Pros and Cons and Implications of Some Software Choices

Side ***A***

On the left are advantages; on the right disadvantages for each choice.

Graphing Calculators	
1 Students (and instructors) are already accustomed to using them from experience in other courses. 2. Instructions are included in many texts.	1. Poor graphics. 2. Only small data sets can conveniently be used. 3. Simulation possible, but not easily done. 4. Dynamics not good.
Excel	
1. Students (and instructors) are already accustomed to using them from experience in other courses. 2. Instructions are included in many texts. 3. Many students have access. 4. Good for "stepping-through" formulas. 5. Spreadsheet formula capability useful for students to learn. 6. Almost universal transporter for data.	1. Difficult to make some graphics (box plots and histograms, for example) without add-ins. 2. Add-ins work well only for Windows and not for Mac? 3. A business package, and not really a statistics package. 4. Simulations possible? 5. Dynamic capability?
Applets etc.	
1. Mostly free. (Examples below are free) 2. Simulation capabilities high, dynamic capabilities high. 3. Internet based, so mostly convenient. 4. Generally straightforward to use; the better ones make a link between "hands-on" simulation and the applet.	1. Data must usually be entered in some way. 2. Not a complete statistics package. 3. Internet based, so not available in some situations. (There are exceptions) 4. If not used carefully, can be a "black box" 5. Stand-alone, so not integrated within one statistical package for data analysis, and data manipulation.
GeoGebra Distribution Calculator Combines graphics and calculations for many distributions, with dynamic capabilities. Can be downloaded, so can be used without an Internet connection.	Other Stat facilities comparable to calculators; data must be loaded.
Rossman Chance Applets Works best if used with the teaching materials developed by the Tintle et al team. Can integrate hands-on work with software use.	Data from other sources can be used, but must be entered into the Applets.
StatKey Works best if used with the teaching materials developed by the Lock et al team. Can be downloaded as an App to be used when there is no Internet connection	Data from other sources can be used, but must be entered into the Applets.

Stat Packages Designed for Teaching	
1. Designed for statistics education in mind, so simple and straightforward to use, with dynamics built in.	1. Not "real" statistics packages.
2. Cost generally low.	2. Some techniques excluded.
Fathom/Tinkerplots	
Strong on dynamic features, simulation and data analysis in an integrated fashion.	Development of package to keep up with OS changes?
Data manipulation and data analysis easy.	Community support less strong than previously.
Cost low; free for 2014-2015, and either free or at very nominal cost beyond that?	
Can handle big data sets.	
Resides on one's own computer.	
Works on all platforms.	
StatCrunch	
Available through a browser, so available wherever there is a connection.	Works only with an Internet Connection.
Very intuitive: simple to learn and use.	Data sets larger than 2MB will not load.
Fairly extensive set of techniques included.	
A good set of Applets and simulation faculties that can be used with any data set.	
Strong community support in providing data sets, and correcting problems.	
Mainstream Stat Packages: (Minitab, JMP, etc.)	
1. Complete statistical packages, which students may see in upper division work.	1. Usually more complicated than programs designed specifically for teaching (but may have support as well).
2. Cost may be high, but for some packages now lower than in the past.	2. Not designed for teaching.
3. Generally beautiful graphics, and simulations can be done.	
4. Can handle big data sets.	
5. Resides on one's own computer.	
6. Generally extensive tech support.	
JMP	
Full range of analyses, with built-in teaching tools or additional add-ins designed for teaching, so dynamic facilities and simulation.	Number of choices overwhelming?
JMP cost now reasonable for students ($20 or free with some texts); community colleges ($495 for a five year license, if used for courses).	Teaching add-ins still in the process of development.
Active community support for teaching.	
Works on all platforms.	
Minitab and Minitab Express	Minitab Express has limited options.
Examples in textbooks.	Minitab 17 not for Mac
Cost reasonable for students	
Often shown in texts.	