

Further Assessment of Material for Engaging Students in Statistical Discovery

Amy G. Froelich
W. Robert Stephenson
William M. Duckworth

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NSF Funded Project¹

- Develop course activities for the introductory statistics course.
- Field test activities with students in an experimental section of Stat 101.
- Assess performance of students in the experimental section and regular sections.

¹DUE # 0231322

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Example Activities

- Distributions:
 - Weight of bags of M&M's
- Regression:
 - Relationship between number and weight of M&M's
- Experiments:
- Randomization:

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Year 1 Assessment

- Three Groups of Students
 - Students in an experimental section using new materials
 - high math ability.
 - Students in regular sections not using new materials (Control)
 - high math ability group.
 - regular math ability group.

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Distributions – Year 1

Group	Number	Mean	Std. Dev.
Experimental	20	18.05 B	2.50
Control: H M	39	20.21 A	2.50
Control: Reg	40	15.38 C	5.16

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Regression/Experiments – Year 1

Group	Number	Mean	Std. Dev.
Experimental	20	22.30 A	3.50
Control: H M	39	19.69 B	4.27
Control: Reg	40	15.85 C	4.42

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Inference – Year 1

Group	Number	Mean	Std. Dev.
Experimental	20	27.80 A	4.34
Control: H M	22	25.09 A	5.14
Control: Reg	30	18.90 B	5.71

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Project – Year 1

Group	Number	Mean	Std. Dev.
Experimental	7	46.36 A	2.48
Control: H M	28	40.38 B	5.82
Control: Reg	18	36.25 C	8.36

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Comments on Year 1

- Are differences in performance on common exam questions attributable to the activities or instructors?
- Are differences in performance on the project attributable to the activities or the project team makeup?

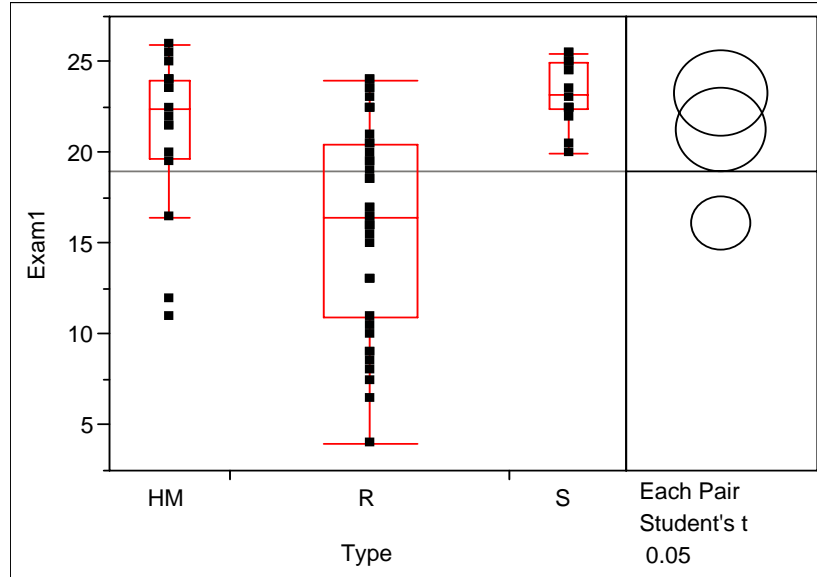
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Year 2 Assessment

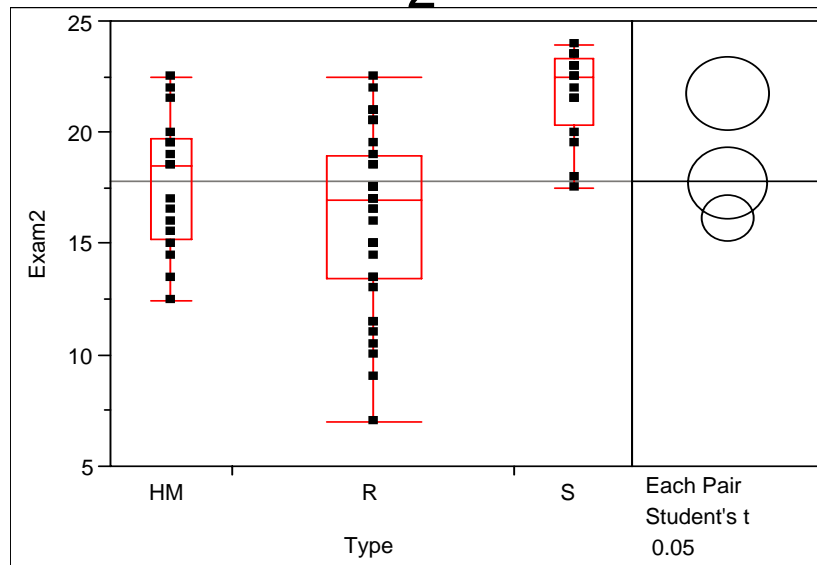
- Three Groups of Students all with the same instructor.
 - Students in an experimental section using new materials
 - high math ability.
 - Students in regular sections not using new materials (Control)
 - high math ability group.
 - regular math ability group.

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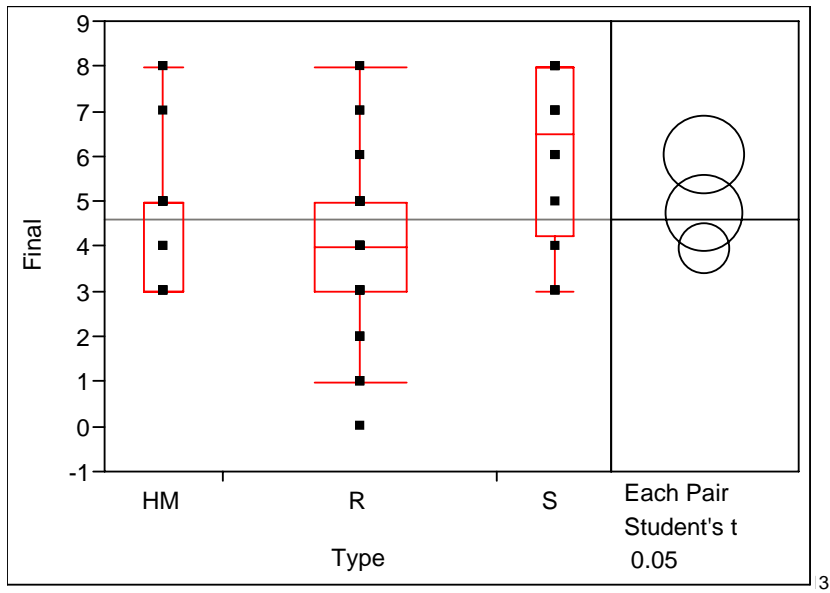
Distributions – Year 2



Regression/Experiments – Year 2

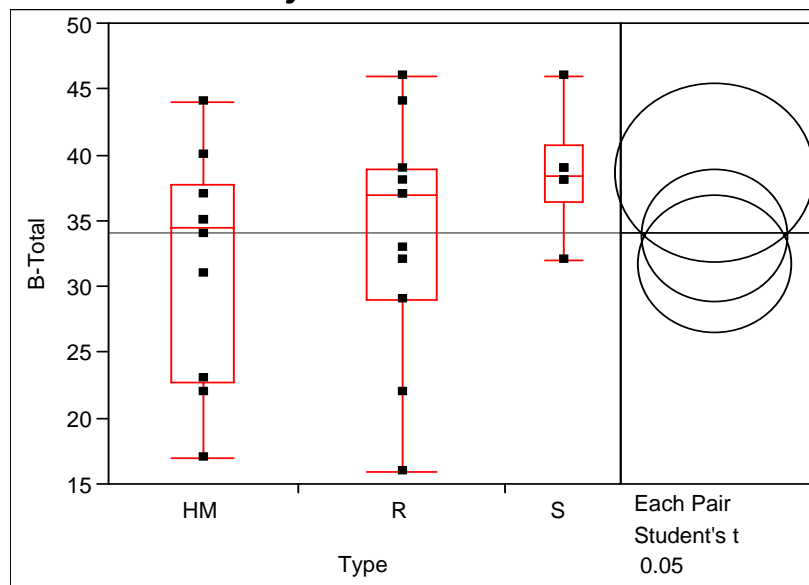


Inference – Year 2



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Project – Year 2



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Comments on Year 2

- Students with high math ability perform well on questions about distributions.
- Students using the new activities perform better on questions about regression, experiments, and inference.
- There are no differences in terms of the project.

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