

What Do Students Hear When We Say 'Random'? : Empirical Results from a Study of Lexical Ambiguity



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The athletic director at Brandzee College wants to do a retrospective study of graduation rates of athletes at his college. He plans to use a random sample of 90 student athletes selected from all of the student athletes who attended Brandzee College in the last 20 years. Give directions for the athletic director to select the random sample of 90 student athletes.

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Make sure the director selects equal numbers of athletes from each team in the school. Also, he has to make sure that he samples all the 20 years to get accurate results and they should be from different sports teams (ex. Volleyball, football, baseball, etc.)



What is Lexical Ambiguity?

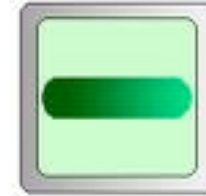
Motivation for the study of
Language
Lexical Ambiguity
Undergraduates



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Minus



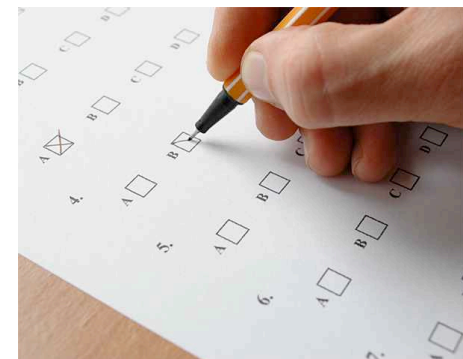
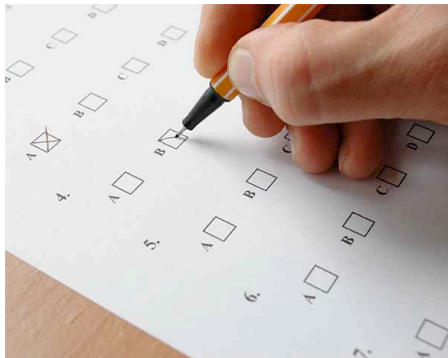
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Research Questions

What do meaning do students have for *random* at the beginning of a statistics course?

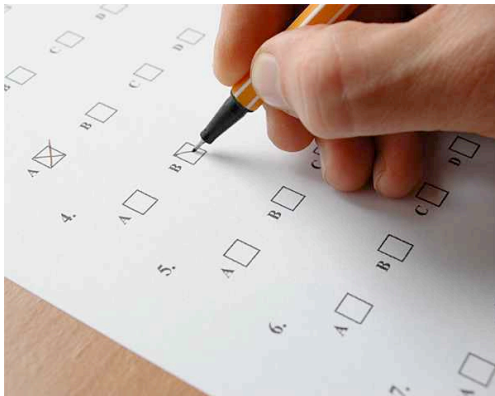
What STATISTICAL meanings do students develop for *random* by the end of a statistics course?



Pre-test

Write a sentence using the word “random” using its primary meaning to you.

Provide a synonym (using one or more words) for the word “random” that maintains the same meaning as you used in the prior sentence.

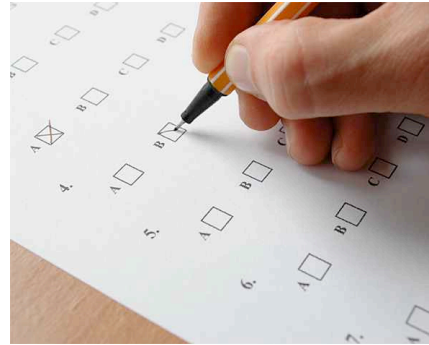


Pilot Study

70 students at one institution, one instructor

Large Scale Study

980 students at 3 institutions, 14 instructors



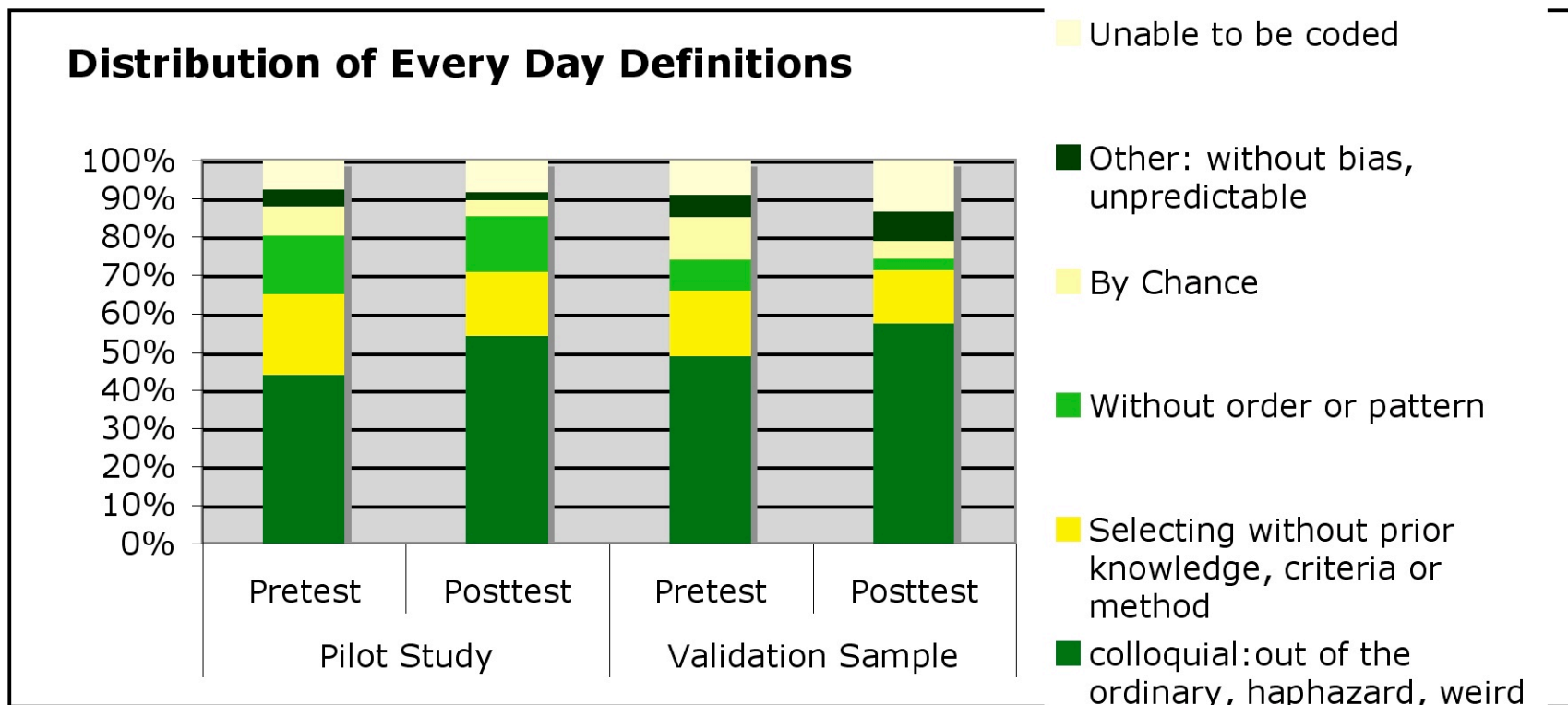
Post-Test

Write a sentence using the word “random” using its primary meaning in everyday language.

Provide a synonym (using one or more words) for the word “random” that maintains the same meaning as you used in the prior sentence.

Write a sentence using the word “random” using its primary meaning in statistics.

Provide a synonym (using one or more words) for the word “random” that maintains the same meaning as you used in the prior sentence.

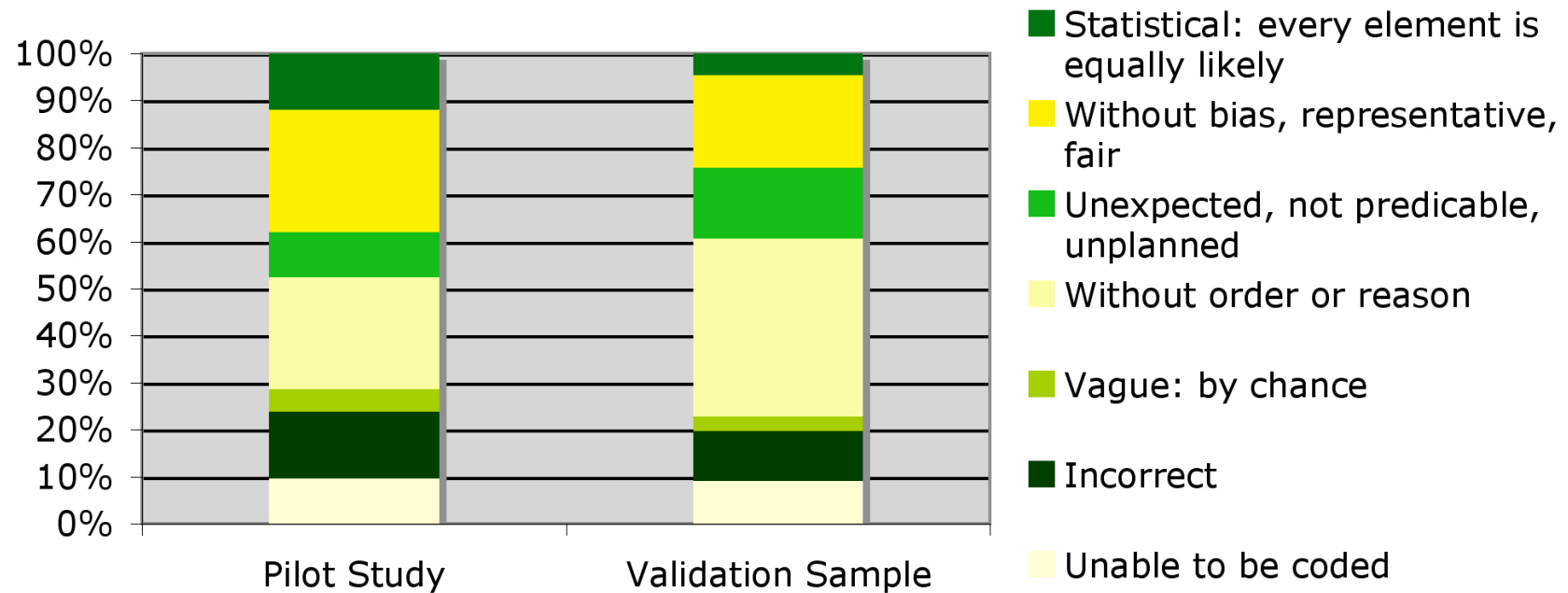


Sometimes I say random things. *“out of nowhere, irregular”*

A group of participants were selected at random for a survey. *“with no precise method”*

It’s all just a random mess of instruments. *“no pattern”*

Distribution of Statistical Definitions



Sentence: It was a random sample.

Without order or reason: *“persons were chosen not based on any reason”*

Unexpected: *“not predetermined,” “unpredictable”*

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Code as “vague, by chance”

Example Student 938:

For the survey a random sample was picked.

“by chance that something occurred”

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Code as “without bias, representative, fair”

Student 275: “A random sample is equally representative of all groups of the population”

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Gather data of all student athletes at this college for the past 20 years (roster or registrar's list). Put names into a computer and have it select 90 or put names in a hat and select 90.

Code as “statistically correct”

*Student 837: We took a random sample of the students.
“everyone was equally likely to be chosen for the sample”*

Future Directions

Linking to Student Learning Outcomes

Video Taping Classes

Textbook Study

Teaching Modules

Write

Implement

Test



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