

15.3.4: Chapter 5 Lab

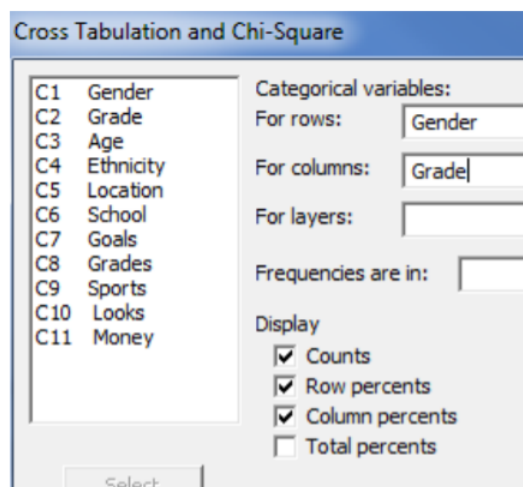
Cross-tabulation and Two Way Tables

Open the Minitab file lab04.mpj from the website.

Here is a description of the data collected from elementary schools in Michigan:

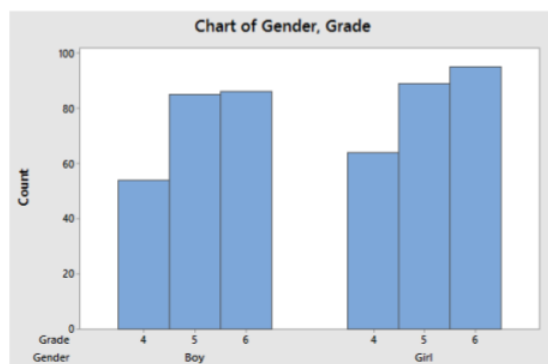
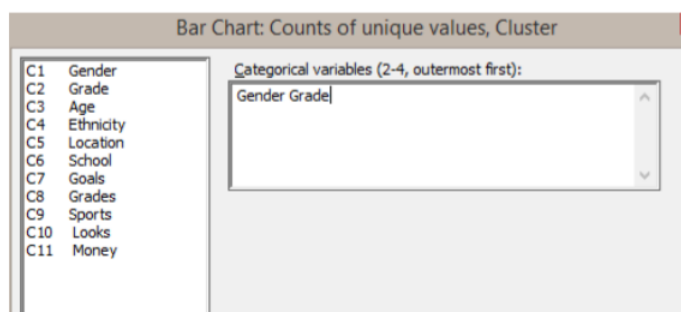
1. Gender: (Boy, Girl)
2. Grade: 4, 5 or 6
3. Age: Age in years
4. Ethnicity: White, Other (Yes, that was the way it was reported when this data was collected!)
5. Location: Rural, Suburban, Urban
6. School: 1=Brentwood Elementary, 2=Brentwood Middle, 3=Ridge, 4=Sand, 5=Eureka, 6=Brown, 7=Main, 8=Portage, 9=Westdale Middle
7. Goals: Student's choice in the personal goals: 1=Make Good Grades, 2=Be Popular, 3=Be Good in Sports
8. Grades: Rank of "make good grades" (1=most important for popularity, 4=least important)
9. Sports: Rank of "being good at sports" (1=most important for popularity, 4=least important)
10. Looks: Rank of "being handsome or pretty" (1=most important for popularity, 4=least important)
11. Money: Rank of "having lots of money" (1=most important for popularity, 4=least important)

Cross Tabulation is a method of taking pairs of categorical variables and creating a two-way table. The command can be found on the menu bar **STAT>TABLES>CROSSTABULATION**. Choose two data items and check that you want count, row percents and column percents. You can also make a clustered bar graph **GRAPHS>BAR GRAPH>CLUSTERED**. The example shows gender cross-tabulated with grade level:



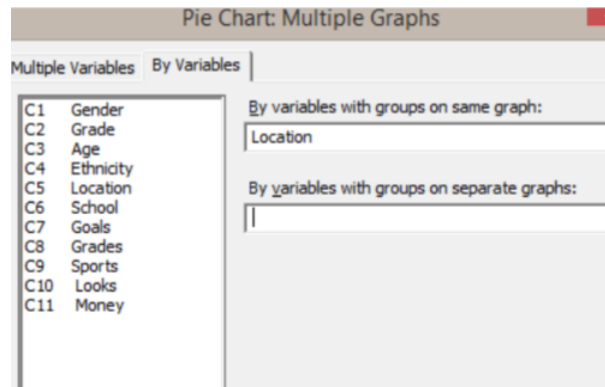
		Columns: Grade			
		4	5	6	All
Boy	Count	54	85	86	225
	% of Row	24.00	37.78	38.22	100.00
	% of Column	45.76	48.85	47.51	47.57
Girl	Count	64	89	95	248
	% of Row	25.81	35.89	38.31	100.00
	% of Column	54.24	51.15	52.49	52.43
All	Count	118	174	181	473
	% of Row	24.95	36.79	38.27	100.00
	% of Column	100.00	100.00	100.00	100.00

Cell Contents: Count
% of Row
% of Column



1. Cross-tabulate Gender with Goal and create a two-way table. Create a clustered bar graph. Paste them both here.

- What is the probability a randomly selected student chooses sports as the most important goal? What type of probability is this (Marginal, Joint, or Conditional)?
 - What is probability that a randomly selected student is a boy? What type of probability is this (Marginal, Joint, or Conditional)?
 - What is probability that a randomly selected student is a boy and chooses sports as the most important goal? What type of probability is this (Marginal, Joint, or Conditional)?
 - What is the probability a randomly selected boy chooses sports as the most important goal? What type of probability is this (Marginal, Joint, or Conditional)?
 - What conclusions can you make about Gender and Goal?
2. Cross-tabulate Location with Goal and create a two-way table. Create a pie graphs for Goal with a multiple variable Location on the same graph. Paste the cross-tabulation and pie graphs here



- What is the probability that a randomly selected student chooses sports as the most important goal?
 - What is probability that a randomly selected suburban student chooses sports?
 - What is the probability that a randomly selected rural student chooses sports?
 - What is the probability that a randomly selected urban student chooses sports?
 - What conclusions can you make about Location and Goal?
3. Cross-tabulate any two variables of your choice and create a two-way table. Create a clustered bar graph. Paste them both here.
- Calculate and explain any marginal probability of your choice.
 - Calculate and explain any joint probability of your choice.
 - Calculate and explain any conditional probability of your choice.
 - What conclusions can you make about these two variables?

This page titled [15.3.4: Chapter 5 Lab](#) is shared under a [CC BY-SA 4.0](#) license and was authored, remixed, and/or curated by [Maurice A. Geraghty](#) via [source content](#) that was edited to the style and standards of the LibreTexts platform.