

**THE FEEDBACK WITHHOLDING BIAS:
HOW AND WHEN EVALUATORS DENY CONSTRUCTIVE
CRITICISM TO MINORITY STUDENTS**

by

Alyssa Croft

B.A., The University of Arizona, 2008

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENTS FOR THE DEGREE OF

MASTER OF ARTS

in

THE FACULTY OF GRADUATE STUDIES

(Psychology)

THE UNIVERSITY OF BRITISH COLUMBIA

(Vancouver)

August 2011

© Alyssa Croft, 2011

Abstract

How can we learn from our mistakes if we're unaware they exist? Past research has proposed that teachers' preconceptions guide interactions with their students. Consequently, we believe negative stereotypes might lead evaluators to provide biased feedback to stigmatized students, particularly when they are giving this feedback directly to the students. The present research sought to distinguish whether non-stigmatized evaluators over-represent positive feedback or under-represent negative feedback on minority writing. We also explored the role of prejudice and motivations to control it, and a desire to protect stigmatized students as possible predictors of these biases. Across two studies, participants highlighted instances of good/bad writing in essays purportedly written by a White or a minority student (Study 1: Aboriginal; Study 2: Black). Results showed that although participants provided equivalent gestalt evaluations and positive feedback to both authors, they provided less negative feedback overall to a minority student author (Study 2). Furthermore, this feedback withholding bias was strongest among evaluators who were externally but not internally motivated to control their biases (Studies 1 & 2). Participants with these motivations also provided inflated global appraisals of minority student writing in an effort to maintain consistency after withholding negative feedback. These findings suggest that stigmatized students might sometimes fail to receive the criticism necessary to identify areas needing improvement, particularly when evaluators are concerned about appearing prejudiced. Implications for minority student motivation, learning and performance will be discussed. Potential future directions are suggested for reducing the feedback withholding bias via practical interventions.

Preface

This research was conducted with the permission of the University of British Columbia Office of Research Studies Behavioural Research Ethics Board, certificate number H09-01816

Table of Contents

Abstract	ii
Preface	iii
Table of Contents	iv
List of Tables	vi
List of Figures.....	vii
Acknowledgements.....	viii
1 Chapter: Introduction	1
1.1 The role of stereotypes in assessment.....	2
1.2 Possible reasons for biased feedback: Differences in perception and motivation.....	6
1.3 Present research.....	9
2 Chapter: Study 1.....	11
2.1 Method.....	11
2.1.1 Participants	11
2.1.2 Procedure.....	11
2.1.3 Measures.....	13
2.1.3.1 Negative and positive feedback	13
2.1.3.2 Global essay evaluations	13
2.1.3.3 Implicit stereotypes about Aboriginals and competence.....	14
2.1.3.4 Prejudiced Attitudes Towards Aboriginals Scale (PATAS; Morrison & Morrison, 2008)	16
2.1.3.5 Motivation to respond without prejudice (Plant & Devine, 1998).....	16
2.1.3.6 Patronizing orientation scale (PAT).....	16
2.2 Results	17
2.2.1 Are there overall differences in feedback and evaluation?.....	18
2.2.2 Examining biases and the motivation to control them.....	19
2.2.2.1 Feedback withholding bias	19
2.2.2.2 Feedback inflation.....	20
2.2.2.3 Evaluative bias.....	20

2.2.2.4	Grade bias.....	20
2.2.3	Testing the roles of implicit and explicit prejudice and patronizing motivation.....	21
2.3	Discussion.....	21
3	Chapter: Study 2.....	24
3.1	Method.....	24
3.1.1	Participants	24
3.1.2	Procedure	24
3.1.3	Measures.....	25
3.1.3.1	Essay evaluations	25
3.1.3.2	Implicit Association Test (IAT).....	25
3.1.3.3	Symbolic Racism Scale (SRS).....	26
3.1.3.4	Motivation measures	26
3.2	Results	26
3.2.1	Are there overall differences in feedback and evaluation?	26
3.2.2	Examining biases and the motivation to control them.....	27
3.2.2.1	Feedback withholding bias	27
3.2.2.2	Feedback inflation.....	28
3.2.2.3	Evaluative bias.....	28
3.2.2.4	Grade bias.....	28
3.2.3	Testing the roles of implicit and explicit prejudice and patronizing motivation.....	29
3.3	Discussion.....	29
4	Chapter: Conclusion.....	31
4.1	Implications and future directions	35
	References.....	51
	Appendices.....	58
	Appendix A Sample Essay	58
	Appendix B Sample Stimuli	60

List of Tables

Table 1. Study 1: Descriptive statistics: means, standard deviations and correlations between evaluations of student author and participants' individual differences in bias and motivation.	47
Table 2. Study 1: Regression table for implicit and explicit prejudice and patronizing motive predicting outcome variables.	56
Table 3. Study 2: Descriptive statistics: means, standard deviations and correlations between evaluations of student author and participants' individual differences in bias and motivation.	57
Table 4. Study 2: Regression table for implicit (IAT) and explicit (SRS) prejudice and patronizing motive (PAT) predicting outcome variables.	50

List of Figures

Figure 1. Study 1: Interaction between IMS and EMS predicting the difference in negative feedback given to a White author compared to an Aboriginal author.....	40
Figure 2. Study 1: Interaction between IMS and EMS predicting discrepancies in the overall ability ratings of an Aboriginal author compared to a White author.	41
Figure 3. Study 1: Interaction between IMS and EMS predicting the difference in score out of 100 given to an Aboriginal author and a White author.	42
Figure 4. Study 2: Average amounts of positive and negative feedback given to a White author compared to a Black author.	43
Figure 5. Study 2: The interaction between IMS and EMS predicting difference between negative feedback to a White author compared to a Black author.....	44
Figure 6. Study 2: Interaction between IMS and EMS predicting discrepancies in the overall ability ratings of a Black author compared to a White author.	45
Figure 7. Study 2: Interaction between IMS and EMS predicting the difference in score out of 100 given to a Black author and a White author.....	46

Acknowledgements

I would like to thank, first and foremost, my wonderful mentor, Dr. Toni Schmader, for her enduring patience and support, as well as for encouraging me to step outside my “theoretical comfort zone”.

Special thanks are also owed to my husband, Nate Croft, who continues to believe in me even when I lose faith in myself. I would not have made it this far without knowing he was behind me every step of the way.

Finally, a big thank you to my colleagues and research team, in particular, William Hall, Dhaarna Tangri, Katharina Block, Jennifer McDermid, Mandeep Gurm and Angela Mann. I couldn't have done it without you guys!

1 Chapter: Introduction

Following a major blunder, such as failing an important exam, people are often told that we learn from our mistakes. But inherent in this statement is an assumption that we must *know* a mistake has been made in order to learn from it. How can people progress when they do not receive accurate, critical feedback on their work, which would lead them to know they have made a mistake? Is it possible that ethnic minority students, who often underperform in academic domains, might not be receiving valuable feedback necessary for the initial learning of the tasks on which subsequent performance is based? The current research set out to test the hypothesis that evaluators' prejudicial attitudes and their motivations to control their biases can lead to a feedback withholding bias—a tendency to withhold useful negative feedback from minority students.

Although people in contemporary society typically pride themselves on being non-prejudiced, research reveals that people often hold unconscious biases about disadvantaged groups (Greenwald & Banaji, 1995). Recent research has further separated these unconscious biases into implicit stereotypes—the cognitive component—and implicit evaluations—the emotional component—each with its own relation to the maintenance and expression of explicit bias (Amodio & Devine, 2006). For example, implicit stereotypes predict the extent to which Whites anticipate that their Black partner will perform consistent with racial stereotypes on a series of tasks, whereas implicit evaluations predict more non-verbal forms of prejudice, such as how far away White participants will sit from their Black partner (Amodio & Devine, 2006). Thus, there is evidence that people do have biases rooted in societal stereotypes, even if they are unable to acknowledge them, and those biases can shape people's perceptions of and interactions with outgroup members.

Unconscious biases and stereotypes are so pervasive that they can also influence students' scholastic experiences. Over the past decade and a half, there has been a great deal of social psychological research devoted to understanding how the activation of relevant stereotypes can affect performance in related domains. For example, stereotype threat theory (Steele & Aronson, 1995; Steele, 1997) shows that even a subtle reminder of one's membership in a negatively stereotyped group is enough to impair performance in the stereotyped domain (e.g. Spencer, Steele, & Quinn, 1999; Steele, Spencer, & Aronson, 2002). Nearly 15 years of research on stereotype threat has revealed how the mere knowledge of belonging to a negatively stereotyped group can have a detrimental effect on performance (Schmader, Johns, & Forbes, 2008). But these same stereotypes can also create biases in teachers that might affect their interactions with students (see Jussim & Harber, 2005 for a review). Of interest in the present research is how negative stereotypes about minority groups might change the way in which majority group evaluators provide feedback to these students.

1.1 The role of stereotypes in assessment

There already is some evidence that stereotypes can shape teachers' beliefs about and expectations for students in ways that affect how they treat and interact with those students. For example, when Rosenthal and Jacobson (1992) told teachers at the beginning of the year that some of their students were star performers (but who, in reality, had been randomly selected for this label), those students labeled as bloomers outperformed their peers for the rest of the school year. Thus, the teachers' initial expectations about which students were above average affected their interactions with these students and, consequently, became a self-fulfilling prophecy (Rosenthal & Jacobson, 1992).

In this classic study, the teachers' expectations led to a positive, beneficial outcome for their students, but what happens when teachers' expectations are influenced by negative

stereotypes? Consistent with the idea that evaluators' preconceptions about their students can affect how minority students are assessed, it appears that, unfortunately, minority students might not always receive accurate feedback on their work (e.g. Cohen & Steele, 2002; Cohen et al., 1999; Jussim, Eccles, & Madon, 1996). Past research shows evidence of both overly negative and overly positive evaluations of stigmatized students.

On the one hand, we might expect negative stereotypes to bias teachers' evaluations and feedback in a more hostile manner, leading them to provide exceedingly negative feedback to stigmatized students. These negative biases are most prevalent when people lack the ability to monitor or control their biases. For example, when evaluators are cognitively depleted (i.e., under time constraints), they provide overly negative evaluations of work done by stigmatized targets, in line with the stereotypes associated with the targets' group (Kruglanski & Freund, 1983). Moreover, when negative stereotypes are activated, they represent a hypothesis about a student's ability that then biases perceptions of ambiguous performance (Darley & Gross, 1983). In the research done by Darley and Gross (1983), participants first saw a video of a little girl playing on either a run-down playground (implying low socioeconomic status) or in a nice, upscale park (implying high socioeconomic status). Half of the sample was also shown a tape of her taking an exam where she got many questions correct, but also missed several. When participants were asked to judge this girl's academic abilities, those who never saw her perform the exam were unbiased in their assessment – they rated her equally regardless of her socioeconomic status. But those who saw her mediocre performance on the test did exhibit biases. When they thought she came from a lower socioeconomic background, they rated her as performing worse and having a poorer work ethic than participants who believed she was high in socioeconomic status, consistent with the cultural stereotypes about these two social classes.

Thus, based on these kinds of studies, one might expect that majority group evaluators would be more likely to provide overly negative feedback on minority students' work.

Although a prediction of more negative feedback is in line with a wealth of evidence for negatively biased perceptions, there is also reason to expect that the feedback minority students receive would be overly positive. We point out that the above studies all involve majority group evaluators who believe that their evaluations will remain anonymous and will only be reported to the experimenter. Other research suggests that when evaluators believe their feedback will be communicated directly to students, Whites provide *more* praise to a minority student than to a White student (Harber, 1998; 2004). In one such study, White evaluators read an essay ostensibly written by either a Black or a White student and then wrote a summary evaluation of the essay that they thought would be provided to the student. These messages were coded as including more praise when the author was ostensibly a Black student. Importantly, there was only a difference in feedback between the White and Black author for subjective content of the writing and not for objective, mechanics-based corrections. In more recent studies, Harber has extended this work to show that the positivity bias towards stigmatized students tended to increase when White teacher trainees felt that their self-image as an egalitarian was threatened after taking a loaded *Social Issues Survey* (Harber et al., 2010).

While these studies provide some support for positively biased evaluations of stigmatized students, they do not directly test whether majority group evaluators would also neglect to provide crucial negative feedback to minority students. Indeed, the measure of positivity bias used in these studies was calculated by subtracting negative content comments from positive ones (Harber, 1998; Harber et al., 2010) and by using a ratio of positive to negative comments (Harber, 2004), yielding composite favorableness scores. Examination of positivity biases in

feedback is certainly meaningful in understanding the evaluations of minority students, but we believe that is only one piece of a very intricate puzzle. The deliberate withholding of valuable criticism might be equally if not more detrimental than inflated praise, given the evidence that minority students in threatening performance situations are more attentive to negative cues in the environment than positive ones (e.g., Kaiser, Vick, & Major, 2006; Johns, Inzlicht, & Schmader, 2008), and particularly to errors on a task (Forbes, Schmader, & Allen, 2008). There is also evidence that being a target of a negative stereotype cues a prevention-focus where one becomes most concerned about avoiding making mistakes (Keller & Bless, 2008). Ironically, the very feedback that might most facilitate successful performance is perhaps being systematically withheld from stigmatized students. Thus, the first goal of the current research was to identify whether evaluators are simply overly optimistic in their feedback and evaluations of minority student work (i.e., an inflation bias), or if they tend to inhibit the expression of negative feedback as well (i.e., a feedback withholding bias).

Receiving biased evaluations could have important implications for minority students' learning processes and, thus, their ability to recall relevant information at a later time by altering what aspects of those evaluations they pay attention to and construe as meaningful. Studies show that along with tutorial instruction, the quality of feedback that students receive constitutes one of the strongest predictors of scholastic achievement (Bloom, 1984; Walberg, 1984). It has been demonstrated that the feedback people receive (positive or negative) has the capacity to undermine their desire to continue working on a task, which has implications for learning and performance (Sansone, Sachau, & Weir, 1989). These undermining effects can be exacerbated for minority students who, prior to even undergoing evaluation, express concerns that the feedback they receive is not reflective of their performance but of their group membership

(Cohen, Steele, & Ross, 1999). Furthermore, when minority students expect to receive stereotype-consistent feedback, it can lead to mistrust in teachers, schools and educational institutions (Schmader, Major, & Gramzow, 2001), and this mistrust can then undermine subsequent motivation and performance (Cohen & Steele, 2002). Because of these downstream consequences, we felt it was important to isolate the degree to which negative feedback is being withheld from stigmatized students and the factors that predict such a bias.

1.2 Possible reasons for biased feedback: Differences in perception and motivation

A second goal of the present studies was to examine the individual differences that might predict the tendency for evaluators to exhibit a feedback withholding bias, and in the process, gain insight into why such a bias exists. In doing so, we took into account both a perceptual and a motivational framework. From a perceptual standpoint, these biases in feedback could be partly due to a shifting standards perspective (Biernat, Manis, & Nelson, 1991). According to this model, stigmatized group members are evaluated relative to the positively stereotyped majority group, resulting in a “lowering of the bar” necessary for perceived success (Biernat & Manis, 1994). As a result, White students and minority students could be evaluated according to very different standards for achievement when completing the same performance measure, such that less is expected of minority students than White students (e.g., Biernat, Collins, Katzarska-Miller & Thompson, 2009; Collins, Biernat, & Eidelman, 2009; Kobrynowicz & Biernat, 1997). This kind of thinking could lead to a rose-colored perception of mediocre work (i.e., “This essay is actually really good for someone from group XYZ”).

Individual differences in the perception of work quality would lead us to predict an inflation bias on positive feedback as well as overly positive global appraisals of minority students producing mediocre work. Meanwhile, the same caliber of work by a White student would be perceived as “average” or even “poor”. We might also expect a feedback withholding

bias to result from this shifting standards explanation. Because the same mediocre work could actually be perceived as better if it was written by a minority student than a White student, it could lead evaluators to be less likely to notice, much less to correct, mistakes or poor writing.

From a motivational perspective, we draw from evidence showing that even when people possess biases about outgroups, they can often be motivated to control or inhibit those biases when interacting with an outgroup member (e.g., Plant & Devine, 1998; 2009). Indeed, research has shown that interracial interactions often lead Whites to feel concerned about appearing prejudiced (Vorauer, Hunter, Main, & Roy, 2000; Vorauer & Kumhyr, 2001) and, as such, they tend to have a general fear that members of the minority group might label them as racist (Vorauer, 2003; Vorauer & Sakamoto, 2008). Thus, evaluators might withhold negative feedback or provide excessive praise if they anticipate that their critique could be interpreted as prejudice.

Moreover, researchers have argued that prejudice reduction is a multistep process that can be facilitated through effortful action (Devine & Monteith, 2003). The compulsion behind efforts to control prejudice is thought of as a consequence of either (or both) internal motivation, driven by personally held egalitarian beliefs, and external motivation, driven by a desire to avoid negative reactions from others by upholding societal standards for what is politically correct, non-biased behavior (Plant & Devine, 1998). These constructs, though related, are independent of one another (Plant & Devine, 1998; 2009). Internal motivation (IMS) is generally associated with other explicit measures of prejudice. Indeed, the correlation between conventional measures of prejudice and IMS is significant and of sufficient magnitude to question whether these measures tap into the same construct (Plant & Devine, 1989). In fact, some researchers simply combine IMS and the modern racism scale to form a single self-reported prejudice index

(Cunningham, Johnson, Raye, Gatenby, Gore & Banaji, 2004). On the other hand, measures of prejudice and pro-Black attitudes are correlated with external motivation (EMS) significantly in the opposite directions. Additionally, Richeson & Trawalter (2008) investigated how EMS operates independently in intergroup interactions and ascertained that high levels of EMS predict anxious arousal responses to Black individuals at a basic attentional level. More specifically, those high in EMS will look away from a neutral Black face as soon as they are given an opportunity to do so (Richeson & Trawalter, 2008).

Most research, however, has examined the interaction of these two motivations, elucidating four separate combinations of IMS and EMS which lead to differences in effectiveness at keeping prejudice at bay (Butz & Plant, 2009). In the first quadrant, there is the effective motivation group (high IMS/low EMS), who are primarily internally motivated and are the most successful at managing their biases through the internalization of egalitarian goals (Devine, Plant, Amodio, Harmon-Jones, & Vance, 2002). The determined motivation group (high IMS/high EMS) are highly driven to control their biases but might not always be successful at it, particularly when they don't have adequate time/capacity (see Richeson & Shelton, 2003; Richeson & Trawalter, 2005). The unmotivated (low IMS/low EMS), are viewed as the most highly prejudiced group; because they have not internalized egalitarian goals nor do they give into societal pressure to manage their biases, people in this group are most likely to express biases in intergroup interactions (Butz & Plant, 2009).

Those in the final motivation group, the compliant (low IMS/high EMS), are perhaps the most interesting and problematic. They are primarily externally motivated in that they have a strong drive to control the appearance of biases in the interest of social norms, but are not driven by having internalized egalitarian goals and are likely to have biased attitudes toward the

outgroup (Butz & Plant, 2009). People in the compliant motivation group strongly endorse stereotypes in private, but report low prejudiced attitudes in public (Butz & Plant, 2009) and feel that social pressure to behave in nonbiased ways restricts their personal freedoms, causing anger and later backlash against minority groups (Plant & Devine, 2001). In light of these findings, we expect participants in the compliant motivation group to demonstrate the greatest amount of feedback withholding bias as they are the most likely to hold negative biases about a minority student for which they overcompensate in an effort to seem nonbiased.

Contrary to the self-focused motivation to respond without prejudice, we also investigated a more other-focused motivation whereby White evaluators with seemingly good intentions might underreport negative feedback and inflate praise based on a desire to prevent minority students from becoming disengaged. Past research highlights a tendency for ethnic minority students to become academically disengaged (Major, Spencer, Schmader, Wolfe & Crocker, 1999) and to perceive negative feedback more harshly than White students if it does not come with the explicit communication of high standards for achievement (Cohen, Steele, & Ross, 1999). If evaluators intuit these potential decrements to minority student education outcomes, they might alter the feedback they provide out of a protective but patronizing motivation. Consistent with this idea, recent research has documented a phenomenon called “failure to warn”, whereby White peer academic advisers are less likely to warn Black than White students about the difficulty of a proposed course load, which has implications for future aspirations and goal-setting (Crosby & Monin, 2007).

1.3 Present research

In light of prior evidence documenting biased feedback and its implications for minority student motivation and performance outcomes, the goals of the current research were to: 1) clarify whether evaluators actually inhibit negative feedback instead of or in addition to inflating

positive feedback and 2) examine the possible explanations for providing biased feedback to minority students. To investigate these questions, we carried out two experiments in which non-stigmatized undergraduates evaluated equally mediocre essays, ostensibly written by either a White or a minority student author (an Aboriginal Canadian in Study 1 and a Black student in Study 2). In addition to measuring motivations to respond without prejudice and patronizing motivation, we also included measures of participants' implicit and explicit bias towards these target minority groups.

We expected to find evidence of a feedback withholding bias, in addition to an unfounded inflation of positive feedback, given our participants' belief that they would be directly communicating their comments to the authors of the essays. We predicted that differences in motivation to respond without prejudice (Plant & Devine, 1998) could lead to a feedback withholding bias that would be most pronounced among participants with a more compliant motivation to respond without prejudice (low IMS/high EMS). We were open to the possibility, however, that perceptual differences in performance could lead to a situation of shifting standards (Biernat et al., 1991) resulting in more positive overall judgments of essay quality and author ability. Finally, we also entertained the hypothesis that a patronizing orientation would lead to a combination of the feedback withholding bias and inflated praise.

2 Chapter: Study 1

2.1 Method

2.1.1 Participants

Fifty nine White, Canadian-born students from the University of British Columbia were recruited to participate in this study for either monetary compensation or research credit in a psychology course. Seven of these participants were excluded from analyses due to suspicion about the true nature of the study (final sample $N = 52$).

2.1.2 Procedure

Upon arriving at the lab, participants were greeted by a female experimenter and given a cover story that the lab was collaborating with the city school board to create a mentoring program for high school students interested in post-secondary education. Participants were told that, as part of this mentoring program, they would be evaluating five essays written by Grade 12 students from a local high school and providing feedback directly to the authors via video conferencing and email. To this end, all participants, except the seven who were excluded from analyses, elected to sign an additional consent form purportedly giving their consent to have a video conference with the authors and to allow the authors to contact them via email if they had follow-up questions about the feedback they received. This bogus consent form served to enhance the believability that participants would be communicating their evaluations directly to the authors.

After delivering this cover story, the experimenter told the participants that although the high school student authors' names would not be disclosed, a profile sheet summarizing some personal information (including the primary manipulation: ethnic background) about the authors

would be provided with each essay.¹ To explain why we were providing this information, it was explained that teachers usually know their students personally and are often sensitive to their students' individual needs and tailor their feedback accordingly.

All participants were then given a folder containing the five essays they were to evaluate, along with one blue and one yellow highlighter (see Appendix A for sample essay). They were instructed to highlight any content they felt needed improvement in blue and any content they found particularly well written in yellow. After highlighting each essay, participants filled out an evaluation sheet, reporting on the clarity of the essay and writing ability of the author, as well as assigning the essay a final score out of 100. In pilot testing, the three middle essays were found to be equivalent based on reading level, clarity, and author's writing ability.² The first and last essays were attributed to a White and Asian Canadian author, respectively, and were intended to distract participants from our focus on the Aboriginal author. The essays were always presented in the same order but the student profile sheets containing the two target ethnicities (White and Aboriginal) were counterbalanced in position between the three middle essays so that the same essay was not always attributed to an Aboriginal (or White) author. The ethnicity of the third middle student author (counterbalanced with the two target ethnicities) was Asian.

¹ The student profiles were matched for equivalence based on pilot testing from a sample of ten undergraduates. Participants in this pilot study were shown samples of the student profiles (without ethnicity information present) and asked to identify the type of grades they expected each of the students to get from 1 (bad) to 5 (good). Results of a repeated measures Analysis of Variance (ANOVA) showed no significant differences in expected performance (i.e., grades) between the two target student profiles ($M_{minority} = 4.00$, $M_{white} = 3.91$, $F < 1$).

² Nine undergraduates rated the essays to be equivalent in clarity ($M_1 = 3.56$, $M_2 = 3.65$, $M_3 = 3.82$), $F < 1$, and perceived grade level of the author ($M_1 = 10.75$, $M_2 = 10.88$, $M_3 = 11.13$), $F < 1$.

After evaluating all five of the essays, participants completed a measure of implicit stereotypes associating competence with Canadian Aboriginals. Lastly, participants completed a final questionnaire including supplementary measures. After answering these final questions, participants were debriefed about the true nature of the study and thanked for their time.

2.1.3 Measures

2.1.3.1 Negative and positive feedback

The amounts of negative and positive feedback provided to the authors was determined by measuring the total number of centimeters of blue and yellow highlighting, respectively, on each essay. To allow for direct comparisons in feedback given to a White student versus an Aboriginal student, two bias indicator variables were computed. The *feedback withholding bias* indicator was calculated by subtracting the amount of negative feedback given to an Aboriginal student from the amount of negative feedback given to a White student. Higher scores on this variable indicate more feedback withholding from a minority student, and thus, greater bias. For example, a participant with a bias indicator of +20 has withheld 20 centimeters of negative feedback (blue highlighting) from an Aboriginal author when compared to the amount of negative feedback that same participant gave to an equivalent quality essay written by a White author. Similarly, the *feedback inflation* indicator was calculated by subtracting the amount of positive feedback (yellow highlighting) given to a White author from the amount given to an Aboriginal author, such that higher scores indicate greater bias via inflation of positive feedback to an Aboriginal author.

2.1.3.2 Global essay evaluations

Ratings of the essay's clarity ("The writing could be clearer in places", reverse scored), readability ("I found the essay to be very easy to read") and author's writing ability ("What is

your overall judgment of the writing ability of this student?") were reported on Likert scales ranging from 1 (low rating) to 7 (high rating). These evaluations were then aggregated to provide a single, global evaluation of each essay/author (all α 's > .80). A total score for each essay was also awarded by having participants mark an "X" anywhere on a horizontal line, ranging from 0-100, with labeled increments of ten.

To allow for comparisons between the global evaluations and scores given to an essay written to an Aboriginal author and a White author, we again computed difference scores between the two ethnicities. The *evaluative bias* indicator is the difference between the global evaluations of an Aboriginal student's essay and a White student's essay such that higher numbers represent overly positive evaluations of an Aboriginal author. Correspondingly, the *grade bias* indicator was computed in the same way and thus, higher scores on this variable represent inflation of scores out of 100 given to an Aboriginal author.

2.1.3.3 Implicit stereotypes about Aboriginals and competence

Participants' implicit stereotypes about Aboriginals were assessed using a computerized Implicit Associations Test (IAT; see Greenwald & Banaji, 1995 for a detailed description of the task). This IAT was intended to assess, at an implicit level, the degree to which participants possessed a cognitive association between their concepts of Canadian Aboriginals and competence. In this task, words (relating to either competence or incompetence) or images (Aboriginal Canadians or objects such as furniture; see Appendix B for sample stimuli) were presented, one at a time, in the center of the screen and participants were asked to press a button indicating to which category it belonged. The target categories were object vs. Aboriginal Canadian and competent vs. incompetent; the object comparison was chosen to avoid scores that

might indicate a bias to associate Whites with competence as opposed to Aboriginals with incompetence (Spencer, 2009, personal communication).

The task consisted of seven blocks of trials: five training blocks and two testing blocks. During the 20-trial practice blocks, participants first assigned stimuli to a single category heading (e.g., object vs. Aboriginal Canadian) as a means of learning the categorizations. Block 5 included 20 trials on which the response key for mapping one of the two categorizations was reversed. The fourth and the seventh blocks—the testing blocks—included 40 trials each and required participants to assign stimuli to the paired category headings. In other words, stimuli from both lists were presented randomly and participants responded with one key if the item belonged in either category listed on the top left of the screen and with a different key if the item belonged in either category listed on the top right of the screen. One testing block comprised a stereotypical pairing (Aboriginal/incompetent) and the other a counterstereotypical pairing (Aboriginal/competent). The order of these testing blocks was counterbalanced between participants. During the test blocks, the time it took participants to categorize the stimuli, as well as whether or not they chose correctly, was recorded. The assumption was that those who have a stronger implicit stereotype between Aboriginals and incompetence would be slower to categorize a relevant stimulus when Aboriginal Canadian was paired with competence. D-scores for this measure were computed in accordance with the recommendations of Greenwald, Nosek & Banaji (2003) such that higher scores represented a greater association between Aboriginals and competence.

2.1.3.4 Prejudiced Attitudes Towards Aboriginals Scale (PATAS; Morrison & Morrison, 2008)

This scale consisted of twelve items assessing participants' explicit attitudes towards institutional policies and state regulations benefiting the Aboriginal minority group in Canada. Participants indicated their agreement on a 7-point scale (where 1 = strongly disagree, 7 = strongly agree) to items like "Special places in academics programs should NOT be set aside for Aboriginal students". All twelve items on this scale had high internal reliability ($\alpha = .95$) and were therefore collapsed to create an average explicit prejudice score for each participant.

2.1.3.5 Motivation to respond without prejudice (Plant & Devine, 1998)

Ratings of participants' internal (IMS) and external (EMS) motivations to respond without prejudice were given on a 1 (strongly disagree) to 7 (strongly agree) Likert scale (Plant & Devine, 1998). The internal motivation scale contains five items ($\alpha = .83$) such as: *I attempt to act in nonprejudiced ways toward people of other ethnicities because it is personally important to me*, whereas the external motivation scale contains five items ($\alpha = .89$) such as: *I attempt to act in nonprejudiced ways toward people of other ethnicities in order to avoid disapproval from others*.

2.1.3.6 Patronizing orientation scale (PAT)

Participants reported the extent of their agreement with six items ($\alpha = .85$) measuring patronizing orientation towards minority students on a 1 (strongly disagree) to 7 (disagree) Likert scale. These items were created for the purpose of this research: *I feel bad that students from disadvantaged ethnic groups don't have the same educational opportunities as the rest of us; It's a shame that students from some ethnic groups don't do better in school; Disadvantaged minority students are especially in need of positive support and encouragement from their*

teachers; I feel sorry for minority students who struggle to well academically; If school was more of a boost to their self-esteem, students from disadvantaged backgrounds could excel at the same level of their more advantaged peers; and Extra efforts are sometimes needed to protect disadvantaged ethnic minority students from dropping out of school.

2.2 Results

To first get a general idea of participants' evaluations of the essays and how they related to the individual difference variables we measured, we computed means, standard deviations, and correlations between our dependent variables (see Table 1). Importantly, it appears that our measure of patronizing orientation (PAT) did tap into the intended motivation given that people who felt the motive to protect stigmatized students from disengaging from academic pursuits also felt the motive to control biased responding, and, conversely, those who did not express this motive were higher in self-reported explicit prejudice. Additionally, the moderate strength of its relationships with IMS and EMS suggests that the scales are indeed measuring distinct motivational constructs.

One can also see that there is a significant positive correlation between the amounts of positive feedback given to the two target authors, but this relationship is not present for negative feedback given, author ability ratings, or scores out of 100, suggesting that people evaluated the essays based largely on their individual attributes. Moreover, the amounts of positive and negative feedback given appear to map onto the overall evaluations and scores out of 100 awarded to the essays. Finally, EMS, of all the individual difference measures we considered, emerges as the primary correlate of feedback and evaluations of Aboriginal student writing. In general, those who are externally motivated to control their biases provided less negative feedback and gave more positive evaluations to the Aboriginal essay.

2.2.1 Are there overall differences in feedback and evaluation?

We predicted that White evaluators would provide biased feedback to minority student authors by over-representing positive feedback and/or withholding negative feedback. To examine differences in feedback and evaluations based on student author ethnicity, the average amounts of negative and positive feedback, global evaluations, and scores out of 100 given to a White versus an Aboriginal student were compared using repeated-measures Analysis of Variance (ANOVA) and paired sample t-tests.

A 2 (feedback: positive, negative) x 2 (author: White, Aboriginal) repeated measures ANOVA on the highlighting variables yielded no significant interaction effect, $F(1,50) = .02, p = .88$. A marginal main effect of feedback, however, was present such that participants provided somewhat more positive feedback ($M = 61.05$), in general, than negative feedback ($M = 47.28$), $F(1,50) = 2.96, p = .09$. There was no main effect of feedback given to a White author versus an Aboriginal author, $F < 1$. In addition, paired samples t-tests revealed no significant differences in global evaluations, $t(51) = -.38$, or scores out of 100, $t(51) = .31$, between the two author ethnicities, all p 's $> .70$ (see Table 1 for means).³ Thus, contrary to our hypothesis, we saw that participants were not displaying overall biases in feedback or evaluations of a minority student.

³ Supplementary analyses revealed an unanticipated effect of essay topic on the feedback participants gave and how they rated the overall quality of the essays. More specifically, the first target essay (about Alcatraz) was always seen as superior to the other two target essays (about historical figures)—it received a higher grade, $F(1,49) = 31.00, p < .001$, was evaluated more positively, $F(1,49) = 26.62, p < .001$, and was given less negative feedback overall than the other two essays, $F(1,49) = 10.21, p = .002$. This finding suggests that perhaps participants did not perceive the three target essays as equivalent, in spite of pilot testing to ensure that this was the case. Because a nearly equal number of participants were run in each order, any effect of order was unconfounded with ethnicity and when we controlled for this position effect in our primary analyses, the results were unchanged.

We did, however, have expectations that such biased feedback might be moderated by participants' individual differences in self-reported biases and motivations.

2.2.2 Examining biases and the motivation to control them

To more directly explore the hypothesis that participants' biases and motivations might predict a tendency to provide biased feedback, our second set of analyses took an individual difference approach. First, we tested the hypothesis that those with a more compliant motivation (low IMS/high EMS) might be most likely to provide biased feedback and evaluations. To hone in on bias, we focused on the difference score measures that directly compare feedback and evaluation provided to an Aboriginal and a White author. For each bias indicator variable, IMS and EMS were entered as continuous, mean centered variables in the first step and their interaction term was entered in the second step of a moderated hierarchical regression analysis. Significant interactions were followed-up with simple slopes analyses.

2.2.2.1 Feedback withholding bias

We first conducted this analysis on the feedback withholding bias indicator to examine differences in negative feedback as a function of motivations to control prejudice. We found no significant main effects of either IMS or EMS, all p 's $> .30$, however, there was a significant interaction between IMS and EMS, $\Delta R^2 = .10$, $F(1,48) = 5.64$, $p = .022$ (see Figure 1). Further analyses of simple slopes conducted at 1SD below and 1SD above the means of the two continuous variables, IMS and EMS, revealed that participants with a more compliant motivation (low IMS/high EMS) withheld a greater amount of negative feedback from an Aboriginal author than those low in IMS and low in EMS, $\beta = .60$, $p = .015$. On the other hand, at high levels of IMS, EMS was unrelated to the amount of negative feedback given to an Aboriginal author, $\beta = -.05$, $p > .75$. These results indicate that the more prejudiced (low IMS) participants were, while at

the same time being motivated to *appear* nonbiased (high EMS), the more likely they were to inhibit negative feedback to a minority compared to a White author.

2.2.2.2 Feedback inflation

We then examined the effects of motivations to respond without prejudice on positive feedback using the feedback inflation indicator. The same moderated regression analysis predicting the inflation indicator yielded no significant main or interactive effects of IMS or EMS, all p 's > .19. As such, there was no evidence of White participants favoring overly positive feedback to a minority as compared to a White student; only a feedback withholding bias was present.

2.2.2.3 Evaluative bias

Next, we tested the effects of IMS, EMS and their interaction on the evaluative bias indicator (i.e., participants' global evaluations of the essays/authors). The analysis yielded a significant interaction between IMS and EMS, $\Delta R^2 = .09$, $F(1,48) = 5.07$, $p = .029$ (see Figure 2), but no significant main effects, all p 's > .18. Further analyses of simple slopes revealed a pattern consistent with that observed for negative feedback. Participants with a more compliant motivation (low IMS/high EMS) tended to give overly positive ratings of an Aboriginal (vs. White) student compared to those low in IMS and low in EMS, $\beta = .63$, $p = .011$. At high levels of IMS, EMS was unrelated to the overall evaluations given to the authors, $\beta = .005$, $p > .98$.

2.2.2.4 Grade bias

Lastly, we tested these individual differences in motivation in predicting the grade bias indicator. We again found a significant interaction between IMS and EMS predicting the grade bias indicator, $\Delta R^2 = .11$, $F(1,48) = 5.83$, $p = .020$ (see Figure 3). Similar to the evaluative bias indicator, there were no main effects of either IMS or EMS on the grade bias indicator, all p 's >

.37. Simple slopes analyses mirrored the previous patterns, such that participants with a more compliant motivation (low IMS/high EMS) gave higher grades to an Aboriginal author than a White author as compared to participants low in IMS and low in EMS, $\beta = .60, p = .016$. EMS was unrelated to scores out of 100 given by participants high in IMS, $\beta = -.08, p > .65$.⁴

2.2.3 Testing the roles of implicit and explicit prejudice and patronizing motivation

In one final analysis, we tested the effects of implicit and explicit biases, as well as a patronizing orientation towards protecting minority students on each outcome measure. We entered these individual difference variables into a series of multiple regression analyses predicting in turn the feedback withholding bias, feedback inflation, overall bias and grade bias indicators. Results showed that none of these outcome variables were predicted by participants' implicit (IAT) or explicit (PATAS) biases or a motive to protect (PAT) minority students, all p 's $> .18$ (see Table 2 for β 's).

2.3 Discussion

This initial study explored differences in feedback given to a minority student and White student on essays of similar general quality. Although mean-level comparisons of the data showed no overall differences in evaluations and feedback, internal analyses revealed evidence of a feedback withholding bias as a function of individual differences in motivation to respond without prejudice (Plant & Devine, 1989). Specifically, participants who reported a more

⁴ When we conducted these same analyses on the feedback given to each author separately, the interaction and main effect patterns for IMS and EMS mirrored those of the difference scores for negative feedback, overall evaluation, and grade given to the Aboriginal author, all p 's $< .05$. There was only a marginal interaction of IMS and EMS predicting positive feedback to a White author, $p < .10$, but no other effects on evaluations of the White author were present, all p 's $> .10$.

compliant motivation (low IMS/high EMS) seemed to inhibit providing valuable negative criticism to an Aboriginal author while at the same time giving the author higher global evaluations. Furthermore, these individual differences in motivation had no effect on the amount of positive feedback participants gave to minority students and no significant effect on the feedback provided to a White author. Finally, we found no support for the other-focused motivation predictions based on a protective/patronizing explanation for providing biased feedback to a minority student. Thus, even though evidence suggests that minority students tend to disengage from academic pursuits (Major et al., 1999), it seems that the feedback withholding bias stems from a more self-focused motive to avoid coming across as prejudiced when evaluating a minority student rather than from a desire to curb disengagement.

The findings of this first study provide some evidence for a feedback withholding bias. Study 2 sought to replicate this effect with another minority group associated with negative stereotypes in academics—Blacks—and to make minor improvements to our procedures. Blacks are a more visible minority, and one whose history is widely known and discussed. Thus, people might be more aware of their own biases about Blacks and more conscious of wanting to inhibit those biases. Because Aboriginal Canadians are a less visible minority, seldom discussed in media, people might be less apt to monitor and control their biases against them. If it is the case that stereotypes about Blacks are not as freely endorsed then we would expect the feedback withholding bias to be more pronounced when participants are evaluating an essay written by a Black student than an Aboriginal student.

Changing the target minority ethnicity in this way also allowed us to implement a more traditional measure of implicit bias by using the original Black/White IAT (Greenwald & Banaji, 1995). Since the IAT we used in Study 1 showed a significant relationship between implicit

stereotypes and positive feedback to both authors (see Table 1), there could have been a confound of using Aboriginal Canadians contrasted with objects as the target stimuli. More specifically, it is possible that participants more readily associated *people* (vs. objects) with competence, generally speaking, leading to the observed correlation between IAT scores and positive feedback to both authors. Thus, to provide a better test of the role of implicit biases, we employed the standard race IAT in Study 2.

It was somewhat surprising in Study 1 that there was no evidence of a feedback inflation effect that might be expected based on Harber's past research (Harber, 1998; 2004; Harber et al., 2010). It's possible that the instructions we gave to participants in Study 1 prior to the evaluation task might have done too much to encourage positive feedback overall, regardless of author ethnicity. For example, participants tended to give more positive than negative feedback in general, which is counterintuitive for a task that is meant to facilitate improvement. Thus, we altered our instructions in Study 2 to emphasize that positive feedback should be reserved for sentences and phrases that are judged to be particularly good. Lastly, given the unexpected essay effect found in Study 1, wherein participants perceived the target essay on the topic of Alcatraz more favorably than the target essays about historical figures, we decided to remove this essay from the procedures in Study 2 and only have participants evaluate four essays in total.

3 Chapter: Study 2

3.1 Method

3.1.1 Participants

Sixty-seven White and Asian (74% Asian) undergraduates from the University of British Columbia were recruited to participate in this study for either monetary compensation or research credit in a psychology course. Five of these participants were excluded from analyses due to suspicion about the true nature of the study (*final sample*, $N = 62$).

3.1.2 Procedure

The cover story and procedures used in this study closely mirrored those of Study 1 except for a few minor changes. In order to eliminate the essay effect in Study 1, we reduced the number of target essays to two, thus reducing the total number of essays participants evaluated to four. We also opened up participation in the study to those students of advantaged status, rather than only to Whites (Study 1), which in our student population includes a large number of Asian students. Finally, we changed the measure of implicit bias to reflect a new target ethnicity (Black) as well as exchanged the explicit measure of prejudice to one measuring bias towards Blacks instead of Aboriginals.

In this second study, we altered the instructions for the highlighting measure slightly in an attempt to avoid the main effect of positive feedback found in Study 1. Therefore, it was stressed that participants should only highlight areas they thought were very well written (with yellow) or greatly in need of improvement (with blue), and to do nothing if they thought a section or sentence was fine as written. As in Study 1, participants were given student profile sheets about each author (order of target profiles was again counterbalanced between participants) and told to consider them when making their evaluations. After rating the essays,

participants completed the implicit bias measure and a final questionnaire, and then were debriefed and thanked for their time.

3.1.3 Measures

3.1.3.1 Essay evaluations

As in Study 1, total amounts of positive and negative feedback were measured in centimeters of yellow and blue highlighting, respectively. We also computed the *feedback withholding bias* and *feedback inflation* indicator variables in this study to measure differences in positive and negative feedback given to a minority (Black) student relative to a White student. Lastly, we again collected participants' overall evaluations of each author's writing ability and a score given to each essay out of 100 and calculated the *grade* and *evaluative bias* indicator variables for comparisons between the two target ethnicities.

3.1.3.2 Implicit Association Test (IAT)

To measure implicit attitudes towards Blacks, we used the original Black/White IAT developed by Greenwald & Banaji (1995). In this task, participants were instructed to press a button with either their left or right hand indicating to which category a stimulus appearing in the middle of the screen (either a word or image) belonged. The categories were Black or White paired with good or bad, presented in counterbalanced pairing order between participants. The stimuli were either pictures of White or Black faces or words synonymous with good or bad (see Greenwald & Banaji, 1995 for a more detailed explanation and sample stimuli). As with the Aboriginal IAT used in Study 1, there were five practice blocks consisting of 20 trials each and two test blocks consisting of 40 trials each. Reaction times to categorize stimuli were recorded and d-prime scores for each participant were calculated according to the recommendations of Greenwald, Nosek & Banaji (2003).

3.1.3.3 Symbolic Racism Scale (SRS)

To measure participants' explicit attitudes towards Blacks, we used the symbolic racism scale (Henry & Sears, 2002). The scale consists of eight items such as, *Over the past few years, blacks have gotten more economically than they deserve*, and participants were instructed to rate their agreement with such statements ($\alpha = .63$). We created average scores on the SRS for each participant according to the recommendations of Sears & Henry (2005).

3.1.3.4 Motivation measures

Participants reported their internal (IMS) and external (EMS) motivations to respond without prejudice as well as their levels of patronizing motivation (PAT), using the same scales as in Study 1.

3.2 Results

Similar to Study 1, we began by computing means, standard deviations, and correlations between our dependent variables (see Table 2). One can see by the means provided that participants in this study gave less negative and positive feedback overall than they did in the first study, an indication that our change of instruction was effective. Additionally, we once again see EMS emerge as the primary correlate of withholding negative feedback to a minority student (i.e., Black) author.

3.2.1 Are there overall differences in feedback and evaluation?

To test for differences in feedback given to the two target authors, we conducted a 2 (feedback: positive and negative) X 2 (ethnicity: White and Black) repeated measures ANOVA on the highlighting variables. There were no significant main effects, all p 's $> .27$, however, unlike in Study 1, this time we found a significant interaction between feedback and ethnicity, $F(1,61) = 6.83, p = .011$ (see Figure 4). Participants in this sample demonstrated an overall

feedback withholding bias such that they provided a Black author with significantly less negative feedback ($M = 34.98$) than a White author ($M = 46.53$), $p = .023$. There was no significant difference between ethnicities in the amount of positive feedback given, $p > .41$. Paired samples t-tests revealed that there were no differences between ethnicities in overall author evaluations or scores out of 100, all p 's $> .54$.⁵

3.2.2 Examining biases and the motivation to control them

To once again examine the effect of the motivation to control bias on providing feedback to a minority student, we employed the same analytic strategy used in Study 1. We entered the mean centered, continuous variables IMS and EMS into the first step and their interaction term into the second step of a moderated regression analysis predicting each of the four bias indicator outcome variables and followed up significant interactions with simple slope analyses.

3.2.2.1 Feedback withholding bias

Results of the moderated regression predicting the withholding bias indicator yielded a significant interaction between IMS and EMS, $\Delta R^2 = .10$, $F(1,58) = 7.96$, $p = .005$ (see Figure 5), that qualified a significant main effect of EMS, $\beta = .40$, $p = .001$. Simple slopes analyses reflected the same patterns as Study 1 wherein participants with a more compliant motivation (low IMS/high EMS) demonstrated the greatest degree of feedback withholding from a Black author compared to those low in IMS and low in EMS, $\beta = .997$, $p < .001$. At high levels of IMS,

⁵ Analyses are largely unchanged when order is included in the model, with the exception of a theoretically uninteresting feedback x order interaction, $p = .05$: participants who saw the Black author before the White author gave more negative feedback than positive feedback; whereas participants who saw the White author first provided equal amounts of positive and negative feedback.

EMS was unrelated to the degree of feedback withholding bias participants showed, $\beta = .05, p > .80$.

3.2.2.2 Feedback inflation

Consistent with the results of Study 1, we found no significant main or interactive effects of these motivation variables predicting the feedback inflation indicator, all p 's $> .18$.

3.2.2.3 Evaluative bias

Also consistent with Study 1, we found a significant interaction between IMS and EMS predicting the overall bias indicator, $\Delta R^2 = .09, F(1,58) = 6.16, p = .016$ (see Figure 6). There was no main effect of IMS, $p > .69$, but there was a marginal main effect of EMS, $\beta = .24, p = .066$. Analyses of simple slopes revealed a pattern similar to Study 1 in that participants with a more compliant motivation gave a higher overall rating to a Black author than a White author compared to participants low in both IMS and EMS, $\beta = .80, p < .003$. Once again, we found that EMS was unrelated to biased evaluations at high levels of IMS, $\beta = -.09, p > .61$.

3.2.2.4 Grade bias

As in Study 1, the interaction between IMS and EMS also had a significant effect on the grade bias indicator, $\Delta R^2 = .11, F(1,58) = 7.58, p = .008$ (see Figure 7). This interaction qualified a main effect of EMS, $\beta = .27, p = .039$ but there was no main effect of IMS, $p > .97$. Simple slopes analyses yielded similar significant patterns: at low level of IMS, stronger levels of EMS predicted giving higher grades to a Black student than a White student, $\beta = .88, p = .001$.

Finally, at high levels of IMS, EMS was unrelated to the grades given to the target ethnicities, $p > .60$.⁶

3.2.3 Testing the roles of implicit and explicit prejudice and patronizing motivation

Lastly, consistent with the findings from Study 1, implicit bias, explicit bias, and the motivation to protect stigmatized students did not significantly predict the inflation bias, evaluative bias, or grade bias indicator variables, all p 's $> .05$ (see Table 4). There was a significant effect, however, of participants' implicit bias scores predicting the feedback withholding bias indicator, $r = .25$, $p = .034$, such that participants who had greater implicit racial bias tended to withhold more negative feedback from a Black author.

3.3 Discussion

The purpose of Study 2 was to test whether the feedback withholding bias extended to another disadvantaged minority group—Blacks. Consistent with our predictions, we found evidence for an overall feedback withholding bias for negative feedback to a Black student as compared to a White author. As in Study 1, we also saw that the feedback withholding bias was magnified for participants with a compliant motivation – those who have not internalized

⁶ As in Study 1, we also analyzed feedback to each author separately. For the Black author, we found additive main effects of IMS, $\beta = .24$, $p = .05$, and EMS, $\beta = -.24$, $p = .05$, predicting negative feedback. Although the interaction was not significant, these main effects still suggest that the greatest bias is exhibited by participants with a more compliant motivation (high EMS/low IMS). There was also a significant interaction between IMS and EMS predicting the overall evaluation of a White author, $p < .05$, but no other effects reached significance for either author, all p 's $> .05$. Analyses of the simple slopes in the interaction of IMS and EMS predicting the overall evaluation of a White author showed that participants with a compliant motivation (low IMS/high EMS) rated a White author's ability as significantly lower than participants low in both IMS and EMS, $\beta = -.69$, $p < .05$, and at high levels of IMS, EMS was unrelated to the ratings of a White author, $p > .25$.

egalitarian values but feel externally motivated to inhibit bias. Similarly, individual differences in motivation to respond without prejudice significantly predicted the discrepancy in overall essay ratings and grades given between a Black and a White author. We also found that biases in feedback were specific to negative feedback, replicating the lack of a positive feedback inflation bias in Study 1, in spite of our instructions to encourage more judicious use of positive feedback. Finally, we once again found no support for a patronizing motive in driving biased feedback to a minority student but we did find evidence that implicit (but not explicit) prejudice predicts the feedback withholding bias. It follows, then, that although people have implicit biases and they express a motivation to control prejudiced behavior, they might not be aware that they are exhibiting a feedback withholding bias. The implication for this is that reducing the feedback withholding bias might not be as simple as overtly telling people to be more fair and accurate in the feedback they give.

4 Chapter: Conclusion

Across two studies we found support for a feedback withholding bias wherein advantaged status evaluators give significantly less criticism to minority students (as compared to the negative feedback they provide to an essay of the same caliber written by a White student). In Study 1, this was particularly true for participants who reported that they had not internalized egalitarian goals (i.e., they were low in internal motivation to respond without prejudice) but felt pressure from society to conform to politically correct standards of non-biased behavior (i.e., they were high in external motivation to respond without prejudice; Plant & Devine, 1998). In Study 2, we extended this finding to Blacks as another stigmatized group, and found an overall feedback withholding bias which was then intensified by a compliant motivation to respond without prejudice. Taken together, these studies provide evidence that minority students might not always be getting the accurate feedback they need in order to improve their writing skills.

These results are in line with the work of Crosby and Monin (2007) indicating that Whites are reluctant to notify minority students when a potential workload might be too onerous for them to handle (i.e., the “failure to warn”). Our findings also map onto other work showing that when evaluators are reassured that they hold egalitarian values prior to evaluating minority student work, they provide more helpful comments (Ruscher, Wallace, Walker, & Bell, 2010, study 2). In this prior research, participants were provided with bogus feedback regarding their score on an implicit measure of prejudice. Some participants were told that they exhibited exceptionally minimal bias while others were told they exhibited the average amount of bias seen on such a measure. Although participants in Ruscher’s study did not think their feedback would be directly communicated to the authors, they believed their comments would be compared with either an expert or novice reviewer. This elicited either high or low accountability, respectively.

Results revealed that the combination of high accountability and reduced fear of appearing prejudiced produced the most helpful comments, as judged by experts (Ruscher et al., 2010). The feedback withholding bias appears to be a parallel finding such that participants in our studies who were *most* concerned about appearing prejudiced when purportedly giving feedback directly to a minority student withheld the greatest amount of critical feedback. The current research has advanced our existing knowledge of biased feedback to stigmatized students in both conceptual and practical ways. Conceptually, our research contributes insight into what types of people are most likely to exhibit biases in feedback. Practically, our research has revealed a negative feedback withholding bias that might result in impaired learning for stigmatized students.

Although our results appear to contradict past studies showing a positivity bias in feedback to a minority student (Harber, 1998; 2004), there are reasons to suspect that, given the distinct methodology between our studies, we might just be measuring separate constructs rooted in the same overarching phenomenon. Whereas the methodology used in the current research allowed for a more nuanced examination of the type of feedback given (i.e., highlighting sections needing improvement vs. recognizing particularly good writing), the previous work on positivity biases (Harber, 1998, 2004) focused solely on coding participants' written summary evaluations to a minority student. The overall evaluations and grades provided by participants in our studies seem to be more comparable to the subjective summary-type statements that Harber examined. If this is the case, then we do, in fact, see evidence for a similar positivity bias in the current research based on the evaluative and grade inflation indicators. In addition, the feedback withholding bias revealed in this study might also be present in previous research (Harber, 1998; 2004) had the experimenters been looking for such a bias, rather than specifically coding for praise and positive feedback by subtracting out the presence of negative comments. What is

more, our findings do seem to be in line with recent work by Harber and colleagues (2010) showing that in both a neutral condition and an egalitarian-identity threatened condition, White participants indicated that minority students needed to spend fewer hours improving their writing than in a buffered egalitarian-identity condition.

One conceptual advance to the present research was to examine a variety of factors that could play a role in predicting these feedback biases. At first glance, one might posit that our findings lend support to the idea of a perceptual difference (i.e., a shifting standard; Biernat et al., 1991) of work quality expected from minority and majority group students. While we are not opposed to this explanation, we are hesitant to commit to it given the interactive effects of IMS and EMS in predicting the feedback withholding bias and global evaluations across both studies. A recent study on the shifting standards model showed that participants reviewed a mediocre academic transcript more favorably when it belonged to a Black student than to a White student, but in the same turn they also misremembered the Black student as having a lower GPA than the White student (Collins et al., 2009). Additionally, IMS and EMS were unrelated to the overly positive evaluations of Black students in that study (Collins et al., 2009). Considering this and other relevant research (e.g. Biernat et al., 1991; Biernat & Manis, 1994; Biernat, Collins, Katzarska-Miller & Thompson, 2009; Kobryniewicz & Biernat, 1997), in order to support a shifting standards explanation with our findings, we would have expected an overall positivity effect in the ratings of the essays and author ability.

Furthermore, the inflated essay ratings we did observe for participants with a compliant motivation could have simply been a product of these participants' desire to appear consistent (i.e., nonbiased) after having withheld negative feedback from a minority student, especially since they believed they would be giving these ratings to the student firsthand. One focus of

future research might be to manipulate whether the feedback participants give is private (i.e., anonymous) or public (i.e., directly communicated) in order to tease these explanations apart with greater precision. If participants are indeed inflating global essay ratings of a minority student in an effort to map those ratings onto the amount of negative feedback they withheld then supplemental instructions indicating that those ratings would only be seen by the experimenter (i.e., they would not be given to the authors) should wash out the inflation of global essay ratings. On the other hand, if these ratings remain inflated after evaluators receive such an instruction, this would be more supportive of a shifting standards explanation in that evaluators do consider the essays as higher quality when written by a minority student. In sum, however, based on the current findings, it appears that the feedback withholding bias stems more from a motivation to appear nonbiased than from a tendency to actually perceive the minority student's essay as being better written.

The results of both studies showed support for a self-focused motivation rather than an other-focused patronizing orientation in predicting the feedback withholding bias. This is consistent with research on intergroup relations demonstrating that members of the majority group primarily want to be liked and seen as moral when interacting with minority group members (Bergsieker, Shelton, & Richeson, 2010). Maintaining this goal while evaluating the work of stigmatized students could cause concerns about not appearing prejudiced to supersede any latent concerns they might carry for preserving the academic engagement and motivation of minority students.

Although neither study showed evidence of explicit prejudice predicting the feedback withholding bias, we did see signs of implicit racial prejudice predicting a greater feedback withholding bias in the second study. This makes logical sense because we would not expect

people who withhold negative feedback from minority students, particularly those with a complaint motivation, to admit to being prejudiced on a self-report questionnaire. Additionally, there is a precedent for treating implicit and explicit prejudice as distinct channels to disparate behavioral outcomes (Dovidio, Kawakami & Gaertner, 2002). If the feedback withholding bias is primarily rooted in the implicit channel then perhaps this implies that evaluators are largely unaware that they are engaging in this biased behavior. Thus, encouraging evaluators to give accurate negative feedback to minority students might take more than a simple instruction asking them to do so.

4.1 Implications and future directions

We believe that the feedback withholding bias has serious implications for minority student learning and subsequent performance. Indeed, past research has shown that appreciation of substandard work might communicate the message that little more is expected from the student (Anderson, Evertson, & Brophy, 1979; Brophy, 1981). Because minority students are often unable to decipher when feedback is appropriately positive or negative, they can have trouble calibrating (i.e., appropriately estimating) their abilities (Aronson & Inzlicht, 2004). Additionally, inaccurate (i.e., overly positive) feedback can be interpreted as patronizing by targets of negative stereotypes and thus they may discount its value (Crocker, Voelkl, Testa, & Major, 1991), which in turn decreases the chances of that feedback being used to further develop relevant skills. Inflated feedback can also prevent stigmatized students from focusing on the areas where they need to improve by misleading them with respect to what these specific areas actually are (Massey, Scott, & Dornbusch, 1975). Lastly, considering the dangers of “overpraising” and “underchallenging” students (Mueller & Dweck, 1998), receiving inaccurate feedback on performance might deprive minority students of the educational challenge necessary for advancement (Harber et al., 2010; Steele, 1995). The feedback withholding bias might be

particularly instrumental in triggering an insufficient development of the skills necessary for successful academic performance in light of evidence suggesting that stigmatized students in threatening performance situations are more attuned to errors they make and might actually learn better from receiving negative feedback (Forbes, Schmader & Allen, 2008).

It is possible that overexposure to the feedback withholding bias during early learning experiences is at least partly responsible for later underperformance of minority students. If minority students are not being given the proper instruction regarding what areas to focus on for improvement, how can they be expected to develop the ability to monitor their own performance and learn from their mistakes? Future research is needed to examine the specific effects of the feedback withholding bias on minority student learning, however, preliminary research from our lab indicates that ethnic minority students report higher disengagement as predicted by their perception of overly negative biases in feedback (i.e., under-represented positive feedback and overly negative feedback). However, at the same time, they report not being able to monitor their own performance as well as White students (Gurm, Croft & Schmader, 2011). Thus, even though minority students don't necessarily perceive a feedback withholding bias that then predicts their academic attitudes, they do recognize within themselves an insufficient ability to sense how they are doing academically and to appropriately gauge their performance. Other research should explore the possible conditions under which minority students themselves might gain insight into the feedback withholding bias and the subsequent effects of having this knowledge. For example, if stigmatized students could recognize the feedback withholding bias, they would be able to request constructive criticism from external sources.

Another way to investigate the effects of the feedback withholding bias on learning and performance outcomes using a more experimental paradigm could be to have participants revise

an essay which has received biased feedback. The premise of such a study would be to use the actual feedback given to the essays used in the studies presented here and instruct majority group participants to revise the essays based on this feedback. These revised essays would then be compared to revised essays from a group of participants who were given more constructive feedback. The prediction is that participants, regardless of their group membership, who were given constructive feedback to use when revising the essay would be better able to monitor their progress and feel more confident about their own skill development based on self-report measures, as well as have better writing performance as judged by independent raters. If stigmatized students are in fact more sensitive to learning from mistakes and errors due to a greater prevention focus in an academic context, then perhaps this effect would even be more pronounced among minority learners.

Future research should also be devoted to understanding the contextual circumstances under which evaluators will provide valuable constructive criticism to minority students, regardless of individual differences in biases and motivations. A practical intervention might focus on manipulating which ideological framework is applied in evaluating the work of stigmatized students. Research has shown that endorsement of a multicultural (i.e., recognition of and embracing group differences) versus a colorblind ideology (i.e., trying to ignore differences between groups) is associated with a reduction in prejudicial attitudes and ethnocentrism (e.g., Richeson & Nussbaum, 2004; Ryan, Hunt, Weible, Peterson & Casas, 2007). Furthermore, there is evidence that a colorblind ideology, though seemingly effective at reducing stereotype application initially, leads to rebound effects producing increased prejudice later on (Correll, Park & Smith, 2008). Given this evidence, we predict that when advantaged status evaluators are provided with a more multicultural instruction for providing feedback (vs. a colorblind

instruction) they will be less worried about appearing prejudiced and more focused on actually evaluating an essay. This simple instruction might enable evaluators to provide critical feedback that accurately reflects performance, regardless of author race, without evaluators having to worry about whether or not they are upholding political correctness norms. Specifically, the prediction is that majority group evaluators in a multicultural (vs. colorblind) instruction condition would be less likely to exhibit the feedback withholding bias. We are currently collecting preliminary data from a sample of teacher trainees in an effort to gain further insight into which ideology they report using most frequently (i.e., which one they intuit to be more effective) and to directly test the hypothesis that a multicultural ideology is related to a reduction in the feedback withholding bias.

A potential limitation of this research is the within subjects design used in evaluating essays of White and minority students. The advantage of using a between subjects design would have been in providing the same consistent essay for each author and only varying the author's ethnicity between participants. Our chosen design, however, extends the prior research on this topic by directly comparing the feedback that each participant gives to authors of multiple ethnicities. To our knowledge, this is the only paradigm which does not use a between subjects design to investigate feedback differences to minority and majority group members. The advantage of a within subjects design is that we are able to account for individual variation in responding via our bias indicator variables. For example, it may be the case that some people are just more reserved about providing negative feedback in general, regardless of who the recipient is. However, by taking into account the difference in negative feedback that each person provides to a Black author versus a White author we are able to control for this type of measurement error in our results and provide a more sensitive measure of bias. What is more, there are notable

practical implications for using a within subjects design in that teachers in real-world institutions do see work from various groups of students simultaneously and are likely making the same types of comparisons when evaluating work quality as the participants in the studies discussed here.

In conclusion, the present research provides evidence that minority students from racial groups negatively stereotyped in academic domains might not always receive accurate feedback on their work. Across two studies, evaluators who were most concerned about appearing prejudiced, but who did not personally sanction nonbiased behavior, demonstrated a feedback withholding bias wherein they were reluctant to provide valuable criticism to a stigmatized student author. The implications of the feedback withholding bias for minority student learning and performance are considerable given past research on academic disengagement, mistrust, and underperformance. It is our hope that this finding will shed more light on the importance of accurate feedback to all students and will spur additional research geared towards ensuring candid, constructive feedback to stigmatized and nonstigmatized students alike.

Figure 1. Study 1: Interaction between IMS and EMS predicting the difference in negative feedback given to a White author compared to an Aboriginal author.

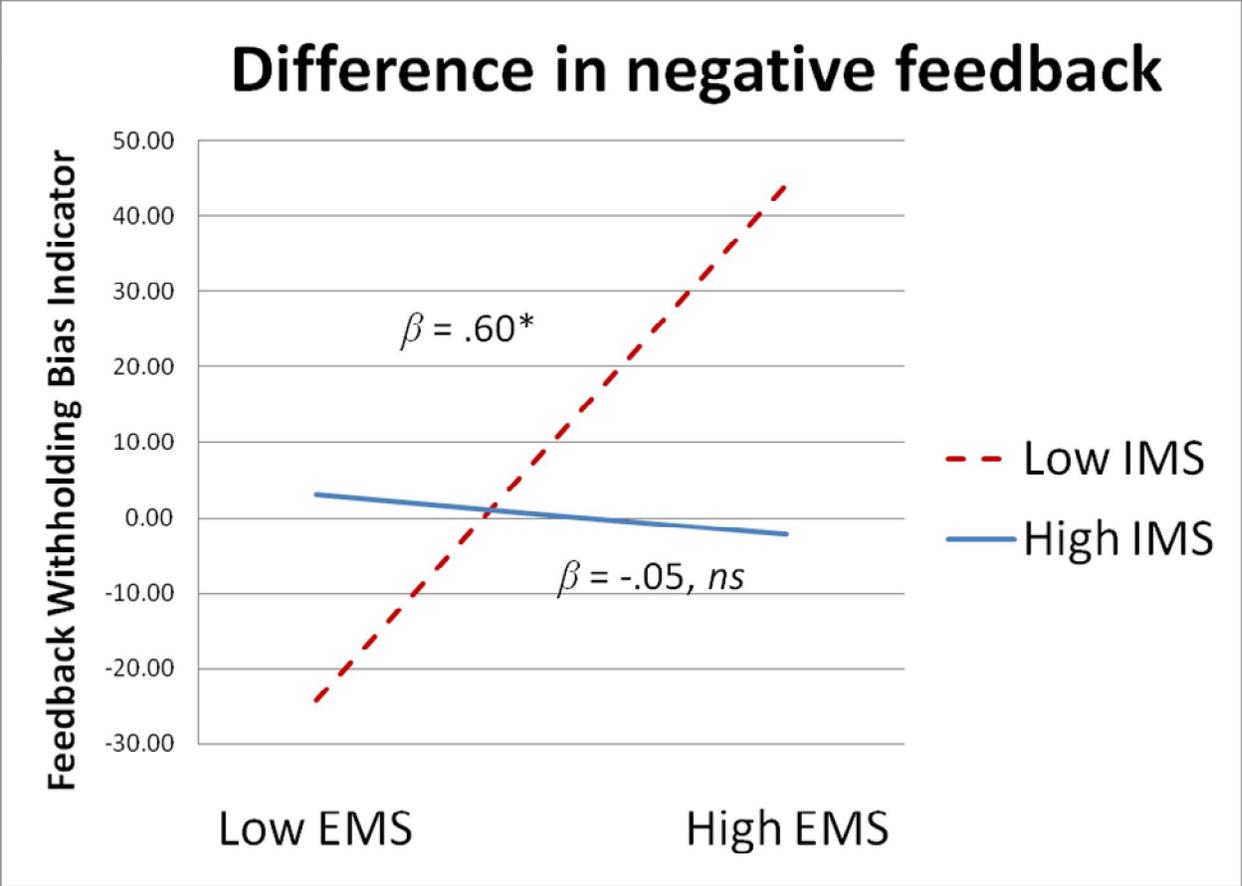


Figure 2. Study 1: Interaction between IMS and EMS predicting discrepancies in the overall ability ratings of an Aboriginal author compared to a White author.

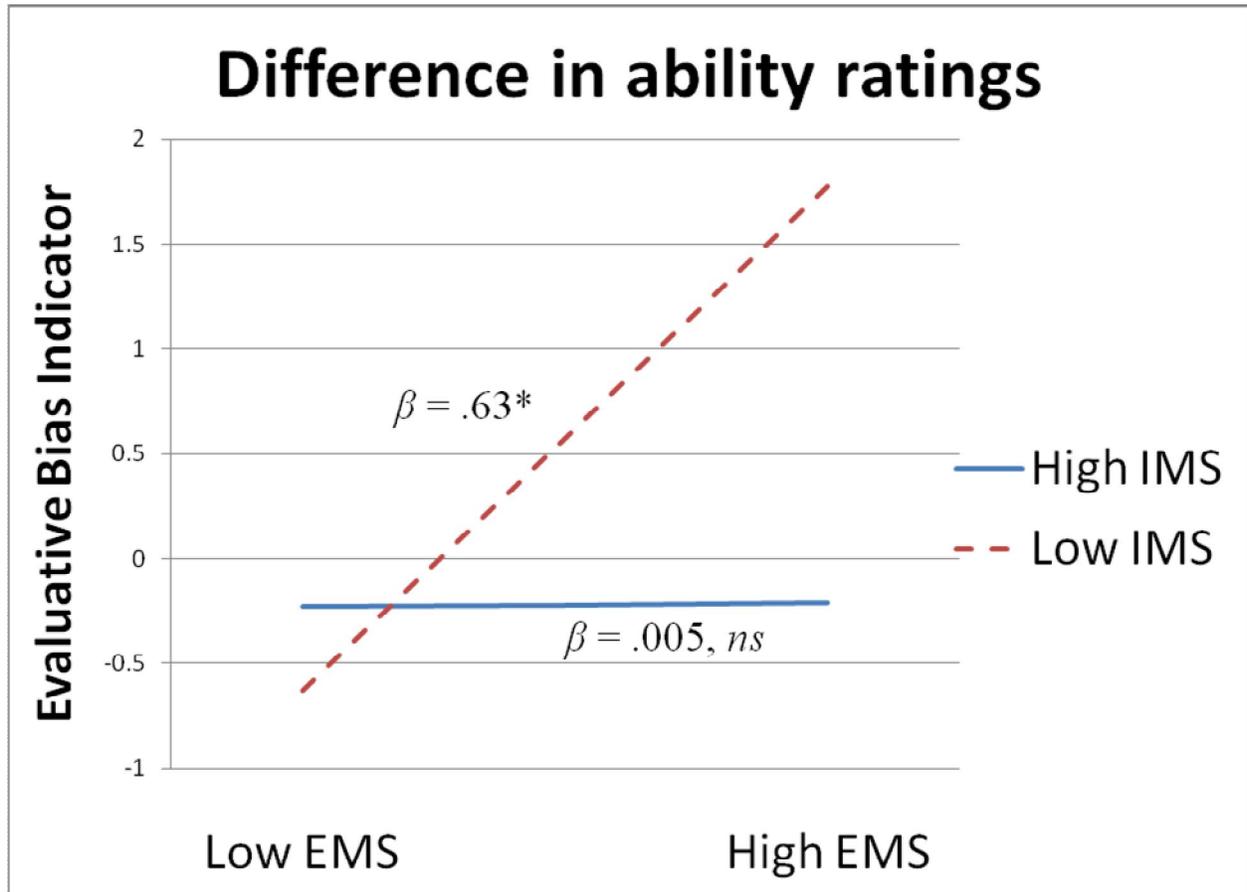


Figure 3. Study 1: Interaction between IMS and EMS predicting the difference in score out of 100 given to an Aboriginal author and a White author.

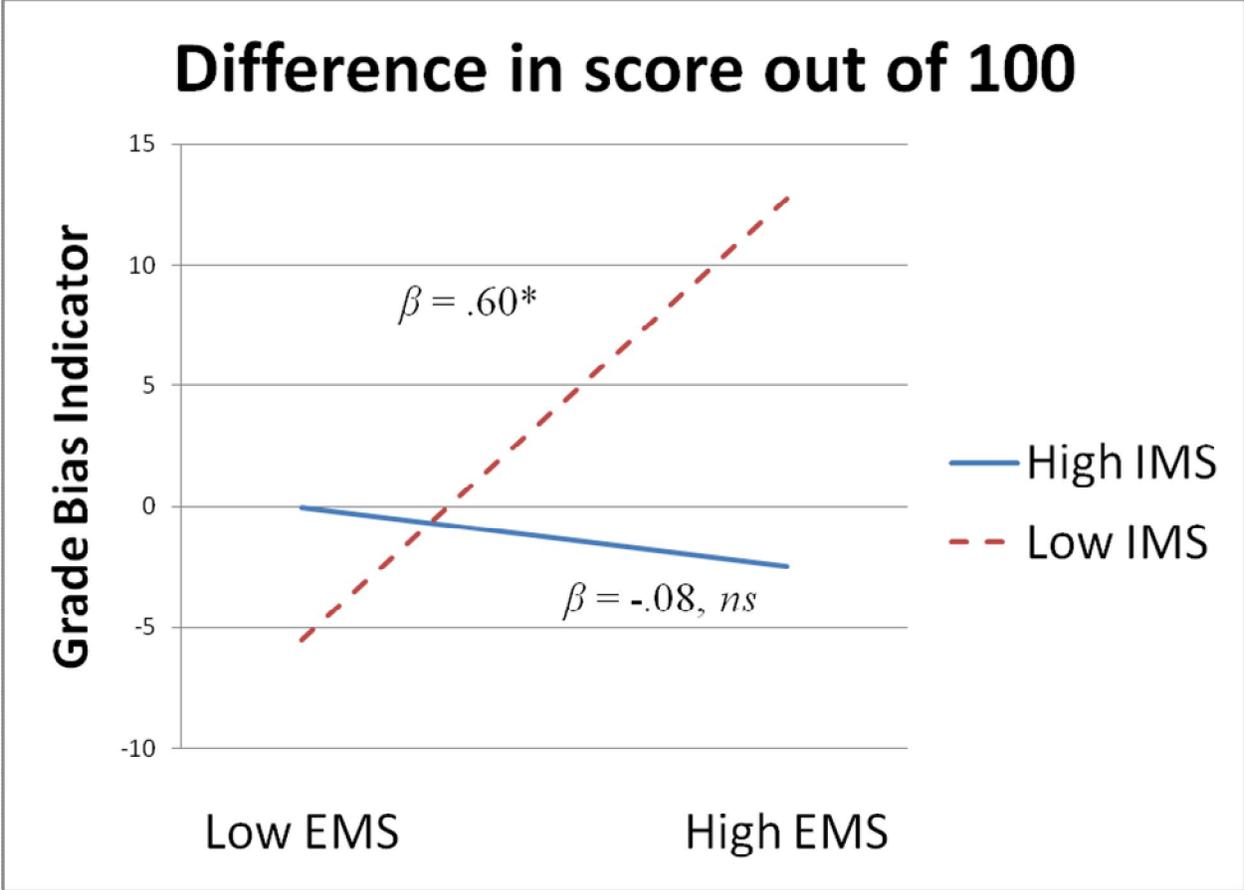


Figure 4. Study 2: Average amounts of positive and negative feedback given to a White author compared to a Black author.

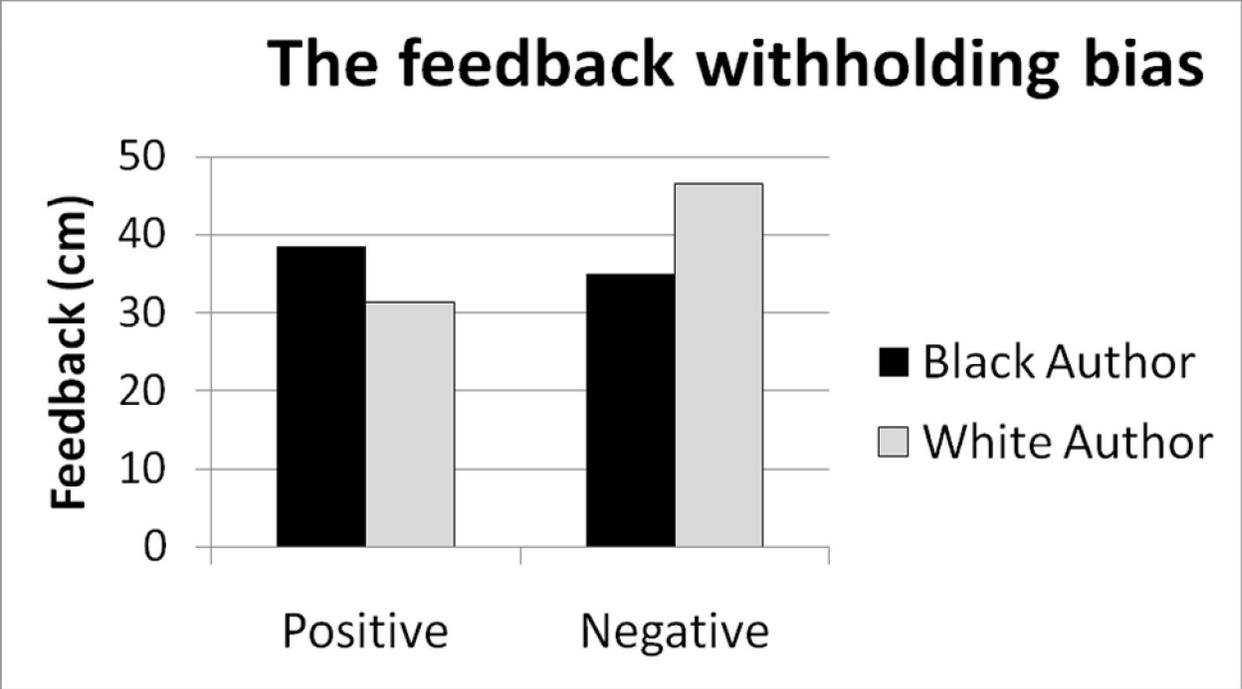


Figure 5. Study 2: The interaction between IMS and EMS predicting difference between negative feedback to a White author compared to a Black author.

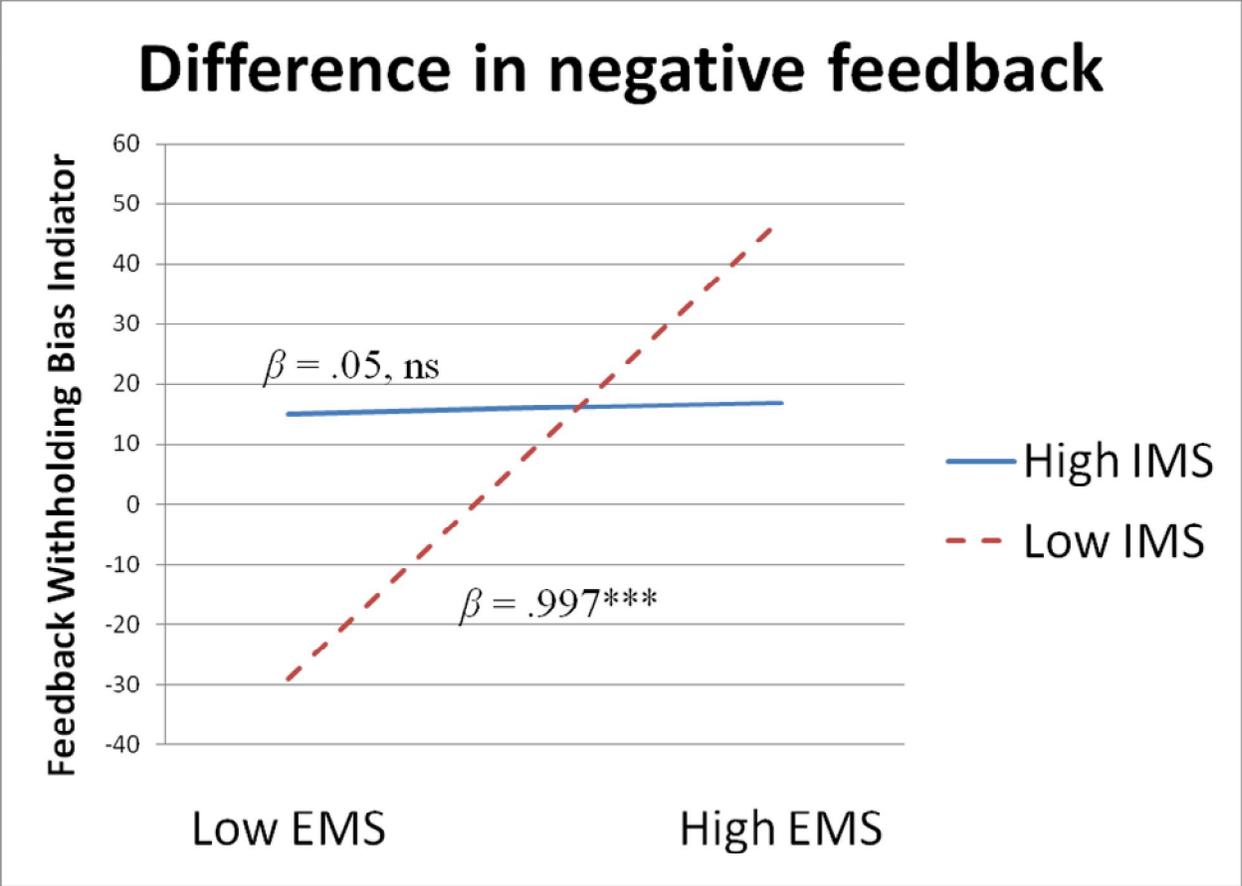


Figure 6. Study 2: Interaction between IMS and EMS predicting discrepancies in the overall ability ratings of a Black author compared to a White author.

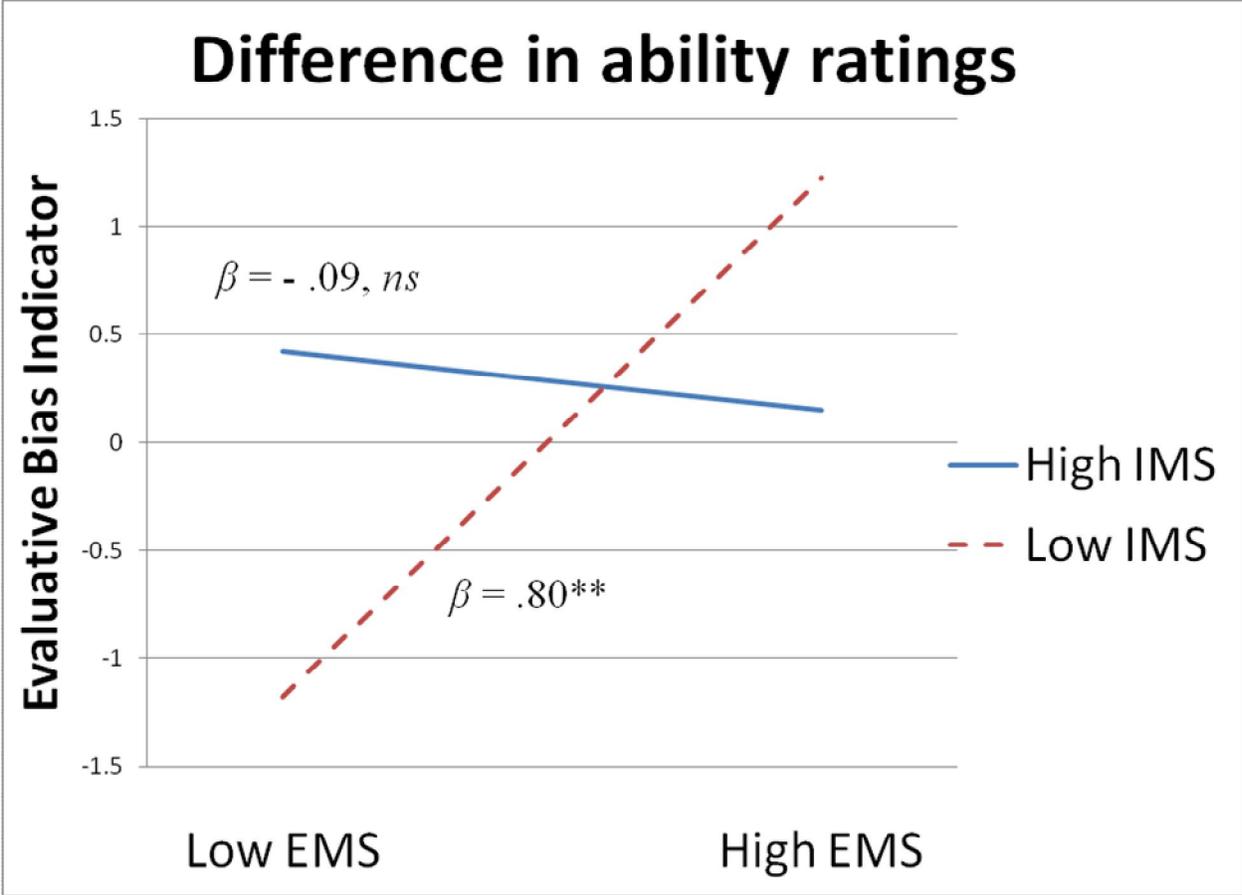


Figure 7. Study 2: Interaction between IMS and EMS predicting the difference in score out of 100 given to a Black author and a White author.

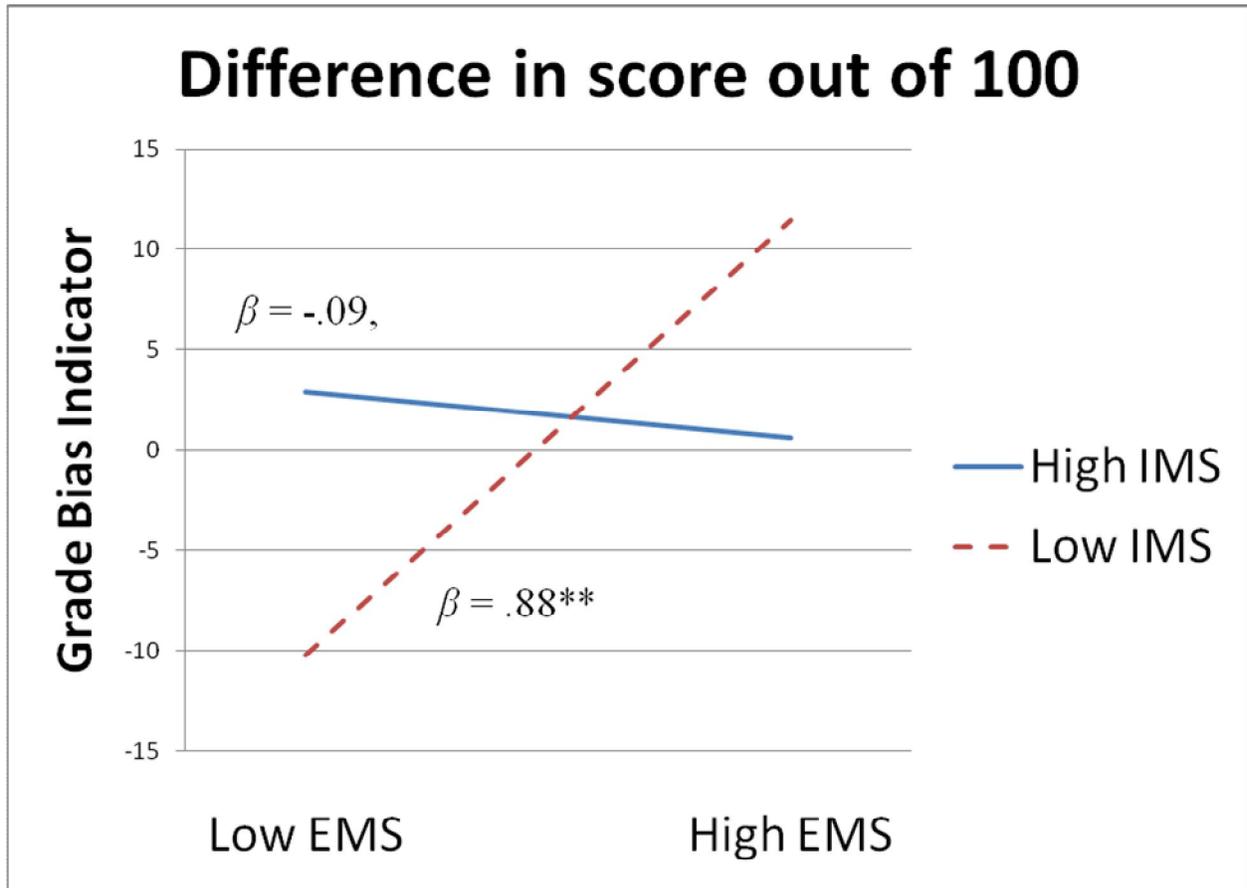


Table 1. Study 1: Descriptive statistics: means, standard deviations and correlations between evaluations of student author and participants' individual differences in bias and motivation.

	Mean (SD)	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.
1. Positive fdbk White	59.08 (45.04)	.62**	.07	.09	.44**	.18	.31*	.12	.33*	-.24 #	.11	.21	.20
2. Positive fdbk Aboriginal	63.03 (65.34)		.16	-.10	.28*	.41**	.11	.33*	.30*	-.18	.09	.23	.16
3. Negative fdbk White	45.61 (39.02)			.12	-.49**	-.20	-.63**	-.26#	-.04	-.21	-.18	.08	-.17
4. Negative fdbk Aboriginal	48.51 (44.75)				-.08	-.53**	-.04	-.48**	.13	-.04	-.03	-.18	-.39**
5. Author's ability White	4.56 (1.41)					.18	.81**	.26#	-.03	.09	.01	.03	.17
6. Author's ability Aboriginal	4.52 (1.55)						.20	.85**	.09	-.002	-.03	.14	.41**
7. Overall grade White	74.78 (14.27)							.42**	.02	.12	.06	.07	.10
8. Overall grade Aboriginal	74.13 (14.38)								.10	.07	-.05	.21	.28*
9. IAT (<i>d_2SD_pen</i>)	.32 (.64)									-.32*	.23	.29*	-.06
10. PATAS	3.74 (1.25)										-.22	-.49**	-.02
11. PAT	4.71 (1.09)											.31*	.26#
12. IMS	5.59 (1.11)												.37**
13. EMS	4.52 (1.06)												

Table 2. Study 1: Regression table for implicit and explicit prejudice and patronizing motive predicting outcome variables.

	Feedback withholding	Inflation indicator	Evaluative bias	Grade bias
Variable	β	β	β	β
IAT	-.17	.09	.08	.09
PATAS	-.21	.06	-.06	-.07
PAT	-.10	-.01	-.14	-.07
R^2	.06	.09	.02	.02
F	.98	.11	.26	.36

* $p < .05$.

Table 3. Study 2: Descriptive statistics: means, standard deviations and correlations between evaluations of student author and participants' individual differences in bias and motivation.

	Mean (SD)	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.
1. Positive fdbk White	31.39 (38.75)	.53**	.16	.26*	.19	-.002	.03	-.02	-.27*	-.30*	.04	.20	.03
2. Positive fdbk Black	38.41 (37.46)		.03	.02	.03	.21	.12	.26*	-.38**	-.19	.03	.03	-.03
3. Negative fdbk White	46.53 (38.52)			.42**	-.51**	-.05	-.38**	-.05	.07	-.13	-.10	.26*	.21
4. Negative fdbk Black	34.98 (33.31)				-.18	-.28*	-.27*	-.40**	-.21	-.11	-.18	.30#	-.23#
5. Author's ability White	4.37 (1.11)					.04	.78**	.03	-.03	-.17	.05	.006	-.12
6. Author's ability Black	4.48 (1.07)						.19	.77**	-.11	-.11	.12	.10	.21#
7. Overall grade White	74.84 (9.64)							.29*	-.007	-.29*	.01	.06	-.12
8. Overall grade Black	75.65 (11.05)								-.12	-.21	.10	.08	.19
9. IAT (<i>d_2SD_pen</i>)	.04 (.79)									.07	-.12	-.10	-.02
10. SRS	2.13 (.41)										-.12	-.48**	.23
11. PAT	5.01 (.95)											.27*	.37**
12. IMS	5.50 (1.01)												.06
13. EMS	4.65 (1.01)												

Table 4. Study 2: Regression table for implicit (IAT) and explicit (SRS) prejudice and patronizing motive (PAT) predicting outcome variables.

Variable	Feedback withholding	Inflation indicator	Evaluative bias	Grade bias
	β	β	β	β
IAT	.25*	-.11	-.05	-.10
SRS	-.16	.07	.01	-.03
PAT	-.10	.05	-.07	-.04
R^2	.07	.02	.01	.08
F	1.44	.48	.15	.99

* $p < .05$.

References

- Amodio, D. & Devine, P. (2006). Stereotyping and evaluation in implicit race bias: Evidence for independent constructs and unique effects on behavior. *Journal of Personality and Social Psychology, 91*, 652-661.
- Anderson, L. M., Evertson, C. M. & Brophy, J. E. (1979). An Experimental Study of Effective Teaching in First-Grade Reading Groups. *The Elementary School Journal, 79*, 193-223.
- Aronson, J., & Inzlicht, M. (2004). The ups and downs of attributional ambiguity: Stereotype vulnerability and the academic self-knowledge of African American college students. *Psychological Science, 15*, 829–836.
- Bergsieker, H.B.; Shelton, J. N., Richeson, J.A. (2010). To be liked versus respected: Divergent goals in interracial interactions. *Journal of Personality and Social Psychology, 99*, 248-264.
- Biernat, M., Collins, E.C., Katzarska-Miller, I., & Thompson, E. (2009). Race-based shifting standards and racial discrimination. *Personality and Social Psychology Bulletin, 35*, 16-28.
- Biernat, M., Manis, M., & Nelson, T. E. (1991). Stereotypes and standards of judgment. *Journal of Personality and Social Psychology, 60*(4), 485-499. doi:10.1037/0022-3514.60.4.485.
- Biernat, M. & Manis, M. (1994). Shifting standards and stereotype-based judgements. *Journal of Personality and Social Psychology, 66*, 5-20.
- Bloom, B. S. (1984). The 2 sigma problem: The research for methods of group instruction as effective as one-to-one tutoring. *Educational Researcher, 13*, 4-16.

- Brophy, J. E. (1981). Teacher praise: A functional analysis. *Review of Educational Research*, 51, 5-32.
- Butz, D. A., & Plant, E. A. (2009). Prejudice control and interracial relations: The role of motivation to respond without prejudice. *Journal of Personality*, 77(5), 1311-1341. doi:10.1111/j.1467-6494.2009.00583.x
- Cohen, G. L., & Steele, C. M. (2002). A barrier of mistrust: How stereotypes affect cross-race mentoring. In J. Aronson (Ed.), *Improving academic achievement: Impact of psychological factors on education* (pp. 305–331). San Diego, CA: Academic Press.
- Cohen, G. L., Steele, C. M., & Ross, L. D. (1999). The mentor's dilemma: Providing critical feedback across the racial divide. *Personality and Social Psychology Bulletin*, 25, 1302–1318.
- Collins, E.C., Biernat, M., & Eidelman, S. (2009). Stereotypes in the communication and translation of person impressions. *Journal of Experimental Social Psychology*, 45, 368-374.
- Crocker, J., Voelkl, K., Testa, M., & Major, B. (1991). Social stigma: The affective consequences of attributional ambiguity. *Journal of Personality and Social Psychology*, 60, 218–228.
- Crosby, J., & Monin, B. (2007). Failure to warn: How student race affects warnings of potential academic difficulty. *Journal of Experimental Social Psychology*, 43, 663-670
- Cunningham, W. A., Johnson, M. K., Raye, C. L., Gatenby, J. C., Gore, J. C., & Banaji, M. R. (2004). Separable neural components in the processing of black and white faces. *Psychological Science*, 15, 806-813.

- Darley, J. M., & Gross, P. H. (1983). A hypothesis-confirming bias in labeling effects. *Journal of Personality and Social Psychology, 44*, 20–33.
- Devine, P. G., & Monteith, M. J. (1993). The role of discrepancy associated affect in prejudice reduction. In D. M. Mackie, & D. L. Hamilton, *Affect, cognition, and stereotyping: Interactive processes in intergroup perception* (pp. 317-344). San Diego, CA: Academic Press.
- Devine, P.G., Plant, E.A., Amodio, D.M., Harmon-Jones, E. & Vance, S.L. (2002). The regulation of explicit and implicit race bias: The role of motivations to respond without prejudice, *Journal of Personality and Social Psychology, 82*, 835–848.
- Dovidio, J. F., Kawakami, K., & Gaertner, S. L. (2002). Implicit and explicit prejudice and interracial interaction. *Journal of Personality and Social Psychology, 82*, 62-68.
- Forbes, C., Schmader, T. & Allen, J. (2008). The role of devaluing and discounting in performance monitoring: a neurophysiological study of minorities under threat *Social Cognitive and Affective Neuroscience, 3*, 253-261.
- Gonzalez, P., Blanton, H., & Williams, K. (2002). The effects of stereotype threat and double-minority status on the test performance of Latino women. *Personality and Social Psychology Bulletin, 28*, 659-670.
- Greenwald, A. & Banaji, M. (1995). Implicit social cognition: Attitudes, self-esteem, & stereotypes. *Psychological Review, 102*, 4-27.
- Greenwald, A. G., Nosek, B. A., & Banaji, M. R. (2003). Understanding and Using the Implicit Association Test: I. An Improved Scoring Algorithm. *Journal of Personality and Social Psychology, 85*, 197-216.

- Gurm, M., Croft, A. & Schmader, T. (2011). Do students perceive biased feedback? A comparison between White and minority students. *Unpublished data*.
- Harber, K. D. (1998). Feedback to minorities: Evidence of a positive bias. *Journal of Personality and Social Psychology*, 74, 623-628.
- Harber, K. D. (2004). The positive feedback bias as a response to out-group unfriendliness. *Journal of Applied Social Psychology*, 34, 2272-2297.
- Harber, K. D., Stafford, R., & Kennedy, K. A. (2010). The positive feedback bias as a response to self-image threat. *British Journal of Social Psychology*, 49, 207-218.
- Henry, P. J. & Sears, D. O. (2002). The symbolic racism 2000 scale. *Political Psychology*, 23, 253-283.
- Johns, M., Inzlicht, M., & Schmader, T. (2008). Stereotype Threat and Executive Resource Depletion: The Influence of Emotion Regulation. *Journal of Experimental Psychology: General*, 137, 691-705.
- Jussim, L., Eccles, J. & Madon, S. (1996). Social perception, social stereotypes, and teacher expectations: Accuracy and the quest for the powerful self-fulfilling prophecy. *Advances in Experimental and Social Psychology*, 28, 281-388.
- Jussim, L. & Harber, K. (2005). Teacher expectations and self-fulfilling prophecies: Knowns and unknowns, resolved and unresolved controversies. *Personality and Social Psychology Review*, 9, 131-155.
- Kaiser, C. R., Vick, S. B., & Major, B. (2006). Prejudice Expectations Moderate Preconscious Attention to Cues That Are Threatening to Social Identity. *Psychological Science*, 17, 332-338.

- Keller, J. & Bless, H. (2008). When positive and negative expectancies disrupt performance: Regulatory focus as a catalyst. *European Journal of Social Psychology, 38*, 187-212.
- Kobrynowicz, D. & Biernat, M. (1997). Decoding subjective evaluations: How stereotypes provide shifting standards. *Journal of Experimental Social Psychology, 33*, 579-601.
- Kruglanski, A. W. & Freund, T. (1983). Freezing and unfreezing of lay-inferences: Effects on impression primacy, ethnic stereotyping, and numerical anchoring. *Journal of Experimental Social Psychology, 19*, 448-468.
- Massey, G., Scott, V., & Dornbusch, S. (1975). Racism without racists: Institutional racism in urban schools. *Black Scholar, 7*, 10-19.
- Morrison, M., Morrison, T., Harriman, R., & Jewell, L. (2008). Old-fashioned and modern prejudice toward Aboriginals in Canada. In Morrison, M. & Morrison, T. (Eds.), *The Psychology of Modern Prejudice*, 277-306. Portland, OR: Nova.
- Mueller, C. M., & Dweck, C. S. (1998). Praise for intelligence can undermine children's motivation and performance. *Journal of Personality and Social Psychology, 75*, 33-52.
- Plant, A. E., & Devine, P. G. (1998). Internal and external motivation to respond without prejudice. *Journal of Personality and Social Psychology, 75*, 811-832.
- Plant, E. A., & Devine, P. G. (2001). Responses to other-imposed pro-black pressure: Acceptance or backlash? *Journal of Experimental Social Psychology, 37*, 486-501.
- Plant, E. A., & Devine, P. (2009). The active control of prejudice: Unpacking the intentions guiding control efforts. *Journal of Personality and Social Psychology, 96*, 640-652.
- Richeson, J. A., & Shelton, N. (2003). When prejudice does not pay: Effects of interracial contact on executive function. *Psychological Science, 14*, 287-290.

- Richeson, J. A., & Trawalter, S. (2005). Why do interracial interactions impair executive function? A resource depletion account. *Journal of Personality and Social Psychology, 88*, 934-947.
- Rosenthal, R. and Jacobson, L. (1992) *Pygmalion in the classroom*. Expanded edition. New York: Irvington.
- Ruscher, J. B., Wallace, D. L., Walker, K. M., & Bell, L. H. (2010). Constructive feedback in cross-race interactions. *Group Processes & Intergroup Relations, 13*, 603-619.
- Sansone, S., Sachau, D. A., & Weir, C. (1989). Effects of instruction on intrinsic interest: The importance of contexts. *Journal of Personality and Social Psychology, 57*, 819–829.
- Schmader, T., Johns, M. & Forbes, C. (2008) An integrated process model of stereotype threat effects on performance. *Psychological Review, 115*, 336-356.
- Schmader, T., Major, B., & Gramzow, R. H. (2001). Coping with ethnic stereotypes in the academic domain: Perceived injustice and psychological disengagement. *Journal of Social Issues, 57*, 93-111. doi:10.1111/0022-4537.00203
- Sears, D. O., & Henry, P. J. (2005). Over thirty years later: A contemporary look at symbolic racism and its critics. *Advances in Experimental Social Psychology, 37*, 95-150.
- Spencer, S. J., Steele, C. M., & Quinn, D. M. (1999). Stereotype threat and women's math performance. *Journal of Experimental Social Psychology, 35*, 4-28.
- Steele, C. M. (1997). A threat in the air: How stereotypes shape intellectual identity and performance. *American Psychologist, 52*, 613-629. doi:10.1037/0003-066X.52.6.613

- Steele, C. M., & Aronson, J. (1995). Stereotype threat and the intellectual test performance of African Americans. *Journal of Personality and Social Psychology*, *69*, 797–811.
- Steele, C. M., Spencer, S. J., & Aronson, J. (2002). Contending with group image: The psychology of stereotype and social identity threat. In M. P. Zanna, M. P. Zanna (Eds.), *Advances in experimental social psychology*, Vol. 34, 379-440. San Diego, CA US: Academic Press.
- Trawalter, S., & Richeson, J. A. (2006). Regulatory focus and executive function after interracial interactions. *Journal of Experimental Social Psychology*, *42*, 406-412.
- Vorauer, J. D., Hunter, A. J., Main, K. J., & Roy, S. A. (2000). Meta-stereotype activation: evidence from indirect measures for specific evaluative concerns experienced by members of dominant groups in intergroup interaction. *Journal of Personality and Social Psychology*, *78*, 690–707.
- Vorauer, J. D., & Kumhyr, S. M. (2001). Is this about you or me? Self- versus other-directed judgments and feelings in response to intergroup interaction. *Personality and Social Psychology Bulletin*, *27*, 706–709.
- Vorauer, J. & Sakamoto, Y. (2008). Who cares what the outgroup thinks? Testing an information search model of the importance individuals accord to an outgroup member's view of them during an intergroup interaction. *Journal of Personality and Social Psychology*, *95*, 1467-1480.
- Walberg, H. G. (1984). Improving the productivity of America's schools. *Education Leadership*, *41*, 19-27.

Appendices

Appendix A Sample Essay

Hypatia

Hypatia was born in Alexandria, Egypt in the year 370 A.D. She was the daughter of a mathematician Theon. At the time of Hypatia's birth, he was a professor of mathematics at the University of Alexandria. He then became solely dedicated to producing the perfect human being. He taught Hypatia as much of his own knowledge of mathematics as possible. Theon also stressed upon his daughter was the art of retort or orator which is the ability to impress others with their own presence and influence people with words. Theon also made sure to teach his daughter of world religions, which would come to haunt her in her tragic end. All in all, Theon taught Hypatia independence by telling her, "Reserve your right to think, for even to think wrongly is better than not to think at all."

Hypatia became a wonderful teacher and public speaker because she could take the most complicated topic and explain it so simplistically. She was taught everything she knew in the land of Alexandria, which was the center of learning during this time. Scholars and intellectuals would travel from all over to exchange thoughts and ideas. Because of this she was very lucky. She became one of the most admired teachers of the time. She became the head of Neo-platonic school in Alexandria about 400 A.D.

Though most of her work was lost but what we do know is from letters she wrote to one of her students, Synesius of Cyrene, who was a philosopher and later became a Christian bishop. Also there were many references to her work in other mathematician and astronomers texts. Hypatia taught mathematics and astronomy. Mostly Hypatia wrote commentaries on other texts on her subjects of interests. Her commentaries include A Commentary on the Arithmetica of Diophantus, A Commentary on the Almagest- which was the third book her father wrote and A Commentary on the conics of Apollonius- which divided cones into different parts by a plane. Basically she made original commentaries easier to understand which resulted in these commentaries lasting many more years than they would have on their own.

Through her correspondence with Synesius we know that she invented a device called an astrolabe, which is an instrument that determines the altitude of the stars and the planets. She is also accredited with the invention of the hydroscope which is used to distill water and measure the gravity of liquids.

Since Hypatia was so dedicated to her field of study, many Christians felt threatened by her knowledge and were against her research. She had many non-Christian views which caused a ruckus in Alexandria. During Lent in the year 415 A.D, Hypatia was going home and was suddenly pulled out of her carriage and was dragged to a church called Caesareum where a group of religious fanatics lead by Peter the Reader, stripped her of her clothes and brutally beat her with broken pieces of pottery tiles. After tearing her body into pieces they burned her remains.

The mathematical world owes a lot to Hypatia, not only for her own works and inventions but also for rewriting the commentaries that she did. Without those, much information would have been lost.

Appendix B Sample Stimuli

