one indicates a positive relationship and a value less than one points to a negative relationship.

Table 5: Ordered Logistic Regressions of School Satisfaction for Nontraditional Students -Victim (Odds ratios)

Variable	A1	A2	A3	A4	A5	A6	A7	A8
victim								
if any applies	0.670***							
race		0.762***						
socioeconomic			0.673***					
gender				0.726***				
homosexual					0.785***			
religion						0.836***		
disability							0.710***	
other								0.720***
nonwhite	0.988	1.020	0.979	0.960**	0.965**	0.972*	0.964**	0.980
female	1.265***	1.247***	1.236***	1.345***	1.244***	1.257***	1.250***	1.261***
Age	1.020***	1.020***	1.020***	1.020***	1.019***	1.019***	1.019***	1.021***
income								
2 to 5 MW	0.876***	0.883***	0.876***	0.890***	0.885***	0.882***	0.884***	0.874***
5 to 10 MW	0.875***	0.886***	0.871***	0.890***	0.889***	0.884***	0.888***	0.874***
10 to 30 MW	0.916	0.936	0.905	0.944	0.940	0.935	0.941	0.923
more than 30 MW	1.166	1.184	1.142	1.172	1.216	1.185	1.207	1.166
publicschool	0.622***	0.623***	0.625***	0.619***	0.621***	0.625***	0.620***	0.621***
prepschool	1.031	1.030	1.031	1.033	1.030	1.033	1.029	1.033
father education								
high school	0.959	0.967	0.960	0.973	0.963	0.966	0.961	0.960
some college	0.978	0.978	0.963	0.982	0.967	0.969	0.965	0.969
bachelor	0.984	0.994	0.972	1.000	0.991	0.991	0.982	0.986
graduate	1.652***	1.653***	1.603***	1.645***	1.613***	1.634***	1.635***	1.644***
unknown	0.872***	0.878***	0.868***	0.873***	0.874***	0.875***	0.871***	0.874***
mother education								
high school	0.951*	0.950*	0.953*	0.962	0.954*	0.953*	0.954*	0.951*
some college	1.037	1.025	1.029	1.035	1.030	1.033	1.027	1.026
bachelor	1.124**	1.129**	1.128**	1.149**	1.136**	1.128**	1.139**	1.133**
graduate	1.168*	1.168*	1.159*	1.196*	1.168*	1.162*	1.168*	1.178*
unknown	0.925	0.936	0.922	0.928	0.947	0.932	0.947	0.932
married	0.980	0.976	0.985	0.970*	0.971*	0.984	0.977	0.969*
children	1.028	1.023	1.036*	1.032*	1.022	1.024	1.025	1.024
southeast	0.780***	0.789***	0.779***	0.785***	0.783***	0.785***	0.783***	0.777***
Work	0.813***	0.801***	0.821***	0.803***	0.796***	0.798***	0.794***	0.805***
urban	0.695***	0.700***	0.705***	0.694***	0.692***	0.698***	0.695***	0.689***
favela	1.252***	1.250***	1.259***	1.257***	1.252***	1.246***	1.250***	1.273***
N	78704	78704	78451	78279	77969	78399	77969	78681

*p<0.05, ** p<0.01, *** p<0.001

For all categories of discrimination, nontraditional students who reported discrimination rated their school satisfaction lower than other nontraditional students,

holding constant the variables in X_i. In every case the null hypothesis is rejected.[17] The ranking of dissatisfaction by type extends from the greatest, socioeconomic status (A3 - odds ratio 0.673), through disability (A7 - odds ratio 0.710), through other (A8 - odds ratio 0.720), through gender (A4 - odds ratio 0.726), through race (A2 - odds ratio 0.762), through homosexual (A5 - odds ratio 0.785), to the lowest source of unhappiness, religion (A6 - odds ratio 0.836).

In order to test the robustness of these findings, we also examined several different age groups among nontraditional students separately. Figure 4 shows the on-average relationships for different age groups. Older nontraditional students who reported discrimination were more satisfied with school than younger nontraditional students. Either their perceptions of discrimination waned with time or there is selection bias, only the happiest older adults who had experienced discrimination are applying for university admission.

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[17]The control variables in Xi reveal other important predictors of school satisfaction. Nontraditional female students were more likely to be more satisfied with school than male students. However, race was not significant in determining school satisfaction for the full model (A1). Very significantly, nontraditional students from public high schools were very dissatisfied (odds ratio 0.619 - 0.625). Income and parents' education played an interesting role: as parents' education and income increased, students were more satisfied with their school experience, although not all categories of parents' education and income were significant. Being married and having children was not significant in predicting school satisfaction in the full model (A1). However, nontraditional students who live in favelas evaluated their experience in high school much more positively than other nontraditional students, perhaps because their perception of quality of education has a much lower threshold compared to others. This is also true for rural areas, where nontraditional students were more likely to give a higher score in comparison to students from urban areas. Maybe their greater school satisfaction reflects their gratitude to have been given the opportunity to graduate from a high school at all.
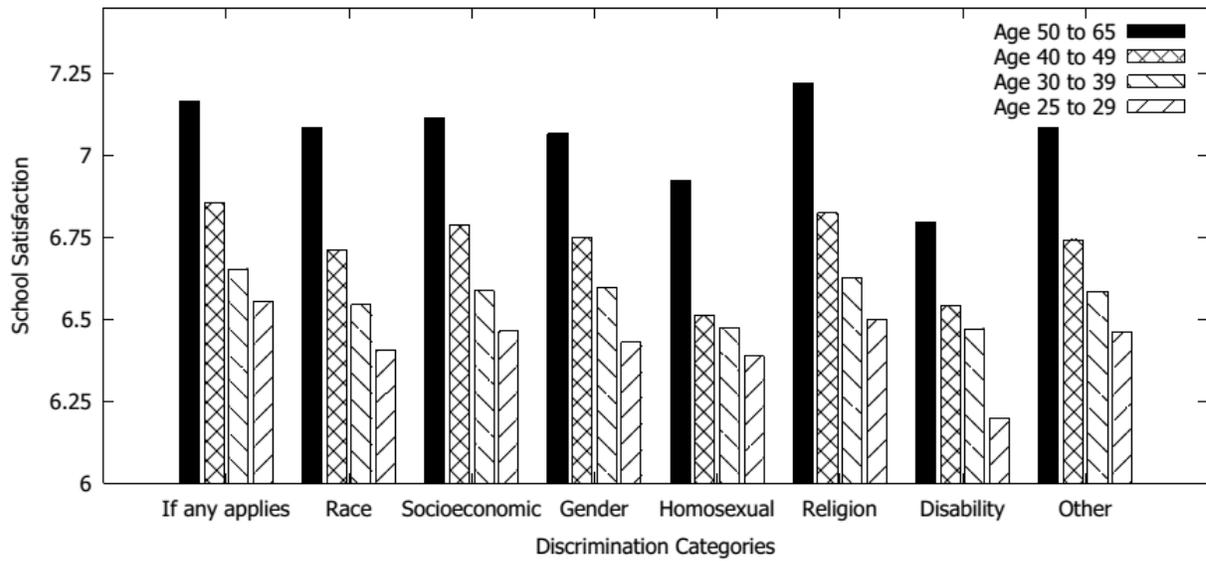
Figure 4: School satisfaction by perceived type of discrimination. Source: ENEM

Table 6 provides the modeled confirmation (the full models with controls are listed in the Appendix B). When analyzing the first model (A1), we observe a clear reduction in dissatisfaction as age increases: 25–29 year olds had a school satisfaction odds ratio of 0.659, while the 30–39 year old odds ratio is 0.675, the 40–49 year old odds ratio is 0.683 and finally the 50–65 odds ratio is 0.742.

Table 6: Discrimination Coefficients for Nontraditional Students of Different Age Groups

Type of Discrimination	25–29	30–39	40–49	50–65
If any applies	0.659***	0.675***	0.683***	0.742**
Race	0.733***	0.797***	0.750***	0.814*
Socioeconomic Status	0.655***	0.688***	0.685***	0.742***
Gender	0.696***	0.760***	0.734***	0.701***
Homosexuality	0.827***	0.783***	0.650***	0.722
Religion	0.809***	0.861***	0.858***	0.930
Disability	0.661***	0.784***	0.683***	0.648*
Other type	0.717***	0.714***	0.725***	0.713***

Discussion

Whereas ENEM enables the relationship between discrimination and school satisfaction to be isolated when controlling for a large number of other influences it does not tell us whether the perceived discrimination reported was an isolated event or a constant occurrence (bullying) that further affects school satisfaction, subjective well-being and future life (Olweus, 1992, 1994; Nansel et al., 2001; Verkuyten & Thijs, 2006). Students who perceived discrimination of any form were much more dissatisfied with school than those who did not. Being discriminated against, regardless of the reason, results in lower school satisfaction. Children who are so affected are more likely to avoid school, drop out and lose concentration and enthusiasm for school (Kochenderfer & Ladd, 1996; Olweus, 1992; Fried & Fried, 1996; CEATS, 2010; Berger, 2007).

These results are in congruence with studies that indicate a strong association between school satisfaction and the quality of relationships with peers (Ash & Huebner, 1998; Baker, 1998; Ladd et al., 1996). Not being accepted or being victimized has a greater impact in school satisfaction than friendship (Verkuyten & Thijs, 2002; Leary & Baumeister, 2000). Studies also have found that bullying, harassment, teasing, and name-calling that is homophobic in nature occurs more frequently among LGBT students (Nansel et al., 2001; Kosciw, 2004; Rivers, 2001, 2004), which is consistent with the high levels of dissatisfaction reported by the ENEM group. Students are not only victimized by other peers, but also by faculty or school staff (Kosciw, 2006). As Birkett et al. (2009) states, "the immense presence of anti-gay language in schools suggests that most school environments are unsupportive of LGB and questioning students, which may lead to an elevation of negative outcomes for these youth because of internalized homophobia (p. 990)." In Latin American societies, like Brazil, where the culture of machismo is prevalent, gay male students face even greater discrimination and

harassment. Similarly, children who have disabilities are three times more likely to be victims of bullying compared to children without special needs (de Oliveira & da Silva Antonio, 2006; Palácios & Rego, 2006; Little, 2002). Children with hemiplegia (paralysis of one side of the body) are more likely than other children to be bullied and have fewer friends (Yude et al., 1998); children with epilepsy are more likely to be bullied as are children with medical conditions that affect their appearance such as muscular dystrophy and cerebral palsy (Dawkins, 1996; Hamiwka et al., 2009); and children with learning disabilities, autism, attention deficit or hyperactivity disorder (ADHD) are also at a greater risk of being bullied (Mishna, 2003; Twyman et al., 2010). This relationship of discrimination and harassment persists through middle and high school. Thus, it is possible that the long and persistent harassment and discrimination suffered by homosexuals and disabled persons throughout school explains why they experienced the highest level of school dissatisfaction compared to victims of other type of discrimination.[18]

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[18]Our control variables in Xi yielded interesting results, particularly in regards to nonwhite students. Nonwhites were more likely to rate their schooling lower than white students. This differs from studies in the United States where Epstein and McPartland (1976) and Huebner et al. (2001) found no significant difference in school satisfaction between whites and African-Americans and Okun et al. (1990) found that ethnic minorities do not differ in school satisfaction. Although not statistically significant, Okun et al. (1990) also indicated that the majority group (whites) was slightly less satisfied with school than minorities were. So why Brazilian nonwhite students are less satisfied? We believe the main reason to be the nature of institutionalized racism in Brazil. Institutions created during Brazil's Iberian colonization gave rise to a style of governance in which a few European descendants had great power and wealth in their hands while Afro descendants, although the majority, were non-participants exploited by the elite. As a consequence, today the majority of nonwhites are at the bottom of the social ladder. Given the lack of funding and government neglect of public primary and secondary levels of education, in the 20th century private education became the preferred option for the children of elite groups, who were mainly white (Valente 2016a, 2016b; Valente & Berry, forthcoming). The percentages of whites and nonwhites in private high schools are, respectively, 56.58 percent and 37.63 percent, but in public high schools they are 34 percent and 58.6 percent (Guimarães & Sampaio, 2007). The overall performance of students in private schools is greatly superior to students in public schools because there is a great disparity between the curriculum, quality and infrastructure of public and private school facilities in Brazil (Guimarães & Sampaio, 2007; Akkari, 2001). The result is that nonwhite students, who study predominantly in public high schools, are less satisfied with their school experience (Guimarães & Sampaio, 2007; Castro, 19977; Saviani, 2008; Cury, 1985). This is congruent with the high level of dissatisfaction displayed by public school students in our analysis.

Witnessing discrimination also negatively impacts school satisfaction. This confirms what has been found in other studies that report that witnessing problematic behavior such as bullying can negatively affect the school experience (Nishina & Juvonen, 2005; Berger, 2007). On days when uninvolved students observe problematic behavior, they dislike school more. Explanations vary. For example, neuroscientists have recently discovered mirror neurons that respond to a witnessed event as if observers experience it themselves (Berger, 2007): observing any form of discrimination can have a direct impact on the witness, leading to a negative experience in that particular environment. In addition, students who witness problematic behavior may not feel safe at school, thus negatively affecting their learning process (Smokowski & Kopasz, 2005). Many studies have focus on how the witness, or bystander, reacts to bullying and harassment in schools, and the effects it can have on their mental health (O'Connell et al., 1999; Trach et al., 2010; Rivers et al., 2009; Oh & Hazler, 2009; Lodge & Frydenberg, 2005) but none, to our knowledge, focus on the effects it has on the witnesses' school satisfaction. Many questions arise. For example, would a student's school satisfaction be lower if s/he observes discrimination against someone who shares common similarity or traits with them (c.f. same race or sexual orientation)? Future studies are needed to determine why racial and disability discrimination has the least effect on witnesses' school satisfaction while gender and 'other type' (e.g. physical attributes weight, height, etc.) has the most impact.

Nontraditional students' experience of discrimination in the school environment has long lasting but waning effects on their satisfaction: older adults express much greater satisfaction with their earlier schooling than younger adults (Carstensen et al, 2000; Charles et al, 2001; Diener & Eunkook Suh, 1997; Lacey et al, 2006), assigning higher value to ordinary experiences and everyday pleasures and not holding on to

negative experiences from their past (Bhattacharjee & Mogilner, 2014). With increasing age adults tend to relax and accept the world as it is. This acceptance is a significant predictor of satisfaction in later life (Broadbent, 2013). Older adults also are better able to deal with negative emotions and have a greater level of emotional acceptance than younger people (Shallcross et al, 2013), tending to focus on remembering positive events as opposed to negative ones (Fernandes et al, 2008; Schlagman, 2006), recognizing more positive images and neutral images than negative ones compared with younger adults (Charles et al, 2003), showing better performance in working memory tasks for positive emotional stimuli in comparison to negative emotional stimuli (Mikels, 2005), remembering more positive information when recalling autobiographical events (Kennedy et al., 2004; Levine & Bluck, 1997), and recalling their decisions as more positive in emotional valence (Mather, 2005). As Kwon (2009) note, "This selective preference in memory for positive information can potentially serve to optimize older adults' well-being in the present. In this sense, the increased salience of positive material with age could be understood as a culturally insensitive adaptation process promoting emotional well-being" (p.752).

School satisfaction is thus an important indicator of well-being. Researchers and policy makers who are interested in improving the quality of life thus need to pay more attention to this stepping stone to adulthood and thence to overall life satisfaction. The experience of discrimination in high school can linger in adult life, creating an uneven emotional starting point for university education. Educators must be aware of how negative experiences deleteriously affect students' learning. Negative experiences can restrict the opportunities to learn later in life and can adversely affect adult learning by significantly reducing satisfaction with school. Such factors should be of concern to Brazilian school administrators who need to focus not only on the prevention of

bullying among students in general, but in particular to focus on the prevention of homophobic behavior and teasing of disabled students. Although any form of discrimination is detrimental, our results show that discrimination against homosexuals and disabled persons has a greater impact on school satisfaction than racism, sexism, ageism and religious-based discrimination. Of course creating a safe and positive school environment where any form of discrimination is not tolerated is an important intervention that can improve the psychological outcomes, academic performance of all students, but related research is lacking in Latin America, as is any consideration of the relationship between school satisfaction and policies directed at improving human welfare.

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Appendix A. Summary Statistics

Table 7: Descriptive Statistics Traditional Students

Variable	Obs	Mean	S.D.	Min	Max
school satisfaction	2483398	7.131917	1.641216	0	10
if any applies victims	2483398	.6390715	.4802699	0	1
race vt	2483398	.1456859	.3527911	0	1
socioecon vt	2476395	.3123343	.4634454	0	1
gender vt	2469989	.1457428	.3528482	0	1
homosexual vt	2455525	.0378449	.190821	0	1
religion vt	2474400	.2392843	.4266467	0	1
disability vt	2463048	.0251059	.1564468	0	1
other vt	2482894	.4406431	.4964644	0	1
if any applies witness	2483398	.8378963	.368546	0	1
race wt	2483398	.6281309	.4833038	0	1
socioecon wt	2474511	.53576	.4987197	0	1
gender wt	2474781	.3496863	.4768709	0	1
homosexual wt	2473898	.6357744	.4812124	0	1
religion wt	2476006	.5032411	.4999896	0	1
disability wt	2475116	.4729253	.4992665	0	1
other wt	2473140	.3651285	.4814663	0	1
nonwhite	2483398	.5209225	.4995622	0	1
female	2483398	.5866772	.4924299	0	1
age	2483398	18.90059	2.667422	16	26
income less than 2mw	2483398	.5393384	.4984502	0	1
income 2 to 5mw	2483398	.3187073	.4659754	0	1
income 5 to 10mw	2483398	.0975965	.2967684	0	1
income 10 to 30mw	2483398	.0364295	.1873564	0	1
income more 30mw	2483398	.0079282	.0886871	0	1
publicschool	2483398	.8935265	.3084427	0	1
prepschool	2483398	.11806	.3226792	0	1
father ed less hs	2483398	.6566595	.474824	0	1
father ed hs	2483398	.1631744	.3695248	0	1
father ed college	2483398	.0268725	.1617107	0	1
father ed bachelor	2483398	.0500854	.2181212	0	1
father ed grad	2483398	.0143682	.1190033	0	1
father ed miss	2483398	.08884	.2845127	0	1
mother ed less hs	2483398	.6639769	.472347	0	1
mother ed hs	2483398	.1930794	.3947148	0	1
mother ed college	2483398	.0297194	.169812	0	1
mother ed bachelor	2483398	.0602795	.238004	0	1
mother ed grad	2483398	.0239374	.1528541	0	1
mother ed miss	2483398	.0290074	.1678273	0	1
married	2483398	.0863563	.2808895	0	1
children	2483398	.1138907	.3176786	0	1
southeast	2483398	.5077519	.49994	0	1
work	2483398	.6772551	.4675262	0	1
urban	2483398	.9838616	.1260077	0	1
favela	2483398	.0306065	.172249	0	1