

# Better Than Most

## Teacher Beliefs about Effort and Ability in Uganda

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## Abstract

Do teachers have accurate beliefs about their effort and ability? This paper explores this through a survey experiment in public-private partnership schools in Uganda, wherein teacher self-beliefs are contrasted with their beliefs about other teachers in the same school. The study finds that, on average, teachers tend to rate ability, effort, and job satisfaction more positively for themselves than for other teachers. This tendency is called high relative self-regard. The study finds no systematic evidence of high relative self-regard around perceptions of student engagement quality and available support structures. More experienced teachers are less likely to exhibit high relative self-regard, while teachers showing low effort are more likely to exhibit it. This is analogous to the Dunning-Kruger effect in psychology, except respondents rate themselves as better than

most (not better than average) and variation is explored over effort (not cognitive ability). High relative self-regard is less pronounced in owner-managed public-private partnership schools, suggesting that when principle-agent problems are less severe, schools find ways to correct for inaccurate teacher self-beliefs. These results provide suggestive evidence of cognitive biases that help teachers rationalize suboptimal effort in the classroom. This in turn points to the importance of providing objective feedback to teachers about their effort and performance as one potential way to improve their performance. Teacher self-beliefs are important areas of intervention because they are likely to affect how teachers optimize their effort and training investments. Self-beliefs are also likely to affect how teachers respond to changes in incentive and accountability regimes.

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## **Better Than Most: Teacher Beliefs about Effort and Ability in Uganda**

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## 1. Introduction

Teacher effort appears to be low in many developing countries. This can be seen in high rates of teacher absenteeism (Bold et al 2016, Chaudhury et al 2006, Kremer et al 2005, Banerjee and Duflo 2006) and low rates of actual teaching, even when the teacher is in school (Bold et al 2016, Chaudhury et al 2006). Using data from unannounced visits in seven Sub-Saharan African countries, Bold et al (2017) find that students receive only about two hours and fifty minutes of teaching per day— this is just over half the scheduled time. This is largely because teachers, even when in school, are not teaching. In some contexts, these rates change slowly. For instance, rates of teacher absence in Uganda were 27 percent in 2002-03 and 30 percent in 2013 (Bold et al 2017).

One open question is: do teachers exerting low effort believe that their effort is low? In this paper we provide suggestive evidence on this question using data from a randomized survey experiment in Ugandan secondary schools. We focus on a sample of 350 secondary school teachers in Uganda working in public-private partnership (PPP) schools.<sup>1</sup> These teachers were given detailed self-administered questionnaires on beliefs about their performance and working conditions. To elicit potential self-belief biases, the framing of these perception questions was randomized within schools. Teachers were randomly divided into two groups. In one group, the respondent was asked to provide information about him/herself: we call this the ‘self-assessment’ group. In the other group, the respondent was asked to provide information about ‘most other teachers in the school’: we call this the ‘social-assessment’ group.

This experiment was designed to reveal the extent of divergence between teachers’ self-beliefs and their beliefs about other teachers in their school. Systematic positive divergence on specific questions implies that on average, teachers see themselves more favorably than they see the other teachers in the same school. We call this tendency high-relative self-regard (HRS). We find evidence of HRS around perceptions of ability and effort and job-satisfaction. On the other hand, perceptions around support structures and quality of student engagement do not appear to be subject to HRS. We also find that teachers who are less experienced and who appear to exert less actual effort are more likely to exhibit HRS. In addition, incidence of HRS is lower in owner-managed schools and better performing schools.

These results align with broader behavioral literature. The tendency to consider oneself more favorably than peers - or ‘above average’ to peers - is widely documented (Kruger 1999, Alicke et al. 1995, Alicke, 1985). Epley and Dunning (2000) find that people generally think of themselves as more ‘charitable, cooperative, considerate, fair, kind, loyal and sincere than the typical person’ (p. 861; see also Dunning, Heath, & Suls, 2004, for a review). The Dunning-Krueger effect - the cognitive bias wherein people of low ability assess their cognitive ability as greater than it is - is well-established in psychology. A particularly influential study in this area has been Svenson (1981) wherein the vast majority of subjects rate their driving skills as ‘above average’. These findings have been replicated numerous times in various countries and with respect to different outcomes. In one study, 37% of one firm’s professional engineers placed themselves among the top 5% of performers at the firm (Zenger 1992). In a survey of high school seniors, 25% rated themselves in the top 1% in their ability to get along with others (College Board 1976-1977). When asking a sample of entrepreneurs about

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<sup>1</sup> Private schools that receive per-capita funding for eligible low-income students from the government of Uganda.

their chances of success, Cooper et al. (1988) found that 81% answered between 0 and 30%. However, when asked the odds of any business like theirs failing, only 39% of them answered between 0 and 30%.

This phenomenon has been described variously as overconfidence (Della Vigna 2009), better-than-average or above-average effect (Alicke & Govorun, 2005, Williams & Gilovich, 2008), Lake Wobegon effect (Cannell 1987<sup>2</sup>), false uniqueness bias (Suls, Wan, & Sanders, 1988) and overplacement (Larrick, Burson, and Soll 2007, Moore and Healy 2008). Throughout this paper, we use the label *HRS* to define the notion most clearly captured by our study.

The use of HRS-type tendencies in rationalization of outcomes has also been documented in behavioral and psychological literature. Because individuals expect their behavior to produce success, they attribute outcomes to their actions when they succeed and to bad luck when they fail (Miller and Ross 1975, Feather and Simon 1971).

Teachers are likely to be particularly susceptible to HRS because estimation of own ability is particularly difficult in teaching (DellaVigna 2009).<sup>3</sup> This can be due to several reasons. First, teaching is cumulative – what a student can learn in one grade depends on what he has learned in previous grades.<sup>4</sup> Second, teaching involves a noisy feedback process - it is difficult to measure a teacher’s ability to teach.<sup>5</sup> Absent such measurement, schools must rely either on student or staff evaluations or both, none of which are free from problems. In addition, teaching is discretionary - if individuals making decisions have a feeling of control, they are more likely to incorrectly estimate their own performance: by definition, teaching requires individuals to have a feeling of control<sup>6</sup> (World Bank 2004).

The finding that HRS is significantly lower in owner-managed schools is suggestive in terms of principle-agent theory. In private schools, where the owners of the school also act as head teachers, incentives to maximize teacher effort are stronger and more direct.<sup>7</sup> In such schools HRS is less likely. Our data cannot directly shed light on possible reasons why this difference exists, however that it exists appears to signal that with incentive alignment, it is possible for school managers to ameliorate the problem.

That HRS appears to be concentrated in low performing schools and among low effort teachers has at least one important implication. Potentially, HRS is one reason why despite increased enrollment student learning continues to be low. Teachers tend to over-rate themselves, and the kinds of

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<sup>2</sup> The term is a reference to Garrison Keillor’s fictional Lake Wobegone – a town where all the ‘children are above average’ (Keillor 2016).

<sup>3</sup> Banerjee et al. [2007] note two features of public good provision in developing countries that makes it hard to quantify effort: (i) the process of project implementation is rarely quantifiable; (ii) public good quality is difficult to measure.

<sup>4</sup> Because teaching is cumulative, overestimation could in fact signal a rationalization of exculpation – wherein teachers exculpate themselves by ‘blaming’ other teachers for poor learning outcomes of students.

<sup>5</sup> Some recent work argues for ‘value-added’ measures of teacher quality (Chetty et al 2014). Such measures require substantial information on past and present student performance, as well as some sophistication in using these. Neither of these conditions can be taken as given for schools in a developing country framework.

<sup>6</sup> A related concept is teacher self-efficacy. Education literature defines this as ‘teachers’ self-referent judgments of capability’ and posits that it is positively linked with classroom environment, student engagement, and student discipline (Zee and Koomen 2016).

<sup>7</sup> For broader discussion see Dixit (1997, 2002).

teachers that do this tend to also provide less effort. At the same time, schools where teachers over-rate themselves also perform worse. However, it is important to note that causality might also run in the other direction. Low-performing teachers might feel a greater need to justify themselves and therefore have a higher tendency to exhibit HRS.

This paper makes two contributions. First, it illuminates possible mechanisms through which teachers might rationalize sub-optimally low levels of effort. This might happen via HRS in two ways: (i) HRS makes teachers over-estimate their actual effort or ability; and (ii) HRS makes it easier for teachers to blame other teachers for low student learning. Second, it highlights the potential importance of objective feedback<sup>8</sup> provision to teachers – beyond student assessment information.<sup>9</sup> Note that provision of such feedback, by itself, may be insufficient to change teacher behavior.<sup>10</sup> However, these results suggest that it could form a useful component of broader efforts to realign teacher incentive and accountability structures. This is because objective information would help address cognitive biases that prevent teachers from internalizing shortcomings in their effort and ability. As such, it could also increase the effectiveness of teacher incentive schemes and possibly reduce the risk that teachers respond to performance-based incentives only through counter-productive ways like cheating or teaching to the test.

The rest of the paper is structured as follows. Section 2 discusses the setting, experimental design, and data. Section 3 examines summary statistics and presents a snapshot of self-assessment data. Section 4 uses the experiment to establish the extent of HRS. Section 5 examines heterogeneity in HRS based on other teacher characteristics; Section 6 explores links between HRS and actual measures of effort. Heterogeneity in HRS based on selected school characteristics is presented in Section 7. Section 8 lays out limitations and caveats around this work and Section 9 concludes.

## 2. Setting, Data, and Experimental Design

**Setting:** In this paper, we ask - how do teachers view themselves relative to other teachers in the school? To answer this question, we rely on a randomized survey experiment conducted within a

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<sup>8</sup> Subjective feedback may give rise to other biases and dysfunctional responses (Milgrom 1988, Milgrom and Roberts 1988).

<sup>9</sup> There is some experimental evidence on the potential benefits of providing teachers with feedback about student performance (see Muralidharan and Sundaraman 2010, Piper and Korda 2006 etc.). However, there has been less discussion on the benefits of providing teachers with objective information about their actual effort and ability. This distinction is important because teachers might find it easier to distance themselves from the former than the latter. Coe (1998) reviews the evidence on the effectiveness of feedback on performance in general and highlights the lack of evidence on the effectiveness of feedback systems in improving students' academic performance. Also, in the book, *Visible Learning for Teachers* (Hattie 2012), the authors emphasize that the most powerful feedback is that given from the student to the teacher. This feedback allows teachers to see learning through the eyes of their students. It makes learning visible and facilitates the planning of next steps.

<sup>10</sup> Muralidharan and Sundaraman (2010) evaluate the impact of providing teachers in India with detailed diagnostic feedback on student performance. They found that the feedback reports were used more effectively by teachers when combined with performance-linked bonuses for teachers. However, without such incentives, feedback provision had no detectable impact on student learning.

group of schools within the Public Private Partnership program (PPP) in Uganda. Under the program, the government offers a per-student subsidy to participating private schools.<sup>11</sup>

**Sample Selection and Data:** The study targets all Junior Secondary 2 teachers (equivalent to Grade 8) – 350 teachers in total - in 30 secondary PPP schools. It was carried out during the 2012-2013 expansion of the PPP program to newer schools. Out of a list of 200 private schools which applied to the PPP program in 2012, 100 schools were randomly selected to receive the PPP program in 2013. Out of these 100 schools, we randomly selected 30 schools as the sample for this study.<sup>12</sup> These schools were visited in November 2014, approximately 22 months after these schools started participating in the PPP program. All our data come from this unannounced field visit and include information from a self-administered teacher survey, information from teacher attendance records maintained by the head teacher, and teacher observation by enumerators.

**Experimental Design:** The study relies on a randomized survey experiment wherein detailed self-administered questionnaires were filled by teachers. Teacher questionnaires contained 62 questions and took about 90 minutes in total. They contained four sections: (i) teacher characteristics, (ii) school characteristics, (iii) self-reported effort, and (iv) subjective assessment. The subjective assessment module contained questions related to perceptions about ability and effort, student engagement, support structures, and job-satisfaction.

To uncover potential self-perception biases, the framing of the subjective assessment module was randomized within schools. Teachers within each school were randomly divided, into two groups – in the control group the respondent was asked to provide information about him/herself. We call this the ‘self-assessment’ group. In the treatment group, the respondent was asked to provide information about ‘most other teachers in the school’: we call this the ‘social-assessment’ group.

This study design yields the following: (i) average teacher perceptions about self and average teacher perceptions about other teachers in the school, (ii) average ‘divergence’ between teachers’ self- and social-assessments around each question in the subjective assessment module (25 questions in total). Positive divergence on a specific dimension implies that on average, teachers see themselves more favorably than the other teachers in the same school on that dimension. Systematic divergence indicates what we call High Relative Self-Regard (HRS) among teachers. Note that we do not observe HRS for any individual teacher, because any given teacher receives only one of the subjective assessment modules – self- or social-assessment.<sup>13</sup> However, we can observe HRS at the level of the school.

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<sup>11</sup> The PPP program in Uganda targets all registered and certified private schools charging 75,000 UGX per term or lower. Under the partnership, private schools apply to the Ministry of Education and Sports (MoES) to enter into a contractual arrangement for enrolling eligible low-income students in return for a per-student government subsidy of 47,000 UGX per term per student.

<sup>12</sup> The sample draws from a broader study on the PPP program (Barrera et al 2016).

<sup>13</sup> Both social- and self- surveys were not administered to the same teacher to reduce social desirability bias in survey responses.

A simple regression analysis allows us to test for the strength of HRS. We define indicator variables corresponding to each self-assessment question and regress it on the social-assessment dummy, with the self-assessment group serving as control, as well as relevant control variables:

$$Outcome_i = \alpha + \rho * Social\ Assessment_i + \delta X_i + \varepsilon_{ij}$$

Where *Outcome* is the indicator variable corresponding to each answer; *TREATMENT* is a dummy variable that equals 1 for a social-assessment response and 0 for a self-assessment response; and *X* is a vector of other control variables that could possibly influence the answer to each question. In this equation, *i* indexes teacher and *j* indexes school. Standard errors are clustered at the school level.

Our outcome variables are all binary dependent variables. Consequently, a linear probability model or a probit model helps estimate the effect of the social-assessment framing. As the choices among the answers follow a natural ordering, we can also consider results of ordered probit models.<sup>14</sup> One drawback of these non-linear models, however, is that their estimation is through maximum likelihood which sometimes do not converge. Linear models are free of this problem, although it has its own problems – principally, its predictions can lie outside the (0,1) range. Since we are not interested in predicting probabilities but in isolating coefficient estimates, we use linear probability models.

Our main interest lies in estimating the coefficient  $\rho$  from Equation (1). If  $\rho$  is negative and statistically significant – implying that on average self-perceptions were likely to be systematically more favorable than perceptions about other teachers in the same school – we interpret this as indicative of HRS on that dimension.

We control for a set of possible confounding factors, including teacher gender, age, teacher type (part time or full time), education, experience, and work load (class size and number of subjects taught).<sup>15</sup>

**Balance:** To assess whether the assignment of teachers into self- and social-assessment groups was in fact random, we test for statistical differences in our key explanatory variables. Table 2 presents the balance tests, along with broader summary statistics. Overall, self- and social-perception groups appear balanced across key variables. Accordingly, the interpretation of  $\rho$  can be taken to be the effect of social-perception framing which allows us to establish the presence of HRS.

### 3. Snapshot of Teachers and Teaching

This study focuses on teachers for Junior Secondary 2 (Grade 8 equivalent) teaching in PPP schools. The average teacher in our sample is male (76 percent of the sample) with university education (55 percent) and about 30 years old. He has about four years of experience in the current school and six and a half years of overall teaching experience. On average, about 37 percent of interviewed teachers

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<sup>14</sup> A logit or ordered logit model can also be used. In practice, probit and logit models tend to be quite similar. We run specifications using a Probit model, and the main results remain unchanged.

<sup>15</sup> We also run these specifications with school fixed effects, using the ‘wild cluster’ option. The main results remain unchanged.

work part time, while the rest are permanent employees. Interviewed teachers teach a variety of subjects.

Teachers report spending about 9.5 hours in work-related activities, including - preparing for class, teaching, doing administrative tasks, and marking homework. However, average teaching time a day was only 2 hours and 20 minutes. On average, teachers reach the school around 7:50am and leave around 5:15pm.

Class sizes are large. Nearly half the teachers reported teaching to classes with more than 60 students; out of this, almost 28 percent were teaching to classes of more than 80 students. However, on a typical day, approximately 20 percent of students are absent from class. In addition, some teachers teach more than one subject. Moonlighting is common. Nearly 65 percent of teachers teach outside of school and nearly 45 percent teach part-time or full-time in another school.

The average monthly teacher salary is 221,125.7 UGX (equivalent to 61 USD). Nearly 40 percent of interviewed teachers experienced no delays in receiving their base salary or allowance this school year. Private lessons every month provide an average 18 USD to the 45 percent of teachers who take weekly tutoring or work as full or part-time in any other school except their permanent job. Almost 85 percent of the teachers reported they did not receive any gift or contribution from the parents of the community.

Teachers self-reported measures of 'effort' are as follows. Most teachers (89 percent) claimed to have prepared a 'scheme of work' for the current term – those who did not claimed it was due to lack of time. Around 67 percent also claim to prepare weekly lesson plans. Nearly 82 percent of teachers claimed to have prepared a report card for each of their students at the end of the school year. Nearly 67 percent of teachers report being absent for at least 1 day in the preceding month. For those who were absent, primary reasons for absenteeism include sickness, personal engagement, and official teaching-related duties such as meeting or training.

Teachers' self-reported measures of 'accountability' are as follows. Around 61 percent of teachers report that their performance is evaluated based on student performance, another 26 percent by their attendance, and 6 percent based on student and parent feedback (responses not mutually exclusive). The remaining 7 percent either do not know or claim they are not evaluated. Around 75 percent of teachers claim that head teachers observe their class at least once a month. Only 10 percent claim that head teachers never observe their class. However, only 58 percent report receiving regular feedback from Head Teachers on observed classes. Overall, almost 40 percent of teachers claim that there are no mechanisms to reward teachers for good performance. On the other hand, 26 percent claim that good performance is rewarded through bonuses and salary increases.

We also collected some basic indicators of interpersonal interactions within school. Nearly 95 percent of teachers report having a staff meeting at least once a term. On the other hand, only 34 percent report having a PTA or SMC meeting at least once a term. On average, teachers express positive regard for Head Teachers. Almost 88 percent teachers found their Head Teachers available and approachable to discuss any issues concerning teaching and learning.

#### 4. Contrasting Teachers' Self- and Social-Perceptions

We use the randomized subjective assessment module to examine the divergence between average self-perceptions and average perceptions about other teachers. Out of the 25 subjective assessment questions, 24 questions are measured on a five-point Likert scale.<sup>16</sup> These responses are recoded as binary variables – reflecting positive and negative responses. In each case, moving from zero to one indicates an increase in favorability of the response, where favorability implies a positive relationship to student learning. These binary variables are regressed on treatment (social-perception questionnaire=1; self-perception questionnaire = 0) using linear probability models to determine the extent to which perceptions diverge when directed at self vs. others.

Table 3 shows results from linear probability models for all 24 subjective assessment Likert scale questions (Appendix Table 1 provides details how these outcomes were coded). Standard errors are clustered at the school level. In Columns (1) and (2), the outcome is coded as 1 if the response is 'strongly agree' or 'agree'. Column (1) shows results without any controls, Column (2) includes key teacher-level controls.<sup>17</sup> Columns (3) and (4) show results for stronger and weaker definitions of the outcome, respectively, with controls. The former shows results for outcomes coded as being equal to one only if the response is 'strongly agree' and zero otherwise, while the latter shows results for outcomes coded equal to one for answers that could be 'neutral', 'agree' or 'strongly agree'.

As discussed above, we can split the subjective assessment questions into four domains - ability and effort, student engagement, support structures, and job satisfaction. Each domain has between 5-8 questions. For each domain, we also include a domain index. This helps guard against false positives from multiple hypotheses testing. This index is a weighted average of the responses – where the weights are constructed from the first principal component of the relationship between all the responses in each particular module.

Overall, significantly more favorable self-perception or HRS emerges for 11 out of the 24 questions (46 percent). The point estimates when statistically significant indicate between a 9% to 20% reduction in the probability of a favorable response in relation to social-perception as opposed to self-perception. HRS is much more likely in some modules compared to others. While, HRS emerges in at least two questions per module, it is most frequently observed in the job satisfaction domain (divergence in 4 out of 6 questions) and the ability and effort domain (divergence in 4 out of 6 questions). Further, HRS is significant at the level of the domain index for these two domains. HRS is less frequently observed in the domains of student engagement (divergence in 2 out of 8 questions) and support structures (divergence in 2 out of 5 questions). In these two cases, no HRS is observed at the level of the domain index.

Within the ability and effort domain - teachers rate confidence in teaching, frequency of trying new teaching methods, and acceptability of absenteeism higher for self than others. In terms of job-satisfaction, teachers rate overall job-satisfaction, satisfaction with career prospects, and likelihood

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<sup>16</sup> In most cases, the Likert Scale is constructed as follows: Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree.

<sup>17</sup> Controls include: teacher gender, age, teacher type (part time or full time), education, experience, and work load (class size and number of subjects taught).

of continuing current job higher for self than others. HRS is also observed in some dimensions of available support structures - teachers more frequently rate student learning as a motivating force for self than for others and ability to get along with colleagues higher for self than others.

In contrast, no HRS is observed in terms of satisfaction with salary, workload, relationships with head teachers and students. Further, there is one aspect of ability on which there is no observed HRS - teachers rate their ability to teach to 'problematic' students or maintain composure with disruptive students on par with the ability of other teachers.

## 5. Links between High Relative Self-Regard and Teacher Characteristics

We test whether HRS is systematically linked to other teacher characteristics. We find no systematic relationship between HRS and teacher gender, although this could partly be linked to the relatively low share of female teachers in our sample (24 percent). However - for both job-satisfaction and ability and effort - we find higher likelihood of HRS among less experienced teachers (Tables 4a and 4b). The only exception to this pattern is with respect to 'acceptability of absenteeism'. On this question, HRS emerges for more experienced teachers. In other words, more experienced teachers are significantly more likely to report acceptability of absenteeism for themselves but not for other teachers.

## 6. Is High Relative Self-Regard Justified?

How do self- and social-perceptions relate to actual effort? Is HRS higher among teachers who appear to work harder? We explore these links by examining the correlation between subjective assessments and self-reported indicators of effort. Self-reported indicators of effort include the following questions:

- Teacher prepared scheme of work for current term
- Teacher prepared lesson plan for current week
- Number of days last week the teacher marked assigned homework
- Number of days last week the teacher took attendance
- Teacher prepared report card for students at the end of last school year
- Number of days last month the teacher was absent

Using these questions an effort index is created for each teacher. We then define an indicator variable that equals one if the effort index for each teacher is above the median value. This indicator variable is then interacted with social-perception questionnaire treatment in the specification outlined in Section 2. Results are presented in Table 5. We find an inverse relationship between HRS and effort in both the job-satisfaction and ability and effort domains. In other words, likelihood of HRS is higher among teachers who actually exert less effort.<sup>18</sup> These results are summarized by Figure 1, which shows the lowest estimates of the ability/effort module plotted against the effort index separately for the self-perception and the social perception questionnaires: we see clearly a divergence between the two for teachers exerting low effort.

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<sup>18</sup> Appendix Tables 2A to 2D show results from alternate coding specifications of the Likert scale.

Another proxy of effort is whether at the time of the enumerator’s unannounced visit a teacher was found to be in class teaching. Interacting this variable with social-perception questionnaires treatment, we find a negative correlation between likelihood of teacher teaching and HRS (Tables 6).<sup>19</sup>

Two important caveats are as follows: (i) reported analysis is correlational. No causal mechanisms are established in this analysis; and (ii) measures of actual effort are self-reported and as such might be over-stated.

## 7. Links between High Relative Self-Regard and School Characteristics

We examine here whether HRS varies systematically based on (a) the ownership and organizational structure of the PPP school and (b) average learning levels by school.

Considering ownership and organizational structure, we are interested in examining whether schools where managers have stronger incentives to maximize teacher effort are less prone to HRS. To do this, we interact a dummy for ‘head teacher owns at least part of the school’ and, more weakly, ‘Board of Governors<sup>20</sup> member owns at least part of the school’ with treatment (teacher receives social-perception questionnaire). Results are shown in Tables 7a and b. We find that HRS is much less likely in schools where the head teacher owns at least part of the school. Systematically lower rates of HRS are also in schools where members of the Board of Governors own at least part of the school, but the relationship is less strong.

Examining learning levels by school, we wish to see if HRS is concentrated among better or worse performing schools. For this estimation we use learning assessments from July 2012 (approximately 2 years before the study). Tests were administered in partnership with the Uganda National Examinations Bureau (UNEB) and include curriculum-based assessments of student proficiency in English and Biology. In addition, UNEB administered an additional Mathematics test which the research team adapted from TIMSS, an international test,<sup>21</sup> adapted for local context through discussions with psychometricians in Uganda.

For each school we take averages of scores for three subjects – Mathematics,<sup>22</sup> Biology, and English. We then calculate, for each school, an average across these three subjects. Based on these school-wise averages, we divide schools into whether they are above or below the 25<sup>th</sup> percentile and the median. Defining indicator variables accordingly, we regress domain-wise indexes on an interaction of these indicator variables with the treatment of a teacher receiving a social perception

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<sup>19</sup> Another way to look at this would be to examine the relationship between HRS and class-size. Working under the assumption that teachers with larger class sizes have to, by definition, exert more effort, we examine the relationship between the two. Once again, there is an inverse relationship. Teachers with smaller class sizes are significantly more likely to exhibit HRS on both job-satisfaction and ability and effort.

<sup>20</sup> In PPP schools in Uganda, the Board of Governors is analogous to a School Management Committee.

<sup>21</sup> The Trends in International Mathematics and Science Study (TIMSS) is a series of international assessments of the mathematics and science knowledge of students around the world. For this research, we used a balanced selection of openly available questions from Grade 4 TIMSS Mathematics tests across specified learning domains.

<sup>22</sup> For mathematics, we use scores from two assessments: one is curriculum based, and the other comes from a test of competency, based on the TIMSS assessment.

questionnaire. Table 8 presents these results: we see that HRS is prevalent among the low performing schools clearly for the job satisfaction and ability/effort domains.<sup>23</sup>

## 8. Limitations and Caveats

There are two possible limitations/threats to the identification of HRS as we have demonstrated it here. Both relate to concerns about whether we are actually measuring HRS. We discuss these in turn:

**Social Desirability Bias:** Interpreting perceptions about self and other teachers poses some difficulties. One concern is that differences between the two could simply reflect ‘social-desirability biases’. Evidence suggests that this type of response bias is common wherein survey respondents answer questions in a manner that will be viewed favorably by others (Fisher 1993, Zerbe and Paulhus 1987).

There are two reasons why results from this survey experiment are more likely to reflect HRS than social-desirability bias. First, the surveys are totally self-administered and anonymized. Teachers are given a paper survey to fill out by independent field-enumerators, no school administrators are in the room when teachers fill out the survey, and within the survey there are no teacher identification questions. Further messages of anonymity are emphasized by the enumerators in their directions and as footers in each page on the survey.

Second, the teacher responses themselves do not reflect any consistent/clear pattern around social-desirability.

**Information Bias:** There is also the possibility that the pattern of responses observed in social-assessment surveys reflect not HRS, but simply teachers’ inability to gauge what other teachers know and do. This concern is addressed through the use of a five-point Likert scale that allows us to create a finer-grained scale. Specifically, the response scale includes an option for ‘Neutral’ and also distinguishes between ‘Agree’ and ‘Strongly Agree’. For each specification in Table 4, we show regression results both including and excluding ‘Neutral’ in the coding of a favorable response and also only including ‘Strongly Agree’ in the coding of a favorable response. Adding the neutral option reduces the probability that respondents commit to a certain position when they do not have it.

## 9. Conclusion

We examine self-beliefs on effort and ability in a sample of secondary school teachers in PPP schools in Uganda. We find that teachers tend to hold more favorable opinions of themselves than of other teachers in the same school - in terms of ability, effort, and job-satisfaction. We call this tendency High Relative Self-Regard (HRS) and find that it correlates negatively with objective indicators of effort.

These findings appear indicative of cognitive biases that help teachers rationalize sub-optimal effort in classrooms. If teachers view themselves as exerting more effort and exhibiting stronger work-ethic than their colleagues, then this allows them to more readily exculpate themselves from low learning

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<sup>23</sup> Appendix Tables 3A to 3D show results for each module under alternate coding specifications of the Likert scale, and also report results for schools above or below the 75<sup>th</sup> percentile.

levels in the classroom. Bolstering this conclusion, and consistent with research in psychology (Ehrlinger et al 2008), we find HRS is more likely to exist among low effort teachers as well as low performing schools. In this way, although enrollment rises, average student performance remains poor.

We also find that systematic HRS is less likely in those PPP schools where head teachers own at least part of the school. This provides suggestive evidence that where school managers have stronger incentives to maximize teacher effort, upward biases in teacher self-beliefs are less visible.

So, what does this mean for policy? These results suggest that providing teachers with objective information about their effort and ability - in terms of say, attendance rates, classroom observation feedback etc. - might be an important component of strategies to improve teacher performance.<sup>24</sup> Such information could help reduce cognitive biases that prevent teachers from realizing that their effort and/or ability is sub-optimal. In addition to this, recent research in psychology demonstrates that conveying to teachers that their ability to teach is malleable and can be improved could be helpful. This is because individuals who hold a view that ability is malleable make far more accurate assessments of the quality of their performance than do those who believe intelligence to be fixed (Ehrlinger and Dweck 2007).

This work also opens up several promising areas of further research. First, there are ways to further refine measurement - both in terms of capturing different aspects of self-assessment and also by adding more objective and refined measures of teacher performance and effort. Second, the question of 'why' teachers exhibit HRS needs further investigation. To what extent is this behavior tied to behavioral science and Dunning-Kruger like effects generally as opposed to resulting from the particular nature of education service delivery in certain contexts? Does it have a cultural element? Third, it would be useful to test different approaches to mitigate HRS and other cognitive biases. For instance, what are the impacts of providing objective performance-related information to teachers? Do such interventions lead to changes in self- and social-assessments? Do these changes lead to increased teacher effort? Do they represent cost-effective ways to improve teacher performance in resource constrained settings? Ultimately, efforts to change teacher behavior will remain only partially successful, unless there is clearer understanding of why teachers behave the way they do. Cognitive biases like the one described in this paper may be one part of this puzzle.

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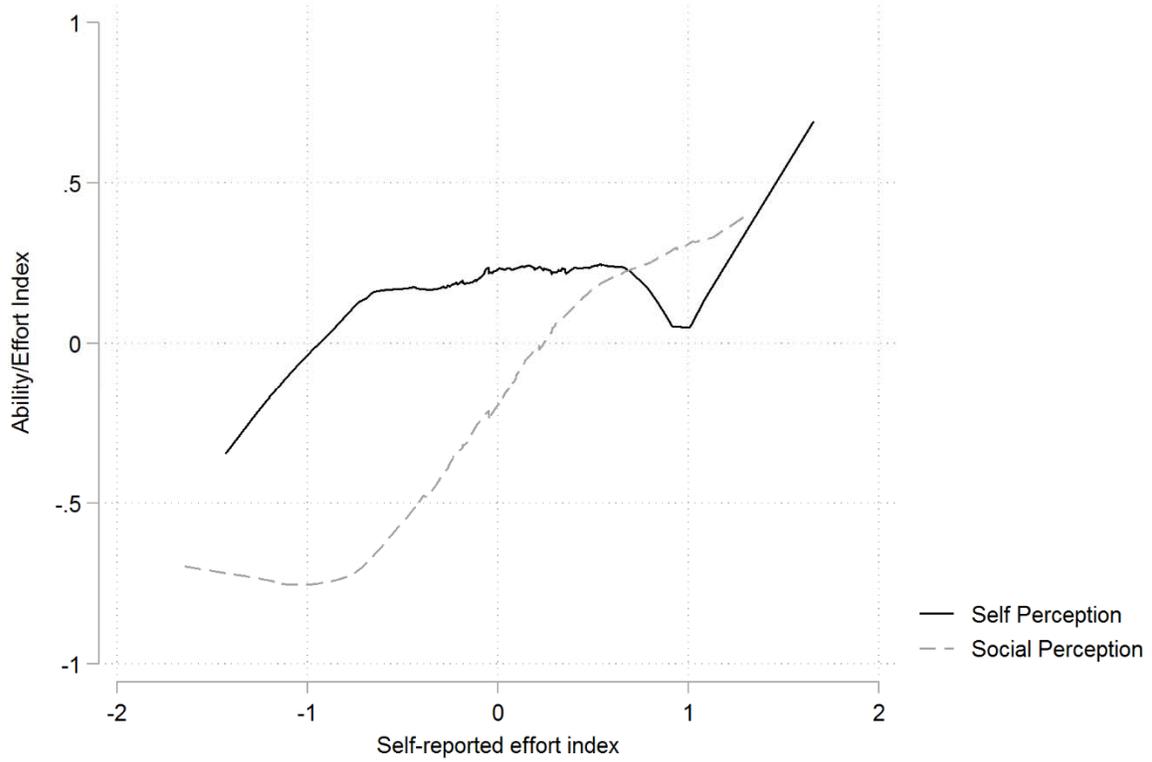
<sup>24</sup> Note that provision of feedback alone might be insufficient to change teacher behavior but could be one useful component of broader realignments in teacher incentive and accountability structures.

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Figure



**Figure 1:** HRS is more prevalent for low effort teachers. This figure shows Lowess estimates for the ability/effort index as a function of the self reported effort index, by treatment. At low levels of self-reported effort, we can clearly see a disparity between responses to the self perception and social perception questionnaire with the self perception questionnaire showing higher scores.

## Tables

Table 1: Summary Statistics and Balance Tests

	Observations (Column 1)	Overall Mean (Column 2)	Self-Perception Mean (Column 3)	Social-Perception Mean (Column 4)	p-value of Difference (Column 3 - Column 4)
Gender (% Male)	350	76%	75%	76%	0.76
Part-Time Teacher	350	37%	37%	37%	0.98
Untrained Teacher	350	7%	7%	7%	0.93
Without University Degree	350	8%	9%	7%	0.63
With University Degree	350	55%	51%	59%	0.11
Class size > 60 students	350	49%	52%	47%	0.29
Age	350	30.55	30.38	30.72	0.63
Number of Subjects taught	350	1.67	1.70	1.63	0.34

Table 2: Self-Reported Indicators of Effort

	Observations	Mean	Standard Deviation	Median	Minimum	Maximum
Number of Days last Week Homework assigned	350	1.99	1.02	2	0	5
Number of Days last Week Homework marked	350	1.82	1.05	2	0	6
Number of Days last Week Attendance taken	349	2.67	1.83	3	0	7
Report Card prepared at end of last school year (1 = Yes, 0 = No)	350	0.82	0.39	1	0	1
Number of days Absent last month	350	2.87	3.93	2	0	30
Number of students Absent yesterday	350	12.29	17.87	6	0	110

Table 3a: HRS on Job-Satisfaction

	<i>Agree/Strongly Agree</i> No Controls (1)	<i>Agree/Strongly Agree</i> Including Control (2)	<i>Strongly Agree</i> Including Control (3)	<i>Including Neutral</i> Including Control (4)
Satisfied with current job	-0.115** (0.049)	-0.11** (0.05)	-0.11*** (0.04)	-0.15*** (0.04)
Happy with Career Prospects	-0.228*** (0.037)	-0.22*** (0.04)	-0.12*** (0.04)	-0.13*** (0.03)
Satisfied with current Salary	-0.041 (0.034)	-0.04 (0.04)	0.01 (0.01)	0.00 (0.05)
Satisfied with current Benefits	-0.105** (0.041)	-0.10** (0.04)	-0.01 (0.01)	-0.08* (0.05)
Like greater job security	0.013 (0.023)	0.01 (0.02)	0.06 (0.05)	0.02* (0.01)
Would not change current job given the opportunity	-0.156*** (0.043)	-0.16*** (0.04)	-0.05** (0.02)	-0.12* (0.06)
Domain 1 Index	-0.609*** (0.121)	-0.60*** (0.12)	-0.44** (0.16)	-0.45** (0.17)
Controls	No	Yes	Yes	Yes

\*  $p < 0.1$ ; \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$

Note: Controls include teacher gender, whether part or full time, whether trained, level of education, size of class, age and number of subjects taught.

† Total number of observations equals 350, except where super-scripted by (a) in which case it equals 349.

Table 3b: HRS on Ability and Effort

	<i>Agree/Strongly Agree</i> No Controls (1)	<i>Agree/Strongly Agree</i> Including Control (2)	<i>Strongly Agree</i> Including Control (3)	<i>Including Neutral</i> Including Control (4)
Able to teach all topics to even the most problematic students	-0.049 (0.041)	-0.04 (0.04)	-0.09** (0.04)	-0.01 (0.03)
Confident in teaching all topics in subject	-0.073*** (0.020)	-0.07*** (0.02)	-0.18*** (0.06)	-0.01 (0.01)
Changes teaching method at least once a month	-0.102** (0.046)	-0.09* (0.05)	-0.11* (0.06)	-0.01 (0.05)
Maintain composure when student becomes disruptive	-0.087 (0.052)	-0.09* (0.05)	0.05 (0.05)	-0.06 (0.04)
Believes absence from school acceptable	-0.169*** (0.049)	-0.17*** (0.05)	-0.03* (0.02)	-0.24*** (0.05)
Student's learning achievement motivates teacher	-0.070* (0.034)	-0.07** (0.04)	-0.02 (0.05)	-0.03 (0.02)
Domain 2 Index	-0.387*** (0.139)	-0.38** (0.14)	-0.43*** (0.14)	-0.13 (0.16)
Controls	No	Yes	Yes	Yes

\*  $p < 0.1$ ; \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$

Table 3c: HRS on Support Structures

	<i>Agree/Strongly Agree</i> No Controls (1)	<i>Agree/Strongly Agree</i> Including Control (2)	<i>Strongly Agree</i> Including Control (3)	<i>Including Neutral</i> Including Control (4)
Allowed to work independently	-0.106** (0.045)	-0.10** (0.04)	-0.06** (0.03)	-0.07 (0.05)
Held accountable by Head Teacher	-0.014 (0.058)	-0.02 (0.06)	0.01 (0.05)	0.03 (0.03)
Like more feedback from Head Teacher	-0.031 (0.029)	-0.03 (0.03)	-0.10** (0.04)	-0.00 (0.01)
Relationship with Head Teacher	0.013 (0.017)	0.02 (0.02)	-0.05 (0.05)	-0.01 (0.01)
Relationship with colleagues	-0.028* (0.014)	-0.03* (0.01)	-0.08 (0.06)	0.00 (0.00)
Respect the Head Teacher	-0.010 (0.017)	-0.01 (0.02)	-0.03 (0.05)	0.00 (0.01)
Workload is manageable	-0.013 (0.041)	-0.01 (0.04)	-0.04 (0.06)	0.01 (0.03)
Working hours are too long	-0.053 (0.058)	-0.04 (0.06)	-0.01 (0.02)	-0.04 (0.06)
Domain 3 Index	-0.140 (0.113)	-0.12 (0.12)	-0.29* (0.16)	-0.03 (0.14)
Control	No	Yes	Yes	Yes

\*  $p < 0.1$ ; \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$

**Table 3d: HRS on Student Engagement**

	<i>Agree/Strongly Agree</i> No Controls (1)	<i>Agree/Strongly Agree</i> Including Control (2)	<i>Strongly Agree</i> Including Control (3)	<i>Including Neutral</i> Including Control (4)
Teachers have a good relationship with students	0.030 (0.022)	0.03 (0.02)	0.00 (0.06)	0.01 (0.01)
Teachers can do more if parents take interest in children	0.007 (0.023)	0.01 (0.02)	-0.11** (0.05)	0.00 (0.02)
Cannot discipline students if they are not disciplined at home	0.120*** (0.031)	0.11*** (0.03)	0.05** (0.02)	0.14*** (0.03)
Teachers would like more involvement in setting learning goals	-0.025 (0.029)	-0.02 (0.03)	0.06 (0.05)	-0.02 (0.01)
Hardest challenge for me is to motivate students	0.032** (0.015)	0.025* (0.013)	N/A <sup>25</sup>	N/A
Domain 4 Index	0.030 (0.101)	0.05 (0.10)	-0.15 (0.12)	0.13 (0.13)
Controls	No	Yes	Yes	Yes

\*  $p < 0.1$ ; \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$

<sup>25</sup> Question not posed on a Likert scale

Table 4a: HRS on Job Satisfaction by Teacher Experience

<i>Job Satisfaction (by Total years teaching)</i>		<i>Agree/Strongly Agree Including Control (1)</i>
<b>Satisfied with current job</b>	Treatment	-0.16** (0.06)
	Treatment*Years teaching interaction term	0.01 (0.01)
	Total years teaching	-0.01 (0.01)
<b>Happy with Career Prospects</b>	Treatment	-0.30*** (0.08)
	Treatment*Years teaching interaction term	0.01 (0.01)
	Total years teaching	-0.00 (0.01)
<b>Satisfied with current Salary</b>	Treatment	-0.06 (0.08)
	Treatment*Years teaching interaction term	0.00 (0.01)
	Total years teaching	-0.01 (0.01)
<b>Satisfied with current Benefits</b>	Treatment	-0.20*** (0.06)
	Treatment*Years teaching interaction term	0.02* (0.01)
	Total years teaching	-0.01 (0.01)
<b>Like greater job security</b>	Treatment	0.07 (0.04)
	Treatment*Years teaching interaction term	-0.01 (0.01)
	Total years teaching	0.00 (0.00)
<b>Would not change current job given the opportunity</b>	Treatment	-0.24*** (0.07)
	Treatment*Years teaching interaction term	0.01* (0.01)
	Total years teaching	-0.02* (0.01)
<b>Domain 1 Index</b>	Treatment	-0.96*** (0.23)
	Treatment*Years teaching interaction term	0.06* (0.03)
	Total years teaching	-0.04 (0.03)

\*  $p < 0.1$ ; \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$

Table 4b: HRS on Ability/Effort by Teacher Experience

<i>Ability/Effort (by Total years teaching)</i>		<i>Agree/Strongly Agree Including Control (1)</i>
<b>Able to teach all topics to even the most problematic students</b>	Treatment	-0.14** (0.07)
	Treatment*Years teaching interaction term	0.02* (0.01)
	Total years teaching	-0.01 (0.01)
<b>Confident in teaching all topics in subject</b>	Treatment	-0.10*** (0.03)
	Treatment*Years teaching interaction term	0.00 (0.00)
	Total years teaching	-0.01*** (0.00)
<b>Changes teaching method at least once a month</b>	Treatment	-0.11* (0.06)
	Treatment*Years teaching interaction term	0.00 (0.01)
	Total years teaching	-0.01 (0.01)
<b>Maintain composure when student becomes disruptive</b>	Treatment	-0.09 (0.09)
	Treatment*Years teaching interaction term	-0.00 (0.01)
	Total years teaching	-0.01 (0.01)
<b>Believes absence from school acceptable</b>	Treatment	-0.06 (0.06)
	Treatment*Years teaching interaction term	-0.02** (0.01)
	Total years teaching	0.02* (0.01)
<b>Student's learning achievement motivates teacher</b>	Treatment	-0.15** (0.06)
	Treatment*Years teaching interaction term	0.01 (0.01)
	Total years teaching	-0.00 (0.01)
<b>Domain 2 Index</b>	Treatment	-0.73*** (0.22)
	Treatment*Years teaching interaction term	0.05** (0.02)
	Total years teaching	-0.05* (0.02)

\*  $p < 0.1$ ; \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$

Table 5: HRS on Ability/Effort by Self-Reported Measures of Effort

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Domain 1 Index: Job Satisfaction		Domain 2 Index: Ability/Effort		Domain 3 Index: Support Structure		Domain 4 Index: Student Engagement	
Treatment	-0.580** (0.251)	-0.572** (0.245)	-0.673** (0.259)	-0.651** (0.249)	-0.277 (0.223)	-0.246 (0.217)	-0.0126 (0.170)	0.0118 (0.156)
Effort Median	0.480* (0.259)	0.461* (0.268)	0.189 (0.164)	0.204 (0.157)	0.197 (0.226)	0.276 (0.233)	0.139 (0.164)	0.182 (0.149)
Treatment X Effort Median	-0.0636 (0.378)	-0.0552 (0.370)	0.568* (0.310)	0.532* (0.293)	0.268 (0.346)	0.239 (0.342)	0.0843 (0.247)	0.0743 (0.245)
Controls	N	Y	N	Y	N	Y	N	Y
Observations	348	348	348	348	348	348	348	348
R-squared	0.061	0.087	0.071	0.103	0.023	0.054	0.008	0.036

Standard errors in parentheses clustered by school. \*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.1.

Table 6: HRS on Ability/Effort by Teacher in Class Teaching at Time of Visit

<i>Ability/Effort (by Teacher in class teaching at time of visit)</i>		<i>Agree/Strongly Agree Including Control (1)</i>
<b>Able to teach all topics to even the most problematic students</b>	Treatment	-0.09*
		(0.04)
	Treatment*Teacher in class teaching during visit interaction term	0.17
		(0.10)
	Teacher in class teaching at time of visit	-0.04
		(0.09)
<b>Confident in teaching all topics in subject</b>	Treatment	-0.07***
		(0.03)
	Treatment*Teacher in class teaching during visit interaction term	-0.00
		(0.04)
	Teacher in class teaching at time of visit	0.01
		(0.01)
<b>Changes teaching method at least once a month</b>	Treatment	-0.10
		(0.06)
	Treatment*Teacher in class teaching during visit interaction term	0.02
		(0.16)
	Teacher in class teaching at time of visit	0.07
		(0.10)
<b>Maintain composure when student becomes disruptive</b>	Treatment	-0.14**
		(0.06)
	Treatment*Teacher in class teaching during visit interaction term	0.17
		(0.14)
	Teacher in class teaching at time of visit	-0.10
		(0.10)
<b>Believes absence from school acceptable</b>	Treatment	-0.18***
		(0.06)
	Treatment*Teacher in class teaching during visit interaction term	0.04
		(0.12)
	Teacher in class teaching at time of visit	-0.04
		(0.09)
<b>Student's learning achievement motivates teacher</b>	Treatment	-0.08**
		(0.04)
	Treatment*Teacher in class teaching during visit interaction term	0.03
		(0.09)
	Teacher in class teaching at time of visit	-0.07
		(0.04)
<b>Domain 2 Index</b>	Treatment	-0.47**
		(0.17)
	Treatment*Teacher in class teaching during visit interaction term	0.32
		(0.40)
	Teacher in class teaching at time of visit	-0.07
		(0.25)

\*  $p < 0.1$ ; \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$

Table 7a: HRS on Ability/Effort by Head Teacher Owns at Least Part of the School

<i>Ability/Effort (by Head teacher owns at least part of the school)</i>		<i>Agree/Strongly Agree Including Control (1)</i>
<b>Able to teach all topics to even the most problematic students</b>	Treatment	-0.07 (0.07)
	Treatment*Head teacher owns part of school interaction term	0.04 (0.13)
	Head teacher owns at least part of the school	-0.05 (0.09)
<b>Confident in teaching all topics in subject</b>	Treatment	-0.08** (0.03)
	Treatment*Head teacher owns part of school interaction term	0.01 (0.06)
	Head teacher owns at least part of the school	-0.00 (0.01)
<b>Changes teaching method at least once a month</b>	Treatment	-0.21*** (0.07)
	Treatment*Head teacher owns part of school interaction term	0.30** (0.13)
	Head teacher owns at least part of the school	-0.23** (0.11)
<b>Maintain composure when student becomes disruptive</b>	Treatment	-0.08 (0.07)
	Treatment*Head teacher owns part of school interaction term	-0.29** (0.12)
	Head teacher owns at least part of the school	0.10 (0.12)
<b>Believes absence from school acceptable</b>	Treatment	-0.18** (0.07)
	Treatment*Head teacher owns part of school interaction term	0.01 (0.24)
	Head teacher owns at least part of the school	0.08 (0.14)
<b>Student's learning achievement motivates teacher</b>	Treatment	-0.12* (0.06)
	Treatment*Head teacher owns part of school interaction term	0.16 (0.11)
	Head teacher owns at least part of the school	-0.14 (0.10)
<b>Domain 2 Index</b>	Treatment	-0.59** (0.24)
	Treatment*Head teacher owns part of school interaction term	0.44 (0.35)
	Head teacher owns at least part of the school	-0.46 (0.35)

\*  $p < 0.1$ ; \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$

Table 7b: HRS on Ability/Effort by Board of Governors Owns at Least Part of the School

<i>Ability/Effort (by Board of Governors (BOG) own at least part of the school)</i>		<i>Agree/Strongly Agree Including Control (1)</i>
<b>Able to teach all topics to even the most problematic students</b>	Treatment	-0.11 (0.07)
	Treatment*BOG owns part of school interaction term	0.19 (0.12)
	BOG own at least part of the school	-0.19 (0.11)
<b>Confident in teaching all topics in subject</b>	Treatment	-0.08* (0.04)
	Treatment*BOG owns part of school interaction term	0.01 (0.06)
	BOG own at least part of the school	-0.00 (0.01)
<b>Changes teaching method at least once a month</b>	Treatment	-0.19** (0.08)
	Treatment*BOG owns part of school interaction term	0.10 (0.11)
	BOG own at least part of the school	-0.08 (0.11)
<b>Maintain composure when student becomes disruptive</b>	Treatment	-0.11 (0.07)
	Treatment*BOG owns part of school interaction term	-0.09 (0.18)
	BOG own at least part of the school	-0.03 (0.12)
<b>Believes absence from school acceptable</b>	Treatment	-0.26*** (0.07)
	Treatment*BOG owns part of school interaction term	0.33*** (0.10)
	BOG own at least part of the school	-0.08 (0.08)
<b>Student's learning achievement motivates teacher</b>	Treatment	-0.08 (0.07)
	Treatment*BOG owns part of school interaction term	-0.05 (0.08)
	BOG own at least part of the school	-0.02 (0.07)
<b>Domain 2 Index</b>	Treatment	-0.52* (0.27)
	Treatment*BOG owns part of school interaction term	0.01 (0.32)
	BOG own at least part of the school	-0.29 (0.25)

\*  $p < 0.1$ ; \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$

Table 8: HRS by School Learning

	(1)	(2)	(3)	(4)
Domain 1: Job Satisfaction				
	25th Percentile Cut-Off		Median Cut-Off	
Treatment	-0.768***	-0.763***	-0.629***	-0.615***
	(0.216)	(0.242)	(0.171)	(0.179)
Above 25th Percentile	0.0770	0.0456		
	(0.264)	(0.296)		
Treatment X Above 25th Percentile	0.234	0.246		
	(0.259)	(0.279)		
Above Median			-0.0958	-0.183
			(0.291)	(0.281)
Treatment X Above Median			0.0650	0.0686
			(0.245)	(0.233)
Controls	N	Y	N	Y
Observations	330	330	330	330
R-Squared	0.044	0.078	0.040	0.077
Domain 2: Ability/Effort				
	25th Percentile Cut-Off		Median Cut-Off	
Treatment	-0.823***	-0.774***	-0.464***	-0.448***
	(0.193)	(0.208)	(0.160)	(0.146)
Above 25th Percentile	0.127	0.0534		
	(0.236)	(0.274)		
Treatment X Above 25th Percentile	0.581**	0.512*		
	(0.258)	(0.281)		
Above Median			0.0419	0.0578
			(0.197)	(0.238)
Treatment X Above Median			0.136	0.107
			(0.296)	(0.304)
Controls	N	Y	N	Y
Observations	330	330	330	330
R-Squared	0.056	0.090	0.027	0.074
Domain 3: Support Structure				
	25th Percentile Cut-Off		Median Cut-Off	
Treatment	-0.196	-0.161	-0.207	-0.174
	(0.152)	(0.163)	(0.133)	(0.142)
Above 25th Percentile	-0.127	-0.171		
	(0.287)	(0.281)		
Treatment X Above 25th Percentile	0.0435	0.0179		
	(0.216)	(0.224)		
Above Median			-0.170	-0.132
			(0.221)	(0.237)
Treatment X Above Median			0.0900	0.0544

			(0.240)	(0.249)
Controls	N	Y	N	Y
Observations	330	330	330	330
R-Squared	0.005	0.037	0.007	0.036

	Domain 4: Student Engagement			
	25th Percentile Cut-Off		Median Cut-Off	
Treatment	0.140	0.130	0.0734	0.0751
	(0.167)	(0.173)	(0.134)	(0.128)
Above 25th Percentile	-0.00864	-0.0763		
	(0.144)	(0.140)		
Treatment X Above 25th Percentile	-0.154	-0.122		
	(0.212)	(0.220)		
Above Median			-0.136	-0.124
			(0.144)	(0.128)
Treatment X Above Median			-0.0943	-0.0721
			(0.214)	(0.206)
Controls	N	Y	N	Y
Observations	330	330	330	330
R-Squared	0.002	0.031	0.007	0.033

Standard errors in parentheses, clustered by school. \*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.10.

Appendix Table 1: Summary Statistics and Coding of Teacher Motivation Question

Questions	Observations	Category†	Answer Type†						=1 if answer is
			I	II	III	IV	V	VI	
			<i>Panel A: Teaching Practice/Student Interaction</i>						
<i>a. Ability</i>									
Able to teach all topics, to even the most problematic students	350	A	2%	9%	13%	51%	25%	Agree or Strongly Agree	
Confidence in teaching all topics in my subject	350	C	1%	3%	50%	46%	Very Confident		
Maintain composure when student becomes disruptive	349	B	13%	10%	23%	24%	30%	Most of the time/Always	
<i>b. Effort</i>									
Acceptability of Absence from School	350	B	0%	37%	35%	25%	3%	Most of the time/Always	
Frequency of new ways of teaching	349	F	7%	5%	26%	23%	40%	At least Monthly	
Allowed to work independently	350	A	5%	23%	13%	47%	12%	Agree or Strongly Agree	
Cannot discipline students if they are not disciplined at home	349	A	35%	40%	8%	12%	6%	Agree or Strongly Agree	
Can do more if parents take interest	349	A	0%	2%	4%	38%	56%	Strongly Agree	
Like more feedback from Head Teacher	349	A	0%	1%	9%	57%	33%	Strongly Agree	

Good relationship with how many Students	349	E	0%	5%	53%	42%	All Students	
Like more Involvement in setting students' learning goals	350	A	1%	2%	8%	54%	35%	Agree or Strongly Agree
Workload is manageable	350	A	1%	7%	6%	61%	25%	Agree or Strongly Agree
Working hours are too long	349	G	2%	43%	55%			No
<i>Panel B: Work Environment</i>								
Student learning is motivating	349	A	0%	5%	11%	56%	28%	Agree or Strongly Agree
Satisfied with current job	350	A	8%	19%	23%	39%	12%	Agree or Strongly Agree
Happy with Career Prospects	350	A	3%	11%	21%	50%	15%	Agree or Strongly Agree
Satisfied with current Salary	350	A	22%	32%	27%	17%	1%	Agree or Strongly Agree
Satisfied with current Benefits	350	A	15%	35%	27%	21%	1%	Agree or Strongly Agree
Like greater job security	349	A	1%	0%	4%	38%	57%	Strongly Agree
Change current job given the opportunity	350	A	5%	17%	23%	35%	21%	Agree or Strongly Agree

Relationship with colleagues	349	D	0%	3%	52%	45%				Very Good
Relationship with Head Teacher	350	D	0%	5%	52%	43%				Very Good
Respect the Head Teacher	349	B	0%	0%	3%	21%	76%			Always
Held accountable by Head Teacher	350	B	2%	8%	34%	24%	32%			Most of the time/Always
Hardest challenge to motivate students	349	H	48%	19%	5%	10%	11%	6%		Do not know

*Notes:*

†Category A has the following possible answers: Strongly Disagree (answer type I), Disagree (answer type II), Neutral (answer type III), Agree (answer type IV), and Strongly Agree (answer type V).

†Category B has the following possible answers: Never (answer type I), Rarely (answer type II), Sometimes (answer type III), Most of the time (answer type IV) and Always (answer type V).

†Category C has the following possible answers: Not Confident at All (answer type I), Not Confident Enough (answer type II), Confident (answer type III), Very Confident (answer type IV).

†Category D has the following possible answers: Bad (answer type I), Fair (answer type II), Good (answer type III), Very Good (answer type IV).

†Category E has the following possible answers: No Students (answer type I), Some Students (answer type II), Most Students (answer type III), All Students (answer type IV).

†Category F has the following possible answers: Not regularly (answer type I), Annually (answer type II), Termly (answer type III), Monthly (answer type IV), Weekly (answer type V).

†Category G has the following possible answers: Yes, extremely long (answer type I), Yes a bit long (answer type II) and No (answer type III).

†Category H has the following possible answers: Attend school regularly (answer type I), Remain in the classroom and maintain discipline (answer type II), Complete classwork (answer type III), Complete homework (answer type IV), Other (answer type V) and Do Not Know (answer type VI).

Appendix Table 2A

	Domain 1 Index: Job Satisfaction					
	(1)	(2)	(3)	(4)	(5)	(6)
	Agree/Strongly Agree		Strongly Agree		Incl. Neutral	
Treatment	-0.580**	-0.572**	-0.56**	-0.523**	-0.430	-0.449
	(0.251)	(0.245)	(0.270)	(0.255)	(0.300)	(0.298)
Effort Median	0.480*	0.461*	-0.0045	-0.0223	0.507**	0.435*
	(0.259)	(0.268)	(0.284)	(0.267)	(0.209)	(0.233)
Treatment X Effort Median	-0.0636	-0.0552	0.193	0.183	-0.0595	-0.00981
	(0.378)	(0.370)	(0.376)	(0.347)	(0.369)	(0.372)
Male		0.319		0.0158		0.139
		(0.226)		(0.225)		(0.176)
Part-Time		-0.199		-0.148		-0.321*
		(0.174)		(0.126)		(0.159)
No Training		0.372		-0.344		0.468
		(0.364)		(0.349)		(0.363)
Less than University Degree		0.141		1.164**		-0.183
		(0.389)		(0.453)		(0.435)
University Degree		0.0399		0.0743		-0.0581
		(0.205)		(0.134)		(0.198)
>= 60 students in class		0.00453		0.0846		0.158
		(0.219)		(0.198)		(0.231)
Age		-0.0213		-1.65e-05		-0.0080
		(0.0132)		(0.0154)		(0.0137)
Number of Subjects teaching this Term		0.110		0.154		-0.0963
		(0.124)		(0.134)		(0.110)
Constant	0.0677	0.310	0.233	-0.138	-0.0225	0.364
	(0.209)	(0.580)	(0.238)	(0.421)	(0.207)	(0.644)
Observations	348	348	349	349	348	348
R-squared	0.061	0.087	0.032	0.088	0.042	0.060

Standard errors in parentheses, clustered by school. \*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.10.

Appendix Table 2B

## Domain 2 Index: Ability/Effort

	(1)	(2)	(3)	(4)	(5)	(6)
	Agree/Strongly Agree		Strongly Agree		Incl. Neutral	
Treatment	-0.673**	-0.651**	-0.523**	-0.492**	-0.201	-0.192
	(0.259)	(0.249)	(0.210)	(0.200)	(0.243)	(0.249)
Effort Median	0.189	0.204	0.487**	0.517**	0.258*	0.285*
	(0.164)	(0.157)	(0.210)	(0.205)	(0.134)	(0.146)
Treatment X Effort Median	0.568*	0.532*	0.151	0.116	0.131	0.112
	(0.310)	(0.293)	(0.284)	(0.261)	(0.224)	(0.225)
Male		0.122		0.0902		0.192
		(0.166)		(0.157)		(0.148)
Part-Time		-0.0914		0.0180		0.0635
		(0.183)		(0.148)		(0.158)
No Training		0.117		-0.0581		-0.0403
		(0.264)		(0.364)		(0.216)
Less than University Degree		0.387		0.449		0.101
		(0.305)		(0.284)		(0.236)
University Degree		0.328*		0.287*		0.0849
		(0.181)		(0.149)		(0.157)
>= 60 students in class		0.265*		0.235*		0.150
		(0.152)		(0.132)		(0.138)
Age		-0.0120		-0.0255**		0.00321
		(0.0117)		(0.00943)		(0.0104)
Number of Subjects teaching this Term		0.0679		0.0976		0.00730
		(0.111)		(0.0979)		(0.133)
Constant	0.0970	-0.0683	-0.0218	0.194	-0.0620	-0.480
	(0.143)	(0.565)	(0.177)	(0.428)	(0.131)	(0.450)
Observations	348	348	348	348	348	348
R-squared	0.071	0.103	0.079	0.119	0.023	0.035

Standard errors in parentheses, clustered by school. \*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.10.

Appendix Table 2C

## Domain 3 Index: Support Structure

	(1)	(2)	(3)	(4)	(5)	(6)
	Agree/Strongly Agree		Strongly Agree		Incl. Neutral	
Treatment	-0.277 (0.223)	-0.246 (0.217)	-0.508* (0.265)	-0.517* (0.272)	-0.101 (0.176)	-0.0660 (0.159)
Effort Median	0.197 (0.226)	0.276 (0.233)	0.222 (0.271)	0.232 (0.294)	0.0127 (0.170)	0.0669 (0.151)
Treatment X Effort Median	0.268 (0.346)	0.239 (0.342)	0.420 (0.426)	0.455 (0.435)	0.0901 (0.222)	0.0626 (0.215)
Male		0.168 (0.213)		0.318* (0.171)		0.178 (0.204)
Part-Time		0.158 (0.150)		-0.00215 (0.172)		0.0840 (0.136)
No Training		0.559** (0.213)		0.287 (0.331)		-0.0583 (0.309)
Less than University Degree		-0.111 (0.244)		-0.0338 (0.363)		0.823** (0.343)
University Degree		-0.0450 (0.114)		-0.0525 (0.168)		0.0904 (0.139)
>= 60 students in class		0.320** (0.118)		0.235 (0.182)		0.217 (0.149)
Age		0.00404 (0.0148)		-0.0158 (0.0147)		-0.00309 (0.00942)
Number of Subjects teaching this Term		0.00558 (0.132)		-0.141 (0.0876)		0.0336 (0.0992)
Constant	-0.0286 (0.181)	-0.557 (0.785)	0.0338 (0.236)	0.400 (0.575)	0.0231 (0.124)	-0.358 (0.347)
Observations	348	348	348	348	348	348
R-squared	0.023	0.054	0.038	0.065	0.002	0.051

Standard errors in parentheses, clustered by school. \*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.10.

Appendix Table 2D

	Domain 4 Index: Student Engagement					
	(1)	(2)	(3)	(4)	(5)	(6)
	Agree/Strongly Agree		Strongly Agree		Incl. Neutral	
Treatment	-0.0126 (0.170)	0.0118 (0.156)	-0.286 (0.221)	-0.232 (0.191)	0.149 (0.163)	0.145 (0.169)
Effort Median	0.139 (0.164)	0.182 (0.149)	0.303 (0.182)	0.377** (0.174)	-0.0743 (0.242)	-0.0546 (0.229)
Treatment X Effort Median	0.0843 (0.247)	0.0743 (0.245)	0.192 (0.261)	0.155 (0.246)	-0.0241 (0.273)	-0.0253 (0.281)
Male		-0.192 (0.172)		0.124 (0.139)		-0.120 (0.195)
Part-Time		0.134 (0.143)		0.250 (0.148)		0.00607 (0.106)
No Training		0.0760 (0.291)		-0.0537 (0.325)		0.237* (0.132)
Less than University Degree		0.320** (0.146)		0.249 (0.318)		0.129 (0.134)
University Degree		-0.0458 (0.114)		0.0340 (0.137)		0.0362 (0.161)
>= 60 students in class		0.221** (0.106)		0.358* (0.189)		0.127 (0.154)
Age		0.00187 (0.0113)		-0.0207** (0.00989)		0.0103 (0.0138)
Number of Subjects teaching this Term		-0.0696 (0.115)		0.0985 (0.0770)		-0.123 (0.153)
Constant	-0.0863 (0.117)	-0.0757 (0.348)	-0.0578 (0.174)	-0.0414 (0.382)	-0.0324 (0.116)	-0.170 (0.489)
Observations	348	348	348	348	348	348
R-squared	0.008	0.036	0.036	0.085	0.005	0.019

Standard errors in parentheses, clustered by school. \*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.10.

Appendix Table 3A

Domain 1 Index: Job Satisfaction						
	(1)	(2)	(3)	(4)	(5)	(6)
	Agree/Strongly Agree					
	25th Percentile Cut-Off		Median Cut-Off		75th Percentile Cut-off	
Treatment	-0.768***	-0.763***	-0.629***	-0.615***	-0.660***	-0.643***
	(0.216)	(0.242)	(0.171)	(0.179)	(0.136)	(0.133)
Above 25th Percentile	0.0770	0.0456				
	(0.264)	(0.296)				
Treatment X Above 25th Percentile	0.234	0.246				
	(0.259)	(0.279)				
Above Median			-0.0958	-0.183		
			(0.291)	(0.281)		
Treatment X Above Median			0.0650	0.0686		
			(0.245)	(0.233)		
Above 75th Percentile					-0.253	-0.259
					(0.325)	(0.315)
Treatment X Above 75th Percentile					0.268	0.264
					(0.297)	(0.281)
Controls	N	Y	N	Y	N	Y
Observations	330	330	330	330	330	330
R-Squared	0.044	0.078	0.040	0.077	0.042	0.077
Strongly Agree						
	25th Percentile Cut-Off		Median Cut-Off		75th Percentile Cut-off	
Treatment	-0.343	-0.287	-0.306	-0.249	-0.461**	-0.428**
	(0.217)	(0.234)	(0.218)	(0.224)	(0.213)	(0.208)
Above 25th Percentile	0.137	0.134				
	(0.302)	(0.347)				
Treatment X Above 25th Percentile	-0.119	-0.168				
	(0.308)	(0.327)				
Above Median			0.105	0.153		

			(0.336)	(0.350)		
Treatment X Above Median			-0.257	-0.331		
			(0.337)	(0.358)		
Above 75th Percentile					-0.218	-0.178
					(0.261)	(0.267)
Treatment X Above 75th Percentile					0.119	0.0652
					(0.320)	(0.332)
Controls	N	Y	N	Y	N	Y
Observations	331	331	331	331	331	331
R-Squared	0.027	0.078	0.029	0.081	0.029	0.079

	Including Neutral					
	25th Percentile Cut-Off		Median Cut-Off		75th Percentile Cut-off	
Treatment	-0.587	-0.602	-0.375	-0.380	-0.393*	-0.378*
	(0.566)	(0.555)	(0.320)	(0.319)	(0.216)	(0.210)
Above 25th Percentile	0.0302	0.0348				
	(0.351)	(0.370)				
Treatment X Above 25th Percentile	0.211	0.233				
	(0.585)	(0.587)				
Above Median			-0.0398	-0.0262		
			(0.310)	(0.342)		
Treatment X Above Median			-0.118	-0.103		
			(0.357)	(0.375)		
Above 75th Percentile					0.0927	0.0699
					(0.458)	(0.455)
Treatment X Above 75th Percentile					-0.171	-0.240
					(0.362)	(0.387)
Controls	N	Y	N	Y	N	Y
Observations	330	330	330	330	330	330
R-Squared	0.021	0.046	0.020	0.044	0.019	0.045

Standard errors in parentheses, clustered by school. \*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.10.

Appendix Table 3B

Domain 2 Index: Ability/Effort						
	(1)	(2)	(3)	(4)	(5)	(6)
	Agree/Strongly Agree					
	25th Percentile Cut-Off		Median Cut-Off		75th Percentile Cut-off	
Treatment	-0.823***	-0.774***	-0.464***	-0.448***	-0.411***	-0.413***
	(0.193)	(0.208)	(0.160)	(0.146)	(0.118)	(0.113)
Above 25th Percentile	0.127	0.0534				
	(0.236)	(0.274)				
Treatment X Above 25th Percentile	0.581**	0.512*				
	(0.258)	(0.281)				
Above Median			0.0419	0.0578		
			(0.197)	(0.238)		
Treatment X Above Median			0.136	0.107		
			(0.296)	(0.304)		
Above 75th Percentile					0.0958	0.0930
					(0.259)	(0.285)
Treatment X Above 75th Percentile					0.0721	0.0874
					(0.524)	(0.545)
Controls	N	Y	N	Y	N	Y
Observations	330	330	330	330	330	330
R-Squared	0.056	0.090	0.027	0.074	0.027	0.074
Strongly Agree						
	25th Percentile Cut-Off		Median Cut-Off		75th Percentile Cut-off	
Treatment	-0.586***	-0.537**	-0.339**	-0.327**	-0.450***	-0.456***
	(0.167)	(0.197)	(0.148)	(0.138)	(0.140)	(0.136)
Above 25th Percentile	0.294	0.189				
	(0.263)	(0.312)				
Treatment X Above 25th Percentile	0.174	0.123				
	(0.248)	(0.259)				
Above Median			0.394*	0.371		

			(0.218)	(0.229)		
Treatment X Above Median			-0.250	-0.246		
			(0.288)	(0.280)		
Above 75th Percentile					0.170	0.157
					(0.245)	(0.242)
Treatment X Above 75th Percentile					-0.0308	0.0594
					(0.449)	(0.462)
Controls	N	Y	N	Y	N	Y
Observations	330	330	330	330	330	330
R-Squared	0.051	0.086	0.046	0.089	0.035	0.082
	Including Neutral					
	25th Percentile Cut-Off		Median Cut-Off		75th Percentile Cut-off	
Treatment	-0.461	-0.427	-0.180	-0.146	-0.201	-0.190
	(0.486)	(0.494)	(0.256)	(0.257)	(0.187)	(0.195)
Above 25th Percentile	0.156	0.205				
	(0.319)	(0.316)				
Treatment X Above 25th Percentile	0.423	0.377				
	(0.503)	(0.501)				
Above Median			0.0895	0.184		
			(0.193)	(0.207)		
Treatment X Above Median			0.0591	-0.00690		
			(0.315)	(0.318)		
Above 75th Percentile					0.0892	0.137
					(0.203)	(0.211)
Treatment X Above 75th Percentile					0.247	0.204
					(0.336)	(0.377)
Controls	N	Y	N	Y	N	Y
Observations	330	330	330	330	330	330
R-Squared	0.029	0.045	0.007	0.027	0.011	0.029

Standard errors in parentheses, clustered by school. \*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.10.

Appendix Table 3C

Domain 3 Index: Support Structure						
	(1)	(2)	(3)	(4)	(5)	(6)
	Agree/Strongly Agree					
	25th Percentile Cut-Off		Median Cut-Off		75th Percentile Cut-off	
Treatment	-0.196	-0.161	-0.207	-0.174	-0.231	-0.206
	(0.152)	(0.163)	(0.133)	(0.142)	(0.137)	(0.141)
Above 25th Percentile	-0.127	-0.171				
	(0.287)	(0.281)				
Treatment X Above 25th Percentile	0.0435	0.0179				
	(0.216)	(0.224)				
Above Median			-0.170	-0.132		
			(0.221)	(0.237)		
Treatment X Above Median			0.0900	0.0544		
			(0.240)	(0.249)		
Above 75th Percentile					-0.112	-0.0980
					(0.226)	(0.263)
Treatment X Above 75th Percentile					0.307	0.268
					(0.263)	(0.324)
Controls	N	Y	N	Y	N	Y
Observations	330	330	330	330	330	330
R-Squared	0.005	0.037	0.007	0.036	0.007	0.036
Strongly Agree						
	25th Percentile Cut-Off		Median Cut-Off		75th Percentile Cut-off	
Treatment	-0.166	-0.183	-0.226	-0.220	-0.346*	-0.327*
	(0.290)	(0.269)	(0.191)	(0.180)	(0.171)	(0.163)
Above 25th Percentile	-0.0951	-0.165				
	(0.522)	(0.495)				
Treatment X Above 25th Percentile	-0.170	-0.134				
	(0.352)	(0.336)				
Above Median			-0.00196	0.00329		

			(0.331)	(0.330)		
Treatment X Above Median			-0.134	-0.125		
			(0.334)	(0.321)		
Above 75th Percentile					-0.214	-0.162
					(0.319)	(0.331)
Treatment X Above 75th Percentile					0.235	0.200
					(0.502)	(0.507)
Controls	N	Y	N	Y	N	Y
Observations	330	330	330	330	330	330
R-Squared	0.014	0.047	0.011	0.043	0.012	0.044

	Including Neutral					
	25th Percentile Cut-Off		Median Cut-Off		75th Percentile Cut-off	
Treatment	0.493**	0.516**	0.154	0.188	0.0114	0.0365
	(0.203)	(0.198)	(0.189)	(0.172)	(0.176)	(0.167)
Above 25th Percentile	0.229	0.145				
	(0.201)	(0.211)				
Treatment X Above 25th Percentile	-0.723***	-0.725***				
	(0.260)	(0.259)				
Above Median			0.0825	0.0764		
			(0.235)	(0.233)		
Treatment X Above Median			-0.398	-0.423		
			(0.282)	(0.290)		
Above 75th Percentile					0.0803	0.154
					(0.288)	(0.264)
Treatment X Above 75th Percentile					-0.228	-0.242
					(0.303)	(0.321)
Controls	N	Y	N	Y	N	Y
Observations	330	330	330	330	330	330
R-Squared	0.023	0.081	0.011	0.068	0.002	0.058

Standard errors in parentheses, clustered by school. \*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.10.

Appendix Table 3D

Domain 4 Index: Student Engagement						
	(1)	(2)	(3)	(4)	(5)	(6)
	Agree/Strongly Agree					
	25th Percentile Cut-Off		Median Cut-Off		75th Percentile Cut-off	
Treatment	0.140 (0.167)	0.130 (0.173)	0.0734 (0.134)	0.0751 (0.128)	0.0453 (0.123)	0.0564 (0.118)
Above 25th Percentile	-0.00864 (0.144)	-0.0763 (0.140)				
Treatment X Above 25th Percentile	-0.154 (0.212)	-0.122 (0.220)				
Above Median			-0.136 (0.144)	-0.124 (0.128)		
Treatment X Above Median			-0.0943 (0.214)	-0.0721 (0.206)		
Above 75th Percentile					0.0317 (0.136)	0.0470 (0.166)
Treatment X Above 75th Percentile					-0.0796 (0.257)	-0.0712 (0.284)
Controls	N	Y	N	Y	N	Y
Observations	330	330	330	330	330	330
R-Squared	0.002	0.031	0.007	0.033	0.000	0.028
	Strongly Agree					
	25th Percentile Cut-Off		Median Cut-Off		75th Percentile Cut-off	
Treatment	-0.0690 (0.0976)	-0.0160 (0.106)	-0.0268 (0.135)	0.00289 (0.131)	-0.158 (0.163)	-0.139 (0.154)
Above 25th Percentile	0.0853 (0.277)	-0.0438 (0.237)				
Treatment X Above 25th Percentile	-0.194 (0.201)	-0.217 (0.203)				
Above Median			0.0195	-0.0244		

			(0.225)	(0.225)		
Treatment X Above Median			-0.381	-0.368		
			(0.251)	(0.239)		
Above 75th Percentile					-0.142	-0.141
					(0.209)	(0.200)
Treatment X Above 75th Percentile					-0.269	-0.188
					(0.247)	(0.273)
Controls	N	Y	N	Y	N	Y
Observations	330	330	330	330	330	330
R-Squared	0.010	0.065	0.021	0.074	0.021	0.068

	Including Neutral					
	25th Percentile Cut-Off		Median Cut-Off		75th Percentile Cut-off	
Treatment	0.254	0.219	0.0969	0.0805	0.194	0.193
	(0.166)	(0.189)	(0.120)	(0.136)	(0.179)	(0.170)
Above 25th Percentile	0.0225	-0.00474				
	(0.220)	(0.250)				
Treatment X Above 25th Percentile	-0.157	-0.123				
	(0.246)	(0.285)				
Above Median			-0.189	-0.168		
			(0.240)	(0.244)		
Treatment X Above Median			0.0858	0.0967		
			(0.290)	(0.329)		
Above 75th Percentile					0.252	0.283
					(0.151)	(0.186)
Treatment X Above 75th Percentile					-0.233	-0.279
					(0.214)	(0.221)
Controls	N	Y	N	Y	N	Y
Observations	330	330	330	330	330	330
R-Squared	0.005	0.021	0.007	0.022	0.007	0.024

Standard errors in parentheses, clustered by school. \*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.10.