Teacher Response to Student Misbehavior: Assessing Potential Biases in the Classroom

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Abstract

Gender and race biases have become increasingly salient in the discourse of teacher-student interactions in response to the observed race achievement gap between African-American students and students of European descent. The current study, a secondary analysis of classroom footage collected in 26 southeast Michigan K-12 classrooms, utilizes low-inference data and log-linear analysis to examine teacher response to student misbehavior as an indicator of potential biases in student-teacher relationships. In total, 1222 misbehaviors were coded and analyzed, 404 of which were confirmed as "seen" by the teacher via mobile eye-tracking technology. Overall, the study failed to find consistent evidence of teacher biases based upon gender or race. Though minority students and males were significantly more likely to be reprimanded for misbehavior than nonminority students and females (respectively), a more robust analysis of these interactions considering type of misbehavior reveals teacher bias is an unlikely explanation for the disparities.

Keywords: gender bias, race bias, achievement gap, student misconduct, teacher-student interaction, video study, mobile eye-tracking

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It is popular belief that teachers have favorite students and treat these students differently. While it is understandable and merely human that teachers like some students more than others, professional habit requires equitable treatment of students, supporting all students' learning progress considering specific needs.

Many scholars have maintained criticisms that teachers not only apply inconsistent standards in the classroom but also treat students differently based upon demographic characteristics. Historically, perhaps the most investigated is the gender gap, spurred by the work of Sadker and Sadker (1994). The authors hypothesized that boys show a tendency to ignore standard behavioral norms in the classroom with greater frequency and therefore garner more attention of the teacher – at the girls' expense. This gender difference is exacerbated, so the argument goes, by the fact that boys tend to face less negative consequences from teachers when they are disruptive.

While this theory sounds compelling, empirical studies overall do not provide convincing evidence for it. In a meta-analysis of 32 empirical studies, Jones and Dindia (2004) found some indication that boys do, in fact, attract teacher attention slightly more often than girls but this is due to a higher number of negative (reprimanding) interactions with the students. The findings do not support the idea that male students get away with misbehavior more often or receive preferential treatment in the classroom. It is more consistent with the notion that boys tend to misbehave more than girls which increases the frequency of *negative* interactions with the teacher.

The gender gap in academic achievement becomes a moot point based upon empirical research. In their meta-analysis of 100 studies, Hyde, Fennema, and Lamon (1990) suggest that

women/girls on average actually outperform men/boys in computation and reading tasks. While achievement doesn't necessarily reflect classroom interaction dynamics, the data does not suggest that girls are neglected in the school context.

While studies suggest that teachers closely adhere to professional norms in their behavior regarding gender equity, there might be subtle, unintended and usually unconscious differences in the way they treat students. Due to their nature, those subtle effects are hard to discover (and even harder to disprove) empirically.

Even if a teacher does not pay attention to all students to the same extent, it might be pedagogically justified: The idea of perfectly equitable teacher attention ignores the fact that some students require more attention than others. Strict adherence to equity norms would most likely perpetuate and even increase disparities between low and high achieving students. If a teacher pays more attention to the boys in her class, it might simply be due to the fact that they, on average, have more trouble with the learning material. Equity, therefore, cannot be simply considered in terms of equal allocation of teacher attention. However, it is important that the distribution of teacher attention is due to academic factors rather than demographic factors.

Apart from gender, race is arguably the most salient demographic relevant for the discourse of teacher-student interaction in the United States. Namely, the discussion about racial identity, stereotype threat, and "acting white" (Sellers, Smith, Shelton, Rowley, & Chavous, 1998, Fordham & Ogbu, 1986) has become a focus in an effort to understand the reasons for and strategies against the achievement gap between Black students and students of European descent. Based on a comprehensive review of the literature surrounding the racial achievement gap, Farkas (2003) estimates that about half of the black-white gap in twelfth-grade academic achievement is already present at the start of first grade, the rest gradually accumulating

throughout the academic career. This window has been explored for the possibility of teacher, administrator, and systemic bias that conserves (or worsens) this gap. Downey, Hippel, and Broh (2004) demonstrated the socioeconomic and racial/ethnic gaps in skills remain stable during the school year, but widen when school is not in session. Schools, therefore, might not cause the widening of the ethnic or socioeconomic gap, but are also not able to close them.

Many theories try to explain the racial achievement gap and its contributing factors. Kozlowski (2015) provides a framework of the three leading theories: Cultural capital mismatch, oppositional culture, and teacher bias. The cultural capital mismatch theory contends that students and teachers construe different interpretations of standards, norms, and expectations necessary for achievement, thus contributing to disparities in achievement. Oppositional culture theory provides a more student-centered explanation, emphasizing minority students' opposition to norms and standards of the majority (ethnic) group. Minority students who conform to the dominant majority norms run the risk of being ostracized by other members of their group (for "acting white"). Teacher bias theory proposes that teachers have their own set of norms and standards for achievement that implicitly privilege some demographics of students and disadvantage others.

Cultural capital mismatch theory implies a subtle discriminatory process in which students misread expectations for achievement and norms based on their background. A problem with cultural mismatch theory is that cultural mismatches don't seem to inherently strain student-teacher relationships (Alexander, 1987). There are some cultural disparities that would likely disrupt the classroom environment. Navajo children, for example, are taught to value solidarity and reject competition. It is understandable that classroom activities that require competition, then, would stress student-teacher relationships and hinder this student's ability to succeed.

However, this is not ubiquitous. Asian-American students are found in multiple studies to be rated as good classroom citizens by teachers despite indisputable cultural, language, and behavioral differences (Ainsworth-Darnell & Downey, 1998, Farkas, Grobe, Sheehan, & Shuan, 1990, McGrady & Reynolds, 2013). Arguably, African-American students, especially those who are raised in the United States, are not likely to have a similar cultural difference, suggesting that teachers do not evaluate their students solely due to cultural differences and these differences alone are not responsible for the achievement gap.

While cultural capital mismatch theory gained limited traction in the educational discourse, oppositional culture became widely known, likely due to the catchy term "acting white." Unlike its counterparts, oppositional culture is a *reaction* to the main culture. That is, oppositional culture cannot be understood without the main culture. While the theory is popular in the public debate about racism in schools, empirical studies provide surprisingly little evidence for it. Shernoff and Schmidt (2008) in their study of 586 students from 13 high schools with great diversity in race and socioeconomic status found that African-American students, compared to students of European descent, reported a lower GPA but similar levels of engagement, intrinsic motivation, and positive affect toward school and academic learning. Cultural mismatch theory would have predicted lower levels for black students also in motivational constructs. Further, Ainsworth-Darnell and Downey (1998) showed across a variety of qualitative and quantitative variables that African-American children who do well in school become especially popular with their peers rather than being ostracized for "acting white." Thus, there is no compelling evidence that minority students, overall, reject the norms and expectations for achievement on principle, although it is possible that the underlying dynamic exists in particular neighborhoods or in schools with noticeable racial tensions. It is of note that Schernoff

and Schmidt (2008) found a similar engagement-achievement paradox (i.e., achievement difference but no difference in motivation) for low-SES students compared to high-SES students.

While the empirical evidence of oppositional culture theory is weak, teacher bias theory remains a popular explanation that stands on more solid empirical footing. After all, classroom interactions shape the learning environment and have a tremendous impact on students both personally and academically. The negative effects of both overt and implicit discrimination are well documented, extending beyond GPA to lower self-esteem, distress, and other depressive symptoms (Huynh & Fuligni, 2010). African-American students consistently rate their white teachers as caring less about them than their same-race teachers (Mabin, 2016). With a similar qualitative basis, Douglas, Lewis, Douglas, Scott, & Garrison-Wade (2008) found that minority students in their study commonly felt their white teachers and peers held certain negative perceptions of them due to their race. While these studies are small and not generalizable to the entirety of the school system, Downey and Pribesh (2004) assessed the presence of teacher bias by estimating matching effects among kindergartners in the large scale Early Childhood Longitudinal Study (ECLS-K) and eighth graders from the National Education Longitudinal Study of 1988 (NELS). In these two large-scale studied using representative samples, teachers consistently rated black students as poorer classroom citizens than white students regardless of age, suggesting white teacher bias. The study, however, did not control for achievement, which is a potential confounding factor.

Implicit biases have been widely studied across domains and cultures (Dunham, Baron, & Banaji, 2006) and are part of many social interactions. However, in teacher training and professional development young teachers learn about biases, particular regarding gender, race, and socio-economic background, and how to prevent them. It is part of the professional ethics to

be aware of these tendencies in student-student interactions as well as their own interactions with the students. Jussim, Eccles, and Madon (1996) analyzed teacher perceptions of students for about 100 teachers and 1700 students from sixth grade math classes. Initially, there appeared to be a strong bias favoring white students. However, after controlling for past performance and attitude data there was no significant difference, suggesting sensitivity for reasons other than race to hold some students in higher regards than others. Madon et al. (1998) examined 56 teachers and 2000 students in seventh grade public school math classes with similar results.

The Current Study

There are many aspects of classroom interaction one could examine to investigate conceptions of teacher bias. Student misbehavior is of particularly interest in this respect due to its impact on the classroom dynamic. Misbehavior of a student attracts teachers' attention, requires a decision from the teacher on how to respond, and impends a potential one on one interaction – all of which could be subject to bias.

Different from the literature of expert versus novice teachers, there is no empirical research on the effect of ethnicity on teacher attention that is "low inference," i.e. not dependent on reflective assessment through an observer or the teacher him- or herself. We hypothesized 1) holding constant the type of misbehavior, minority students are more likely to get reprimanded by the teacher, and 2) holding constant the type of misbehavior, male students are more likely to get reprimanded by the teacher.

Both hypotheses follow race and gender stereotypes as well as teacher bias theory. Teachers are more likely to frame misbehavior of majority students as an exceptional to the usual "good" behavior compared to minorities who are more likely to be considered "notorious" in their misbehavior. Similarly, minority (particularly African-American) students are more likely

to be seen as students who are prone to misbehavior compared to nonminority students. Finally, female students are more often thought of as "model" classroom citizens and thus, will be reprimanded less than their male counterparts.

Method

This study is a secondary analysis of classroom video footage recorded in 2009-10 in 26 K-11 Southeast Michigan classrooms (for details, see Cortina, Miller, McKenzie, & Epstein, 2015). The videos were originally collected for a study on the feasibility of using mobile eye-tracking technology in regular classroom settings in schools. Teachers were asked to wear glasses with eye-tracking capabilities. In addition, two stationary cameras were placed in different corners of the room, to record student behavior.

The study took place in three districts with a wide range of neighborhood affluence. The classrooms in the study had both an established (expert) teacher as well as a student (novice) teacher. Data were collected from these classrooms during lessons on two separate occasions, one from the expert teacher and one from the novice teacher. Thus, the same students were taught the same subject in the same classroom once by the expert and once by the novice teacher. The lessons also varied in school subject and grade level.

Up to three trained coders identified misbehaviors in 20 full class-period videos. The classes included 10 expert and 10 novice teachers teaching in 10 classrooms on different occasions. The coders watched the video footage for incidents of eight types of student misbehavior and five types of teacher responses. Using the eye-tracking video, coders decided whether the teacher has seen the incident. The student misbehavior categories included disruptive hand raising (HR), calling out (CO), talking (T), gesturing (G), fidgeting (F), making noise (N), being off-task (OT), and other (O). A misbehavior was only recorded when an action

was in obvious violation of standard classroom norms, affected the progression of the lesson, and/or interfered with student learning. In some instances, a misbehavior fit into more than one of the above categories. In these cases, the more disruptive behavior was coded (e.g. fidgeting while talking was coded as talking).

The coding scheme for teacher responses consisted of reprimanding (R), saying the student's name (S), positive response (P), reacting nonverbally (e.g., by ostentatiously walking towards a talking student) (NV), addressing the class as a whole (C), and no response (None). For the purpose of the current analyses we collapsed the response categories into a simpler dichotomous variable (negative response and positive/no response).

We integrated misbehavior coding and the student demographic information if available on file. Where data are not available, the video sequence was reviewed and the sex and minority status was inferred from the video.

We used log-linear modeling to test whether race and sex of student is a necessary component of the statistical model to predict a teacher's negative response. We constructed an optimized model via hierarchical log-linear analysis (Green, 1998).

Results

In total, we coded 1222 misbehaviors from the 20 recorded class periods. The results of all coded misbehavior by gender and race are available in Table 1. The vast majority of misbehaviors fell under the 'talking' (415, 33.96%) and 'off-task' (381, 31.18%) categories. Nonminority students committed 996 (81.51%) misbehaviors, and minority students contributed 226 (18.49%), Male students committed a majority (59.66%) of misbehaviors. For the purpose of our analysis of teacher reaction, we included only the misbehaviors that were seen by the teacher as detected by the eye tracking data (404 misbehaviors, 33.5%). In preliminary analyses it was

established that for 96% of misbehavior that was not seen by the teacher, no teacher response followed. For the purpose of analyzing teacher response bias, those incidences would only dilute any effect that necessitates teacher attention. The aggregate teacher reaction results by type of misbehavior are shown in Table 2.

Using hierarchical log-linear analysis, we constructed a model to predict the frequencies of teacher reactions to student misbehavior using the variables "Type of misbehavior" (TMB), "Gender of student" (GEN), and "Race of student" (RACE). The model considered all main effects and two-way interactions. This model was parsimonious and not rejected statistically (χ^2 = 23.601, df = 21, p = 0.313), hence ruling out all 3-way or other higher-order interactions (Table 3). To further simplify the model, we systematically explored for each two-way interaction whether it could be excluded from the model without creating significant model misfit. The results from this procedure are shown in Table 4. Two interactions that resulted in an insignificant χ^2 change when removed were excluded to create a more parsimonious model: TMB x RACE and GEN x RACE. The optimized model contained four significant two-way interactions (χ^2 = 24.44, df = 27, p = 0.606): TMB x GEN, TMB x Teacher Response, GEN by Teacher Response, and RACE by Teacher Response (Table 5). For the ease of interpretation, the significant interactions were recalculated as standard crosstabulations of the two respective variables.

Across all misbehaviors, teacher reaction varied significantly with both student race and student gender. The interaction of gender of student by teacher response is shown in Table 6. In total, males were more likely to be reprimanded by teachers (44.2% vs 25.5%) (χ^2 = 15.747, df = 2, p < 0.001). The interaction of race by teacher response is shown in Table 7. When

misbehaving, minority students were significantly more likely to face a negative teacher response (61.3% vs 31.2%) ($\chi^2 = 24.864$, $df = 1$, $p < 0.001$).

However, type of misbehavior also varied by student gender (but not race), the severity of which could impact teacher reaction. Males and females differed significantly by type of misbehavior ($\chi^2 = 18.503$, $df = 5$, $p = 0.002$). Most notably, females were more prone to talking, while males were relatively more often off-task. The interaction of race of student by type of misbehavior was insignificant and thus not included in our optimized model.

As expected, the interaction of type of misbehavior by teacher response is highly significant ($\chi^2 = 66.657$, $df = 5$, $p < 0.001$) and shown in Table 2. Teachers react differently depending on the type of misbehavior. For instance, teachers respond negatively to off-task behavior with higher likelihood than to talking, which is rarely addressed. Because teachers respond to different misbehaviors differently, we sorted each interaction above by type of misbehavior and evaluated crosstabulations for each.

The interactions teacher response by gender of student for each type of misbehavior is shown in Table 8. The crosstabulation is significant only for the talking misbehavior, in which male students were more likely to be negatively responded to than females (46.15% vs 12.96%) ($\chi^2 = 14.103$, $df = 1$, $p < 0.001$).

The interactions teacher response by race of student for each type of misbehavior is shown in Table 9. The crosstabulation is significant only for off-task misbehavior, in which minority students were more likely to be negatively reprimanded for off-task behavior than nonminority students (82.50% vs 51.85%) ($\chi^2 = 11.437$, $df = 1$, $p = 0.001$).

Discussion

The purpose of this study was to investigate the potential gender and racial biases in the classroom. This topic has been popularized as a potential explanation to the race achievement gap. Different from prior research characterized by high inference approaches (observer ratings, teacher self assessment, e.g. Sadker & Sadker 1986, Sadker & Sadker, 1994, Rubovitz & Maehr, 1973, Simpson & Erickson, 1983), we chose to analyze teacher response to classroom misbehavior that they have seen, as indicated by mobile eye tracking. Neither rating required inference above common sense (identifying misbehaviors, categorizing teacher reactions). Student misbehavior that a teacher has seen warrants a decision from the teacher on how to respond – a decision potentially prone to practical biases.

We hypothesized that, following gender and racial stereotypes as well as teacher bias theory, 1) holding constant the type of misbehavior, minority students are more likely to get reprimanded by the teacher and 2) holding constant the type of misbehavior, male students are more likely to get reprimanded by the teacher. While both hypotheses were confirmed by our data, teacher bias is an unlikely explanation for the disparities.

Both race and gender interactions with the teacher response variable were included in our optimal model. That is, race and gender both saw significant differences in teacher response by minority/nonminority and male/female classification. Across all misbehaviors, males were more likely to be reprimanded than females, and minority students were more likely to be reprimanded than nonminority students. While disconcerting at first, a more nuanced picture emerged when the analysis was broken down by type of misbehavior. In the case of gender, the difference in teacher response was only significant for talking, with males significantly more likely to be reprimanded than females. However, in both cases more than half of talking misbehaviors were not responded to at all. The most likely explanation for this difference is that this type of

misbehavior is more common among girls, which might force the teacher to be more selective in addressing it to avoid undue interruption of the flow of the lesson. Apart from this difference, no gender bias was apparent in the way it is discussed in the literature (Sadker & Sadker 1986, Sadker & Sadker, 1994). There is no support for the hypothesis that male students garner more teacher attention through misbehavior or "get away" with misbehavor more often than girls. With respect to talking, the opposite effect was revealed.

For the race effects, the difference in teacher response is only significant for the off-task misbehavior, with minority students more likely to be reprimanded than nonminority students. This disparity could indicate the teachers' active attempt to get black students more involved in the lessons in response to overall lower achievement. The race achievement gap is widely discussed in the literature (Farkas, 2003, Downey et al., 2004) and often addressed in teacher training and professional development. Teachers are undoubtedly aware of the phenomenon and actively try to improve the situation. Due to being conscious of this divergence in African-American student achievement, teachers may be inclined to harp on their focus and attentiveness more than nonminority students. As a result, when a minority child is off task in the classroom, he/she is more likely to be corrected by the teacher than a nonminority student showing the same misbehavior. If this interpretation were correct, it would be misleading to call it racial bias. A bias implies a negative effect for the subject of bias. Arguably, in the current case black students are more likely to benefit from the teacher's vigilance and feedback.

The most compelling evidence for the absence of teacher biases in both cases is the small scope in which these differences are seen. If teacher biases did exist and guide behavior in the classroom, differences should appear in most, if not all, of the misbehavior categories. There is no consistency in mistreatment of a specific race or gender across the misbehaviors. Because the

discrepancies in teacher response are limited to specific types of misbehavior in each case (gender and race), it is likely explained by other situational factors as discussed above. Overall, we were unable to identify race or gender biases in teachers' responses to student misbehavior.

Our interpretation of the data is to a certain extent tentative as there are several limitations to our study besides a relatively small sample size. First, the available data did not allow us to link the misbehavior events (and teacher responses) to student achievement data. Our analysis held the assumption that teachers should hold an even distribution of responses to misbehaviors across all students. This seems justifiable only if all students were consistent in terms of academic skillset and history of academic and behavioral problems. Second, while the use of multiple trained coders increased reliability, the coding of misbehaviors from videos retains an uncertainty component despite a formal coding rubric – some misbehavior is more obvious and more distinct than others. There were some discrepancies in the coding that required reviewing. Third, while student race and gender were determined with demographic information on file when available, many students' demographic data were inferred from the videos. Finally, the videos collected for the study are all from a relatively local area of southeastern Michigan. While these schools represent a wide range of socioeconomic statuses, research in other areas of the US should be done to analyze if these same teacher professionalism trends exist.

Conclusions and Future Study

This study did not provide consistent evidence for race or gender biases in teachers' management of misbehavior in the classroom. Although some discrepancies were identified with regards to both race and gender, the results were limited to specific types of misbehavior and are best explained by pedagogical aspect in teacher's feedback. Future research may include achievement information of the students as teachers often refer to achievement when they

explain their behavior in interaction with the student (Keller, Cortina et al., in prep). There remain many unanswered questions regarding differences in misbehaviors by gender, teacher strategies for classroom management, and teacher opinions of (and strategies to combat) the race achievement gap. This thesis provides a fresh view on race and gender biases in the classroom regarding student misbehavior, giving a more nuanced picture than many popular accounts of alleged teacher biases.

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Table 1

Type of Misbehavior Frequencies by Demographic Factor

Table 1a

Type of Misbehavior x Gender of Student

			Gender		
			Female	Male	Total
TMB	Call out	Count	40	69	109
		% within TMB	36.70%	63.30%	100.0%
		% within Gender	8.10%	9.50%	8.90%
	Fidget	Count	81	94	175
		% within TMB	46.30%	53.70%	100.0%
		% within Gender	16.40%	12.90%	14.30%
	Gesture/HandR	Count	47	72	119
		% within TMB	39.50%	60.50%	100.0%
		% within Gender	9.50%	9.90%	9.70%
	Noise	Count	4	19	23
		% within TMB	17.40%	82.60%	100.0%
		% within Gender	0.80%	2.60%	1.90%
	Talking	Count	211	204	415
		% within TMB	50.80%	49.20%	100.0%
		% within Gender	42.80%	28.00%	34.00%
	Off-Task	Count	110	271	381
		% within TMB	28.90%	71.10%	100.0%
		% within Gender	22.30%	37.20%	31.20%
Total		Count	493	729	1222
		% within TMB	40.30%	59.70%	100.0%
		% within Gender	100.0%	100.0%	100.0%

Note: TMB = Type of Misbehavior. Gender = gender of student.

Table 1b

Race of Student x Type of Misbehavior

			Race of Student		
			Minority	Nonminority	Total
TMB	Call out	Count	24	85	109
		% within TMB	22.00%	78.00%	100.0%
		% within Race	10.60%	8.50%	8.90%
	Fidget	Count	47	128	175
		% within TMB	26.90%	73.10%	100.0%
		% within Race	20.80%	12.90%	14.30%
	Gesture/HandR	Count	14	105	119
		% within TMB	11.80%	88.20%	100.0%
		% within Race	6.20%	10.50%	9.70%
	Noise	Count	9	14	23
		% within TMB	39.10%	60.90%	100.0%
		% within Race	4.00%	1.40%	1.90%
	Talking	Count	60	355	415
		% within TMB	14.50%	85.50%	100.0%
		% within Race	26.50%	35.60%	34.00%
	Off-Task	Count	72	309	381
		% within TMB	18.90%	81.10%	100.0%
		% within Race	31.90%	31.00%	31.20%
Total		Count	226	996	1222
		% within TMB	18.50%	81.50%	100.0%
		% within Race	100.0%	100.0%	100.0%

Note: TMB = Type of Misbehavior. Race = race of student.

Table 2

Type of Misbehavior by Teacher Reaction

Type of Misbehavior x Teacher Reaction

			Teacher Reaction		
			Negative	Positive/None	Total
TMB	Call Out	Count	22	43	65
		% within TMB	33.80%	26.20%	100.0%
		% within reaction	14.70%	79.40%	16.10%
	Fidget	Count	6	32	38
		% within TMB	15.80%	84.20%	100.0%
		% within reaction	4.00%	14.00%	9.40%
	Gesture/HandR	Count	1	42	43
		% within TMB	2.30%	97.70%	100.0%
		% within reaction	9.80%	11.20%	10.60%
	Noise	Count	1	3	4
		% within TMB	25.00%	75.00%	100.0%
		% within reaction	0.70%	1.30%	1.00%
	Talking	Count	31	75	106
		% within TMB	29.20%	70.80%	100.0%
		% within reaction	20.70%	32.80%	26.20%
	Off-Task	Count	89	59	148
		% within TMB	60.10%	39.90%	100.0%
		% within reaction	59.30%	32.90%	36.60%
Total		Count	150	254	404
		% within TMB	37.10%	62.90%	100.0%
		% within reaction	100.00%	100.00%	100.0%

Chi-Square Tests

	Value	*df*	*p (2 sided)*
Pearson Chi-Square	66.657a	5	< 0.001
Likelihood Ratio	75.473	5	< 0.001
Linear-by-Linear	28.597	1	< 0.001
N of Valid Cases	404		

a. 2 cells (16.7%) have expected count less than 5. The minimum expected count is 1.49.

Note: TMB = Type of Misbehavior. reaction = Teacher Reaction

Table 3

First Loglinear (ME) Model

Goodness of Fit Tests

	Value	*df*	*p (2 sided)*
Likelihood Ratio	26.934	21	0.173
Pearson Chi-Square	23.601	21	0.313

Table 4

Chi Square Difference Tests

	Model Description	χ^2	*df*	*p (2sided)*
I	Mother (ME)	23.601	21	0.313
IIa	ME - TMB x GEN	40.11	26	0.038
IIb	ME - TMB x RACE	24.47	26	0.549
IIc	ME - TMB x Teach. Reaction	88.85	26	0
IId	ME - GEN x RACE	23.58	22	0.37
IIe	ME - GEN x Teach. Reaction	34.24	22	0.046
IIf	ME - RACE x Teach. Reaction	40	22	0.011
IIa - I	Chi square difference tests	16.509	5	*
IIb - I		0.869	5	
IIc - I		65.249	5	*
IId - I		-0.021	1	
IIe - I		10.639	1	*
IIf - I		16.399	1	*
Optimized	(Without GEN x RACE and TMB x RACE)	24.44	27	0.606

Note: TMB = Type of Misbehavior. GEN = Gender of student. RACE = Race of student. Teach. Reaction = Teacher Reaction.

Table 5

Optimized Loglinear Model

Goodness of Fit Tests

	Value	*df*	*p (2 sided)*
Likelihood Ratio	29.115	27	0.355
Pearson Chi-Square	24.438	27	0.606

Table 6

Gender of Student by Teacher Reaction

Gender of Student x Teacher Reaction

			Teacher Reaction		
			Negative	Positive/None	Total
Gender		Count	39	114	153
	Female	% within Gender	25.50%	74.50%	100.00%
		% within Reaction	26.00%	44.88%	37.90%
		Count	111	140	251
	Male	% within Gender	44.22%	55.78%	100.00%
		% within Reaction	74.00%	55.12%	62.10%
Total		Count	150	254	404
		% within Gender	37.10%	62.90%	100.00%
		% within Reaction	100.00%	100.00%	100.00%

Chi-Square Tests

	Value	df	*p (2 sided)*
Pearson Chi-Square	15.747a	2	0.001
Likelihood Ratio	16.059	1	< 0.001
Linear-by-Linear	11.266	1	0.001
N of Valid Cases	404		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 9.47.

Table 7

Race of Student by Teacher Reaction

Race of Student x Teacher Reaction

			Teacher Reaction		
			Negative	Positive/None	Total
Race	Minority	Count	49	31	80
		% within race	61.30%	38.80%	100.00%
		% within reaction	32.70%	12.20%	19.80%
	Nonminority	Count	101	223	324
		% within race	31.20%	68.80%	100.00%
		% within reaction	67.30%	87.80%	80.20%
Total		Count	150	254	404
		% within race	37.10%	62.90%	100.00%
		% within reaction	100.00%	100.00%	100.00%

Chi-Square Tests

	Value	df	*p (2 sided)*
Pearson Chi-Square	24.864a	1	< .001
Likelihood Ratio	24.099	1	< .001
Linear-by-Linear	24.802	1	< .001
N of Valid Cases	404		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 29.70.

Table 8

Gender of Student by Teacher Reaction Sorted by Misbehavior

Table 8a

Gender of Student by Teacher Reaction

		Teacher Reaction		
TMB		Negative	None/Positive	Total
Call Out	Female	7	23	30
	Male	15	20	35
	Total	22	43	65
Fidget	Female	1	11	12
	Male	5	21	26
	Total	6	32	38
Gesture/HandR	Female	0	15	15
	Male	1	27	28
	Total	1	42	43
Noise	Female	0	0	0
	Male	1	3	4
	Total	1	3	4
Talking	Female	7	47	54
	Male	24	28	52
	Total	31	75	106
Off-Task	Female	24	18	42
	Male	65	41	106
	Total	89	59	148

Table 8b

Chi-Square Tests

	Pearson Chi-Square			Likelihood Ratio	
Misbehavior	Value	*df*	*p (2-sided)*	Value	*df*
Call out	2.75	1	0.097	2.801	1
Fidget	0.733	1	0.392	0.808	1
Gesture/HandR	0.548	1	0.459	0.871	1
Noise	-	-	-	-	-
Talking	14.103	1	< 0.001	14.686	1
Off-Task	0.219	1	0.64	0.218	1

Table 9

Race of Student by Teacher Reaction Sorted by Misbehavior

Table 9a

Race of Student by Teacher Reaction

		Teacher Reaction		
		Negative	None/Positive	Total
Call Out	Minority	7	6	13
	Nonminority	15	37	52
	Total	22	43	65
Fidget	Minority	2	4	6
	Nonminority	4	28	32
	Total	6	32	38
Gesture/HandR	Minority	0	4	4
	Nonminority	1	38	39
	Total	1	42	43
Noise	Minority	0	1	1
	Nonminority	1	2	3
	Total	1	3	4
Talking	Minority	7	9	16
	Nonminority	24	66	90
	Total	31	75	106
Off-Task	Minority	33	7	40
	Nonminority	56	52	108
	Total	89	59	148

Table 9b

Chi-Square Tests

	Pearson Chi-Square			Likelihood Ratio	
Misbehavior	Value	*df*	*p (2-sided)*	Value	*df*
Call Out	2.903	1	0.088	2.777	1
Fidget	1.649	1	0.199	1.397	1
Gesture/HandR	0.105	1	0.746	0.198	1
Noise	0.444	1	0.505	0.68	1
Talking	1.916	1	0.166	1.804	1
Off-Task	11.437	1	0.001	12.378	1