

**RELATIONSHIP BETWEEN GRADES AND
LEARNING MODE**

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Introduction

- Course completion - Grades
- Hrastinski, Meta Analysis 535 studies, no difference (2008).
- ERAU study, 1,600 grades, differences based on mode – recommended larger sample
Dunn, (2013).



- n= 20,667 from 2013 grades



Introduction

Compared Mode:

- Classroom/Lecture
- Online
- EV Classroom
- EV Home

The screenshot shows a virtual classroom window titled "Saha Centre 7 - 196.16.30_Fort Worth/Albuquerque_76/Masters_Session (80.168.135)". The interface includes a menu bar (File, Edit, View, Actions, Tools, Help), a toolbar with various icons, and a sidebar with "Participants" (Fort Worth, Albuquerque) and "Agenda" (Chapter 02, Chapter 03, etc.). The main area is a whiteboard with a normal distribution curve. The area under the curve to the left of a vertical line is shaded blue and labeled "TABLES". The area to the right is shaded red and labeled "CRITICAL REGION". Above the curve, $\alpha = .05$ is written in green. Below the curve, the critical value t_{CR} is marked. The t-test formula is written in green:
$$t = \frac{\bar{X} - \mu}{\frac{s}{\sqrt{n}}}$$
 To the right of the formula, "df = ?" is written in green with three stars. At the bottom, a small video window shows a man in a yellow shirt. The status bar at the bottom indicates "Recording: 0:14:01", "In Session", and "Currently speaking: Fort Worth, Bobby Matheson".

With Type of Class Taught

- Economics, English, Humanities, Math



Literature

- 1.6 million to 6.7 million from 2002-2011
- Online course 9% to 32%
- ERAU distance learning now at 59%
- “No Significant Difference” Russell (335 studies, 1999). Hrastinski, 535 studies, 2008).
- Differences based on mode Dunn (2013)



Previous ERAU Research

Dunn (2013) n=1,398

– Preference order

- Classroom
- Online
- Synchronous Video Learning

– Differences noted between modes n=1600

– Student satisfaction

- “No significant relationship between learning mode and quality of instruction ($p=.695$) or course content ($p=.9998$).



2014 ERAU Quantitative Study (n=2,400)

- Classroom, Online, EV-H, EV-C (p=.000)
- For those with EV Experience, EV-H was second, online was third (F p=.0007, S p= .000)
- Faculty and students believed instructors were technically competent (p=.000)

(Griffith & Schultz, 2014)



2014 ERAU Quantitative Study (n=2,400)

- EV-H more effective than EV-C (F $p=.0001$, S $p=.000$)
- Use of blended was effective ($p=0.000$)
- VA students would choose EV-C over EV-H due to increased VA benefits
 - (Undergraduate $p=.0358$, Graduate $p=.0001$)

(Griffith & Schultz, 2014)



Method/Treatment of Data

- Examined student grades in Campus Solutions (Aggregate Data)
 - $n = 20,667$
- Treatment of Data
 - $\alpha = .05$ χ^2
 - 2013 data



Example: Economics

Table 1: Economics Courses (Ha1 Difference in Failures between the Four Modes)

	EV-H	EV-C	Online	Classroom	
Pass	559	548	1604	843	p=.0594
Fail	27	27	91	26	
% fail	5%	5%	5%	3%	
Direct Mode Comparison					
	EV-C	Online	Classroom		
EV-H	p=0.9432	p=0.4733	p=0.1067		
EV-C		p=0.5298	p=0.0919		
Online			p=0.0063*		



Example: Economics

Table 2: Economics Courses (Ha2 Differences in Grade Distribution between the Four Learning Modes)

	EV-H		EV-C		Online		Classroom	
Grade	n	%	n	%	n	%	n	%
A	312	53%	340	59%	802	47%	515	59%
B	164	28%	136	23%	546	32%	230	26%
C	71	12%	56	10%	201	12%	75	9%
D	12	2%	16	3%	55	3%	23	3%
F	27	5%	27	5%	91	5%	26	3%
p=.000*								
Direct Mode Comparison								
	EV-C	Online	Classroom					
EV-H	p=0.1951	p=0.0823	p=0.0440*					
EV-C		p=0.0001*	p=0.3654					
Online			p=0.0000*					



Findings – Failing Grades and Learning Environment

- Economics, ($p=.054$), English ($p=.001^*$), Humanities, ($p=.392$), Mathematics ($p=.000^*$)
- Online more failures
 - Economics, (5%), English (13%) ,and Mathematics (11%)
- Classroom Lecture, fewer failures
 - Economics, (3%), English (9%) , and Math (5%)



Findings – Grade Distribution and Learning Environment

- Economics, English, Humanities, and Mathematics (all $p=.000^*$)
- EV-Classroom, more “A”s,
 - Economics (59%), Humanities (68%), Math (57%)
- Online fewer “A”s,
 - Economics (47%), Humanities (48%), Math (40%)



Conclusions

- Failure rate and learning mode not related in Economics and Humanities (Hrastinski, 2008; Lou et al., 2006)
- Failure rate and learning mode related in English and Math (Bernard et al., 2004; Dunn, 2014)
- Grade distribution and mode were related in Economics, English, Humanities and Math courses
- Online, fewest “A”s and most “F”s in Economics, Humanities and Math
- Online highest proportion of “A”s in English



Recommendations

- Is face to face more personal while distance learning (standardized courses/delivery) provides a more clear cut objective grading system?
- Replicate as new technology emerges
- Include both quantitative and qualitative measures in assessing stakeholder perceptions with regard to learning modes

Questions?

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