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Characterizing the Effect of Written Presentation on Performance in an Introductory Physics Class SHAWN BALLARD, JOHN STEWART, University of Arkansas — Samples of student writing on hourly exams in an introductory science class were characterized based on important presentation features such as the number of words, sentences, mathematical expressions, and graphs. Correlation analysis is used to determine the features of student writing that most directly affect student performance in the class and student conceptual mastery of the material. Regression analysis shows that written presentation data can be used to predict student exam performance with R-squared=0.38. Student writing behavior also allows the prediction of conceptual performance with R-squared=0.20. Substantially stronger predictive power for both exam performance and conceptual mastery is obtained if time-on-task data is combined with written presentation data.

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