

## **Does learning mode affect student grades in an elementary statistics course?**

Previous meta-analyses by Bernard, Abrami, Lou, Borokhovski and Wade, Wozney et al., (2004) and Means, Toyama, Murphy, Bakia, and Jones, (2010) indicated either no difference between distance learning performance and traditional classroom lecture or that online learning showed better learning results.

Differences existed in student performance based on learning mode (Sizemant et al, 2006; Williams et al, 2006; Means et al 2009).

In this study, 307 introductory statistics students exhibited no discernable difference in final course grades, grade distribution or pass rates.

- Results agree with previous study of 1964 introductory physics student grades which showed no difference in pass rates, grade distribution or withdraw rate (online vs lecture).
- Results mostly agree with previous study of 823 student grades which showed no differences in withdraw or pass rate. This study did show online students tended to earn or As than lecture students (online vs lecture)

Working adults may choose learning mode based on convenience and financial reimbursement (Griffith and Schultz, 2014).

Take Aways:

1. Course design should:

- Use the same syllabus
- Use the same text books
- Measure on the same homework, quizzes and tests

2. Faculty can make a difference by:

- Being competent with the technology used to teach the course
- Providing active feedback to students in discussion boards
- Providing timely grading
- Using feedback tools such as check points where each student receives a message from the instructor at the 1/3<sup>rd</sup>, 2/3<sup>rd</sup>s and before the last week on how they are doing (Faulconer, 2017, Griffith and Schultz, 2014).