

## Method

### Setting and Participants

The following data collection was conducted at a 500-student mid-Atlantic rural high school (freshmen through seniors). Of the student body, 450 provided parental consent and student assent. The demographics of these participants are described in Table 1 below.

**Table 1**  
*Demographic Characteristics of Sample*

|                  | N (%)       |
|------------------|-------------|
| Gender           |             |
| Male             | 195 (43.33) |
| Female           |             |
| NA               | 245 (54.44) |
| 10 (2.22)        |             |
| Race             |             |
| White            | 329 (73.11) |
| African American | 21 (4.67)   |
| Asian            | 19 (4.22)   |
| Hispanic         | 29 (6.44)   |
| Native American  | 7 (1.56)    |
| Other            |             |
| NA               | 32 (7.11)   |
| 13 (2.89)        |             |
| Grade Level      |             |
| Freshman         | 162 (36)    |
| Sophomore        | 151 (33.55) |
| Junior           | 84 (18.67)  |
| Senior           |             |
| NA               | 39 (8.67)   |
| 14 (3.11)        |             |

### Instruments

The following instruments were used during study data collection.

#### *Gender*

Gender was a dichotomous variable (male or female). This demographic variable was reported from school records.

**Self-Efficacy**

Student confidence in academic ability was measured using the Self-Efficacy scale. This scale has 4 items, and a response scale of a 4-point Likert scale. Reliability is adequate ( $\alpha > 0.7$ ).

**Student Effort**

Student expended effort in the classroom was measured using the Student Effort scale. This scale has 5 items, and a response scale of a 4-point Likert scale. Reliability is adequate ( $\alpha > 0.7$ ).

**Perceptions of Teacher Respect**

Student perceptions of how teachers respected their students was measured using the Perceptions of Teacher Respect scale. This scale has 6 items, and a response scale of a 4-point Likert scale. Reliability is adequate ( $\alpha > 0.7$ ).

**Procedures**

Parental consent and student assent was obtained at the beginning of the academic year. For students who had submitted both parental consent and student assent, surveys were administered via Qualtrics halfway through the first quarter of the academic year, and again halfway through the third quarter of the academic year. Demographic data was collected from school records at the end of the school year, including gender identity.

**Data Analysis**

Commented [AM1]: Results (APA style)

**Descriptive Statistics**

Prior to data analysis, data were cleaned and all assumptions were met. Table 2 below describes the means, standard deviations, and bivariate correlations for the study variables.

**Table 2**  
*Descriptive Statistics and Bivariate Correlations for Study Variables*

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| Variable           | M    | 1      | 2      | 3 |
|--------------------|------|--------|--------|---|
| 1. Self-efficacy 1 | 2.83 | -      |        |   |
| 2. Effort 2        | 2.54 | .22*** | -      |   |
| 3. Respect 1       | 3.23 | .31*** | .27*** | - |

## Hypothesis Testing

To answer our two research questions (listed below), we conducted regression analyses. All analyses were run in R through the RStudio user interface.

**Research Question 1: Does sex (genderD) moderate the relationship between self-efficacy (SEff\_1s) and student reported effort (Effrt\_2s)?**

To answer this research question we conducted a multiple regression analysis. Our dependent variable was student effort (at time 2). Our independent variables were self-efficacy (at time 1), respect (at time 1), and gender identity.

**Research Question 2: Is the relationship between self-efficacy (SEff\_1s) and student reported effort (Effrt\_2s) moderated by perceived teacher respect (Rspct\_1s) controlling for sex (genderD)?**

To answer this question we conducted a continuous moderated regression. The dependent variable is student effort. The independent variable was self-efficacy. The moderator was teacher respect. The data was we controlled for gender identity.

## Results

**Research Question 1: Does sex (genderD) moderate the relationship between self-efficacy (SEff\_1s) and student reported effort (Effrt\_2s)?**

Our first regression model is significant,  $F(3, 425) = 20.95, p < 0.05, R^2 = 0.1288$ . This indicates that self-efficacy ( $t = 2.660, p < 0.05$ ) and respect ( $t = 4.165, p < 0.05$ ) at time 1, as well as gender identity ( $t = 4.200, p < 0.05$ ), all significantly predict student effort at time 2.

**Commented [AM3]:** Drop variable names....manuscripts use constructs...

**Commented [AM4]:** ???

**Commented [AM5]:** Format for APA—drop t value or include df

Please use a model article to help you with structure.

On examination of a standardized residuals plot (Figure 1) and histogram (Figure 2) we see a funnel shape and slight negative skew. Both indicate moderation may be occurring.

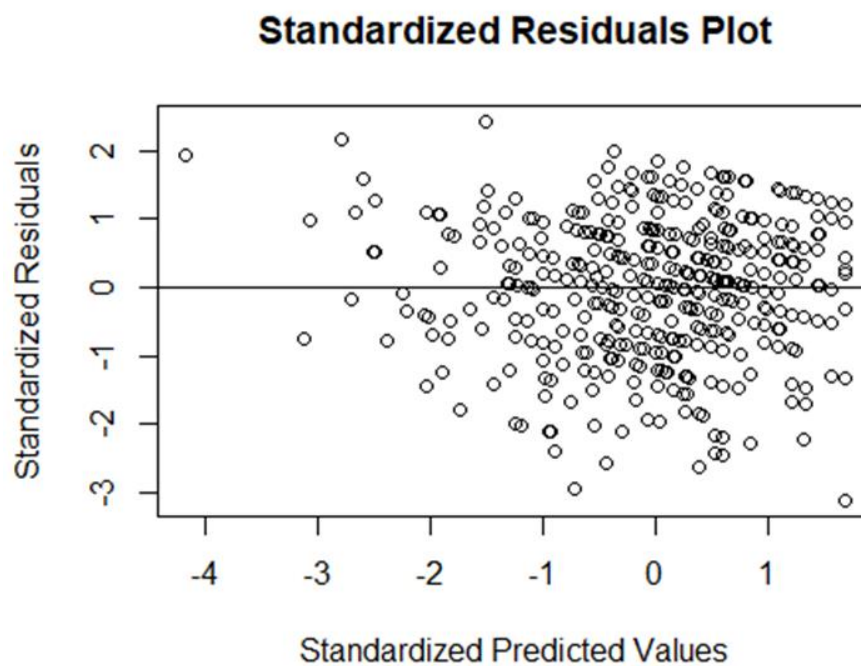
**Commented [AM6]:** Your RQ is about moderation...just present that.

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**Figure 1**

*Standardized Residuals Plot*

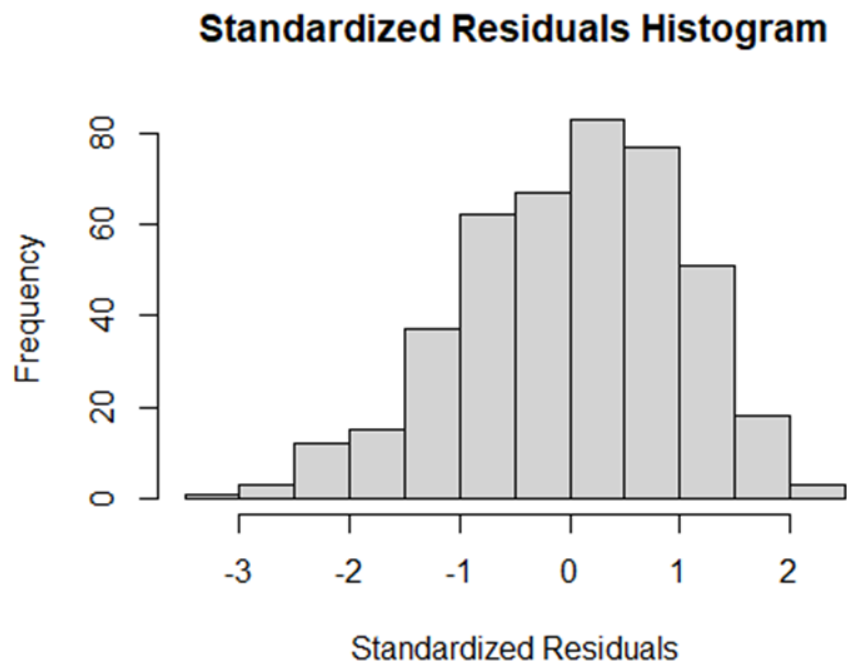
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**Figure 2**

*Histogram of Standardized Residuals*

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After running the moderated regression, our model indicates a significant moderated relationship is occurring,  $F(4, 424) = 19.39, p < 0.05, R^2 = 0.7763$ . All of our variables are significant in the model, including the interaction term of self-efficacy by gender ( $t = -3.598, p < 0.05$ ). This indicates gender is indeed a moderator in the model.

In doing a simple slopes analysis, we see that gender is an antagonistic moderator. For girls, as self-efficacy increases, so does effort. For boys, as self-efficacy increases, effort decreases; however this effect is negligible and close to 0 (Figure 4).

**Figure 3**

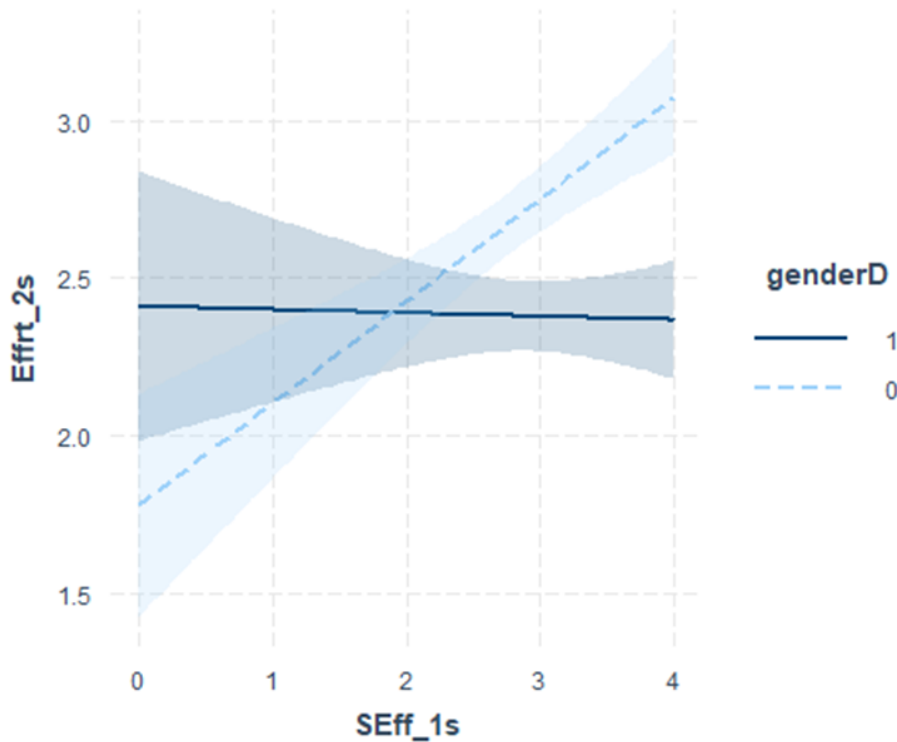
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**Commented [AM12]:** What is the slope??

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### Simple Slopes Analysis



**Research Question 2: Is the relationship between self-efficacy (SEff\_1s) and student reported effort (Effrt\_2s) moderated by perceived teacher respect (Rspct\_1s) controlling for sex (genderD)?**

The regression model is significant,  $F(3, 425) = 20.95, p < 0.05, R^2 = 0.1288$ . This indicates that self-efficacy ( $t = 2.660, p < 0.05$ ) and respect ( $t = 4.165, p < 0.05$ ) at time 1, as well as gender identity ( $t = 4.200, p < 0.05$ ), all significantly predict student effort at time 2.

We then examine our moderated regression, controlled for gender identity. The model is significant,  $F(4, 424) = 17.01, p < 0.05, R^2 = 0.1383$ . All independent variables (self-

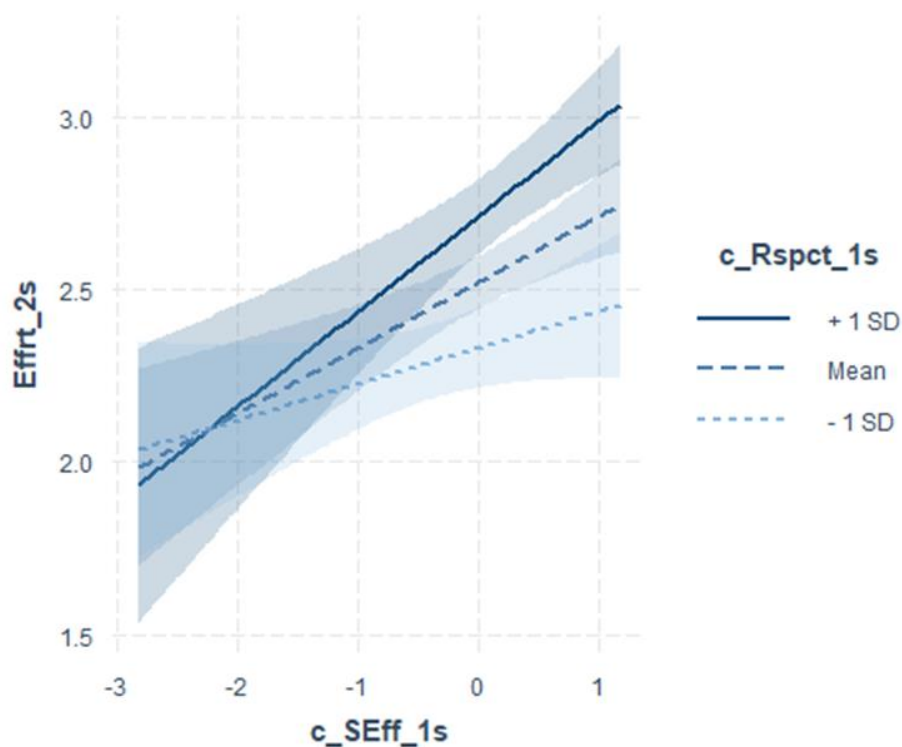
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efficacy,  $t = 3.865$ ,  $p < 0.05$ ; respect,  $t = 4.595$ ,  $p < 0.05$ ) and the moderator (self-efficacy by respect,  $t = 2.157$ ,  $p < 0.05$ ) are significant predictors.

In performing a simple slopes analysis to explore how effort changes with self-efficacy based on levels of respect we learn students have more self-efficacy the more effort they put forth, and that relationship becomes stronger the more respect a learner perceives from their teacher (see Figure 5).

**Figure 4**

*Simple Slopes Analysis*



**Commented [AM15]:** The interaction term (not the moderator---which is a variable).

**Commented [AM16]:** ??

**Commented [AM17]:** What are the slopes? Are they all significant??