

# Gaming Grading Systems

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## Introduction

Formal education is a near ubiquitous experience for individuals in this country. Schools and universities have been built with one aim: to promote learning. In order to learn within these systems students must first be **motivated to engage** with them. Yet, inherent in the design of traditional grading systems that many institutions use are mechanisms that can actually **demotivate students**.

The present study **examines the impact of two atypical grading systems** used in two distinct undergraduate courses: a gateway political science course, and a course on videogames and learning. These courses have been "gamified," their grading systems have been designed to **lower the risk of failure, encourage exploration, and provide lots of practice and reinforcement** (Gee, 2003).

...but do they **work**? The present study examines the following research questions to begin to answer that question.

**Research Question 1:** What impact did the alternative grading system have on students' feelings regarding their **control** over their grade?

**Research Question 2:** What impact did the alternative grading system have on students' attitudes about whether or not the grading system encouraged them to **complete more assignments**?

**Research Question 3:** What impact did the alternative grading system have on students' feelings about whether or not that the grading system encouraged them to **work harder**?

## Methods

Students in each course were given a survey with items drawn from the Patterns of Adaptive Learning Scale (PALS) to assess whether or not they were Mastery Goal oriented (MGO; characterized by seeking to develop competence), Performance-Approach oriented (PA; characterized by seeking to demonstrate competence), or Performance-Avoid oriented (PV; characterized by avoiding demonstrating incompetence).

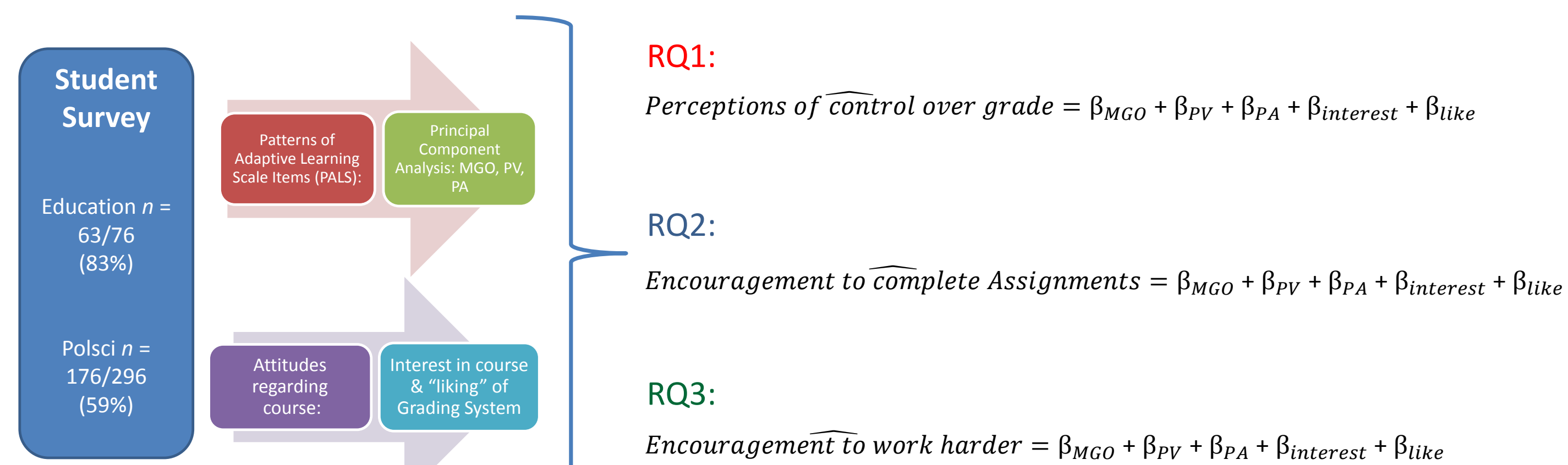
MGO Example: "One of my goals is to show others that class work is easy for me."

PV Example: "It's important to me that I develop a lot of new concepts in class."

PA Example: "It is important that my teacher doesn't think that I know less than others in this class."

The same survey also asked them about their attitudes regarding the course. Specifically, they were asked whether or not they "liked" the grading system (liked) and whether they found the course interesting (interest). These variables were then used in regression models to assess their impact on outcomes of interest:

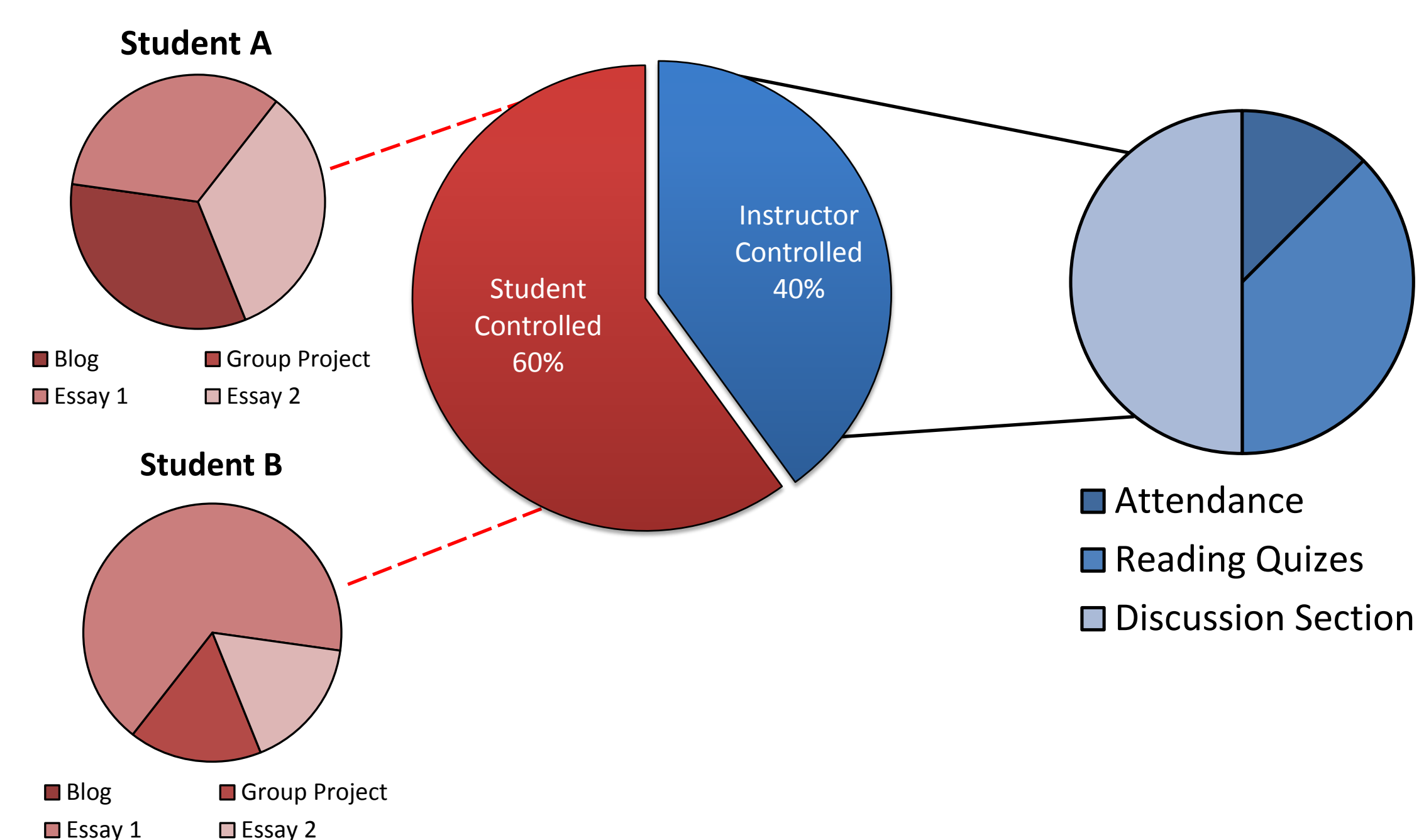
### Survey data yields variables for regression model analysis



## Two "Gamified" Course Models

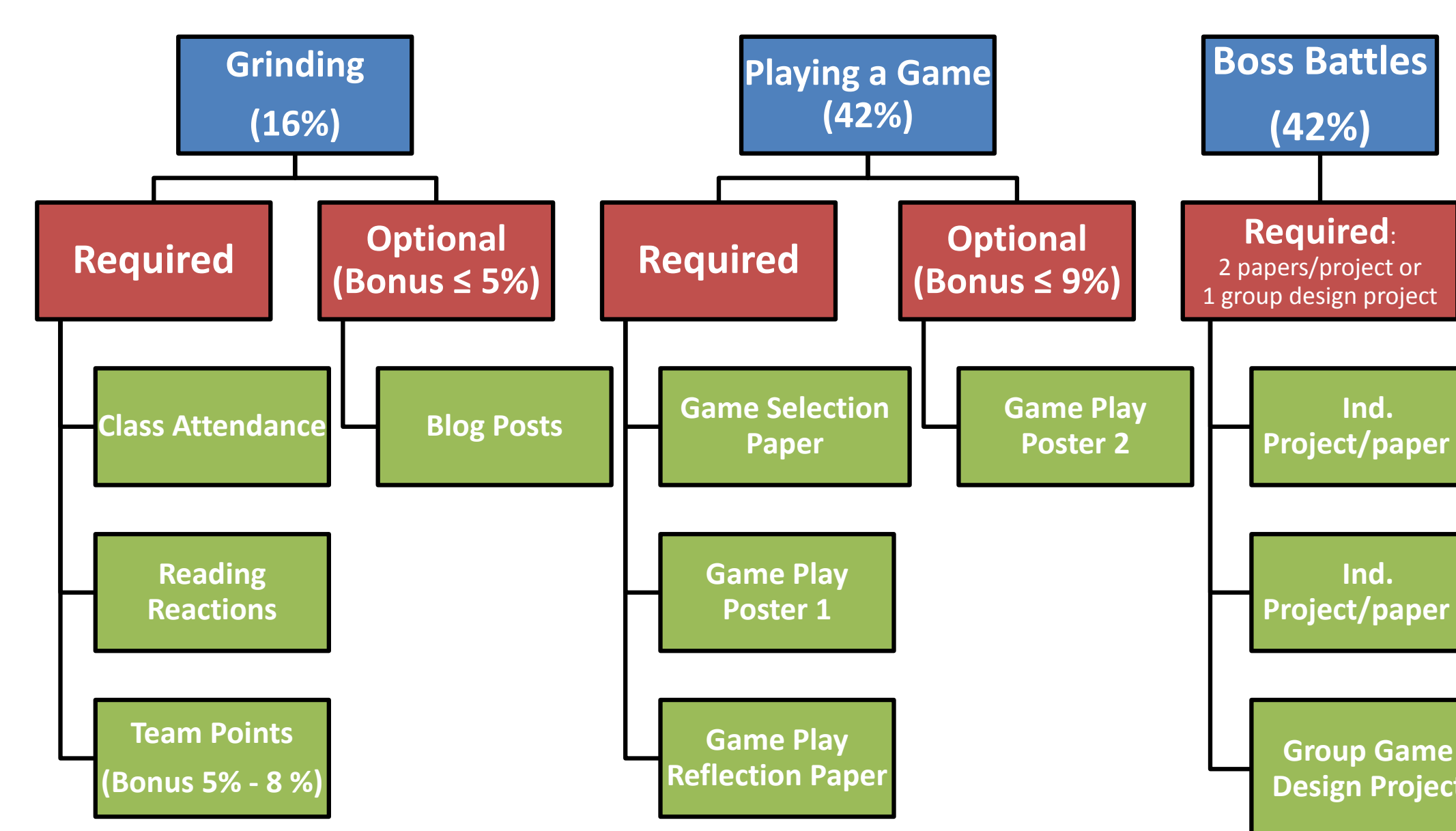
A grading system designed to allow students to choose the importance of assignments

Political Science 101: Introduction to Political Theory

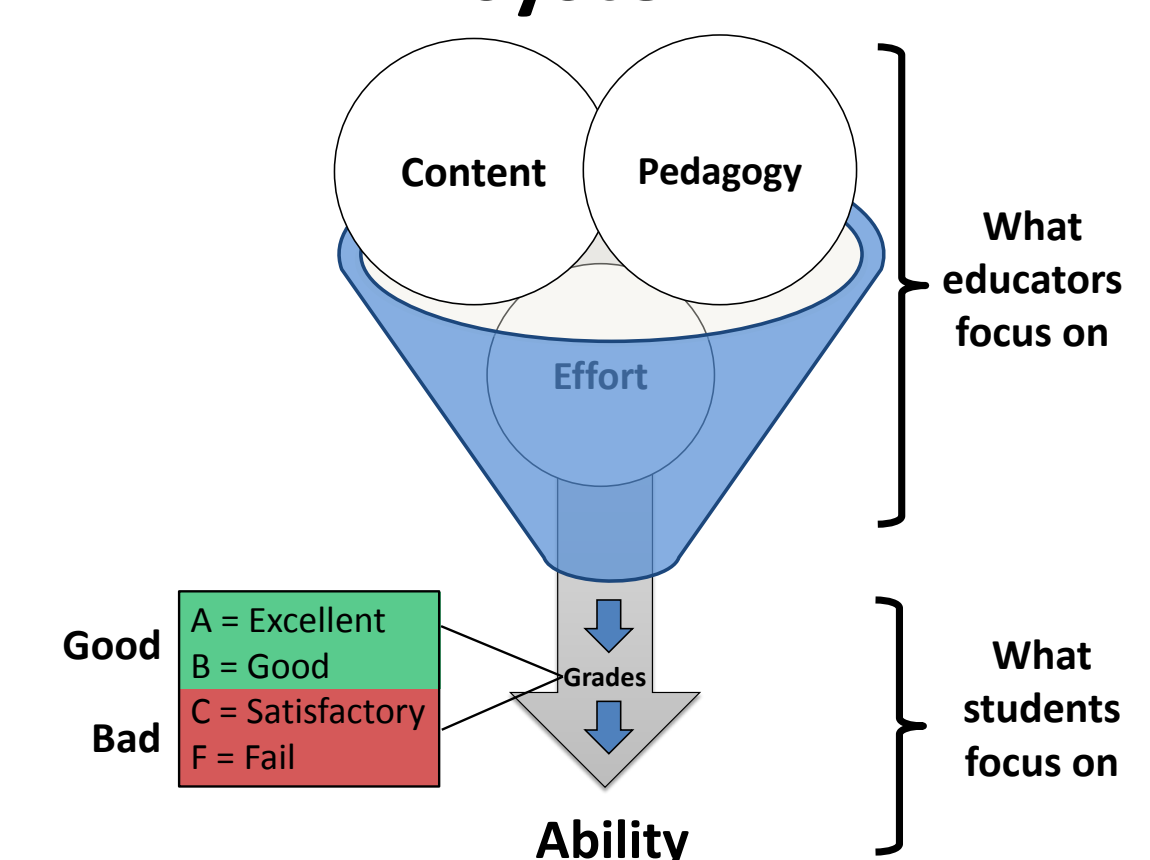


A grading system designed to lower the cost and risk of failure

Education 222: Video Games & Learning



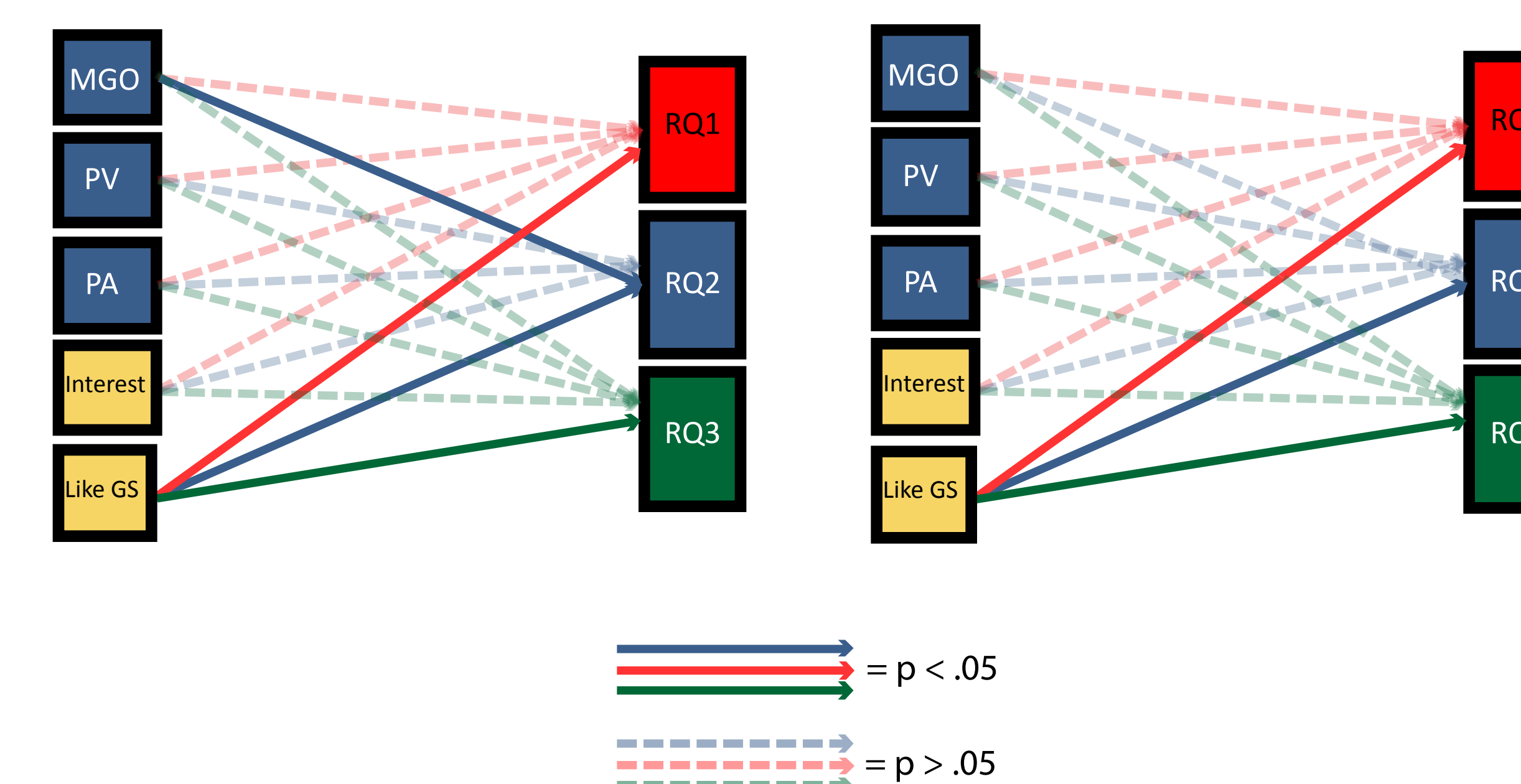
Traditional grading system



## Results

In both courses, the regression analyses indicated that for all but one model only whether or not students "liked" the grading system had a statistically significant ( $p < .05$ ) impact on control, completion, and effort.

Student "liking" of grading system best predictor of outcomes



## Conclusions & Future Directions

Our findings indicate that the **gamified grading systems were able to overcome motivation profiles**. Whether or not students "liked" the grading system was overwhelmingly the most impactful variable. This is compelling because each system was developed independently, and the courses themselves drew from different undergraduate student populations.

Our findings also suggest that the **motivation profiles themselves may actually be an artifact of traditional grading systems**, and if those systems are changed then student motivation can only benefit. If true, this could revolutionize the way in which classrooms operate both at the university level, and at the K-12 level.

We are unfortunately limited by the fact that our data is only from respondents. **Future analyses will examine non-respondents to determine how they may have differed from respondents**. We will also seek contexts in which to study students randomly assigned to different grading systems.

Our next steps are to analyze Learning Management System data to understand students' online behaviors as well as Student Information System data to understand the demographics of the courses. This will **enable us to fill in the gaps in our current data set** and inform future design.

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### References

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