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EDRS 821Summer 2022

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**Midterm**

1. Do grade level (freshman, sophomore etc.), teacher care, and value of education (all measured at time1) predict student self-reported effort (at time 2) over and above for perceived teacher expectancies (time 1)?

This question can be answered using multiple regression to determine if these three predictors (grade level, teacher care, and value of education) are statistically significant, when taken as a group, in the outcome of Self-Reported Effort (presented as Model 1) or the outcome of Perceived Teacher Expectancies (presented as Model 2).

Grade Level (X)\*

Teacher Care (Y)

Value of Education (Z)

Self-Reported Effort (DV1)

Perceived Teacher Expectancies (DV2)

\*X is disaggregated by grade (X1 = freshman, X2 = Sophomore, X3 = Junior, and X4 = Senior)

Model 1: Does grade level, teacher care and value of education predict self-reported effort?

X + Y + Z = DV1

Model 2: Does grade level, teacher care and value of education predict perceived teacher expectancies?

X + Y + Z = DV2

Reviewing the Model Summary in SPSS using the data set: In Model 1, the R2 value is .129, which means that, when taken as a set, the predictors account for about 13 % of the variance of Self-Reported Effort. In Model 2, the R2 value is .171, which means that, when taken as a set, the predictors account for about 17% of the variance of Perceived Teacher Expectancies.

Assessing the ANOVA table, testing with an alpha = .05, the overall regression model is statistically significant for Model 1: F(6, 418) = 10.286, p < .001, R2 = .129. Likewise, the overall regression model is statistically significant for Model 2: F(7, 417) = 12.265, p < .001, R2

= .171.

Although both Models are statistically significant (p < .001), there is an R2 change of about 4% (17% - 14%), or more specifically according to the Model Summary, an R2 change of .042 and F(1, 417)=21.166, p < .001. The conclusion is therefore that these three predictors, taken as a group, do not predict Self-Reported Effort over and above Teacher Expectancies; rather, these three predictors account for 4% more variance when assessing for Teacher Expectancies.

Additionally, while not directly asked in the question, when examining the Coefficients table and assessing each predictor variable individually, the predictor variable (IV) Value of Education is statistically significant (p < .05) and offers a unique variance that other predictor variables do not explain in both Models. In fact, in Model 1, the Value of Education is the only IV of statistical significance when each variable is analyzed individually (i.e. not as a set). In Model 2, both the Value of Education and Teacher Expectancies are statistically significant (p < .05). This analysis only looks at the unique contribution of each individual variable and not the set, which is assessed in the Model Summary and ANOVA test.

1. Is the relationship between classroom belonging (time 1) and self-reported effort (time 2) moderated by perceived teacher expectancies (time 1)?

This question examines whether a moderator (Perceived Teacher Expectancies) effects the strength and/or direction of the relationship between Classroom Belonging Time and Self-Reported Effort. Using a regression analysis, the following graph illustrates the relationship to be examined:

Classroom Belonging Self-Reported Effort

(X) (Z)

Perceived Teacher Expectancies (W)

Where:

X = Classroom Belonging

W = Perceived Teacher Expectancies

XW = Interaction

Z = Self-Reported Effort

When considering the total, the Model Summary indicates the relationship between School Belonging and Self-Reported Effort when moderated by Perceived Teacher Expectancies is statistically significant (p < .01) with an R-square effect size of .10. That is, the amount of variance explained in Self-Reported Effort by Classroom Belonging when moderated by Teacher Expectancies is 10%.

However, the data also states that the relationship between School Belonging (X) and Self-Reported Effort (Z) is not statistically significant (p = .56, or p > .05) without the Moderator (W). Further, the Interaction (XW) is also not statistically significant as shown in the Model Summary (p = .75). The Johnson-Neyman test confirms this lack of statistical significance, and further notes the amount of variance evident in the interaction of X\*W is R2 =.00, which is to say there is close to zero percent change in variance when accounting for the interaction.

The impact of the Moderator W, Perceived Teacher Expectancies, is statistically significant (p < .001) in relationship to Self-Reported Effort. This significance means that Teacher Expectancies (W)– the Moderator – has a greater impact on Effort (Z) than Classroom Belonging (X). A review of the coefficients shows there is a buffering relationship between the Interaction (XW), which has a negative direction, and X and W individually, which show a positive direction in their relationship with Z.

In conclusion, the relationship between Classroom Belonging and Self-Reported Effort is moderated by Perceived Teacher Expectancies, and in fact, Perceived Teacher Expectancies is statistically significant in effecting Self-Reported Effort.

To further illustrate the relationship between X, W, and Z, the following graph shows a visual view of the relationship:

Here it is notable that with Teacher Expectancies (W), the Self-Reported Effort is significantly higher than School Belonging, that is, a student’s Self-Reported Effort (Z) is stronger when including both Teacher Expectancies (W) and School Belonging (X).

1. Does perceived teacher competence (time 1) mediates the relationship between perceived teacher caring (time 1) and self-reported effort (time 2).

This study’s hypothesis proposes that Teacher Competency mediates the relationship between Perceived Teacher Caring and Self-Reported Effort. After conducting a Regression Analysis, the following information is shown: The total direct effect between Teacher Caring and the Self-Reported Effort (path C in the graph below) is statistically significant (p < .001). The indirect effect between Teacher Caring and Teacher Competency (path A) is statistically significant (p < .001), but the indirect effort between Teacher Competency and Self-Reported Effort (path B) is not statistically significant, p > .05). Further the C’ relationship between Teacher Caring and Self-Reported Effort (with the mediator in the model) is not statistically significant (p >.05). Additionally, the Sobel Test shows there is not a statistically significant indirect effect (a\*b = .095; z = 1.906; p < .057). Interpreting the relative strength as a percent of the effect of Teacher Caring and Self-Reported Effort is mediated by Teacher Competency by about four percent.

Co-efficient and statistical significance noted below.

Teacher Competency

(Mediator)

A = .586\* B = .163

\* p < .001

\*\* p < .05

Perceived

Teacher Caring C’ = .067 Self-Reported Effort

(IV) (DV)

Perceived Teacher Caring Self-Reported Effort

C = .162\*