Quora

What does ‘proportion of variance explained’ mean?

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You have a set of scores on an outcome variable [for example, a set of research participants’ scores on an Internet use scale].

You can calculate the variance of those scores. **The variance is a measure of how much people vary [for example, how much people vary on an Internet use scale; some people might use the Internet a lot, some people might use the Internet only a little, and all possibilities could exist in between. That’s what we mean by how much people can vary on an Internet use scale, and when you calculate the variance you get a measure of this variation].**

Then you [use your predictor variable, for example, the same research participants’ scores on a Neuroticism scale] to calculate a predicted score for each person.

[**You are using your *predictor* variable, *Neuroticism*, to try to predict the variation in your *outcome* variable, *Internet* use.**]

You calculate the difference between the predicted scores and the actual scores [to answer the question] **how much variance did you explain?**

[For example, how much variance in participants’ Internet use can you explain by measuring participants’ Neuroticism?]

If your predicted scores exactly match your outcome scores, then you've perfectly predicted the scores, **and you've explained all of the variance**.

[But if you’ve explained only a small proportion of the variance, for instance, only 2% or 3% of the variance, then your predictor variable, e.g., Neuroticism, isn’t very good at predicting the variation in your outcome measure, e.g., Internet use.]