TECHNOLOGY REVIEW OF FATHOM DYNAMIC DATA SOFTWARE

Mary Takle

University of Washington, Bothell

Fathom Dynamic Data Software displays data visually and presents that data in multiple forms. It is easy to use, flexible, well designed, and invites exploration.

With five minutes of instruction a user can master the basic interface and begin to be productive. The intuitive nature of the program permits experimenting with additional features beyond the basics effortlessly. Fathom readily imports data from numerous sources. Access to the US census data website is even built into Fathom, which permits easy access to and filtering of all US census data. Additionally, there are many other websites that have Fathom compatible data, including the Data and Story Library. It literally takes only a couple of minutes to find an interesting dataset and download it into Fathom.

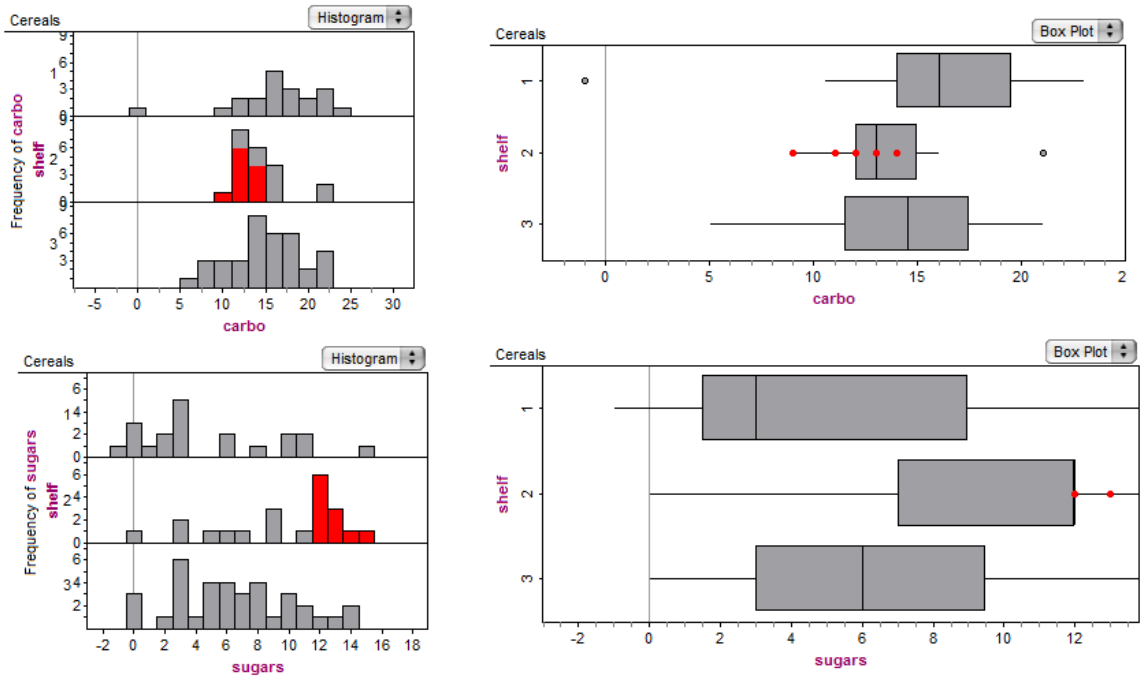
Once the user has imported data into Fathom, several options to display the data become available. In the same computer window, a user can create multiple graphs by varying the attributes graphed or selecting a different type of graph to examine the data. Because the data is linked together through a table, highlighting a data object in one graph will automatically highlight the same point in the data table and even in a separate graph if the user has created multiple graphs from the same dataset. The story that the data has embedded into it can now be revealed.

It is in the exploration of data that Fathom has the greatest value. Giving the user the ability to manipulate the types of graphs or the attributes to graph facilitates the investigative process. Instead of having to create multiple graphs manually, users can spend their time analyzing the graphs. Fathom even allows the user the opportunity to alter the data points in order to see what happens to the statistical results of the data set. Sometimes the first way someone chooses to display data will not necessarily yield noteworthy results. However, looking at a different variable in the data or changing the type of graph used to view the data will result

in a completely different perspective of the same story. Because of the ease of graph creation and alteration, the user is more inclined to examine the data in multiple ways.

Below is a screenshot of a dataset (Healthy Breakfast Story, 1996) displayed in different formats. The plots reveal many relationships between a breakfast cereal's sugar content, carbohydrates and shelf placement in the store. The red portions of the graphs show the related data points in each view. The red highlighted data reveals that on shelf two, the high sugar cereals are the same cereals which are lower in carbohydrates. The user needs only to click on one part of a graph or table and Fathom will highlight that data in all other related graphs and tables. The ease of viewing the relationships among data encourages exploration and critical thinking.

Figure 1. Screenshot from Fathom Dynamic Data Software. View of data from Healthy Breakfast Story. (1996)



In addition to statistical analysis of data, Fathom contains a function graphing capability. Users can enter an equation and fathom will graph it. Through the use of a tool called a slider, the coefficients and constants of an equation can be changed and instantly reflected in the view of the graph. The algebra application is obvious. The user can see the direct correlation between the numbers in an equation and the shape and location of the graph. This feature alone can save hours of labor compared to using manual methods or even a graphing calculator. While the calculator can create a graph of a function, the user would need to enter multiple equations into the calculator in order to see how the constants or coefficients affect the graph.

While the ability to graph a function is impressive, one of the most powerful applications of Fathom is when a user can combine both the statistical analysis of the data with the algebraic function and create the equation that best models the data. The connection between algebraic representation and real world statistics is instantaneous.

Fathom's flexibility, capability and well-thought-out design permit the implementation of a significant number of National Math Standards. Some of these standards are using models to represent relationships; analyze change and problem solve in various contexts; communicate mathematical thinking coherently; recognize and apply mathematics outside of mathematics; and the use representations to model and interpret physical, social, and mathematical phenomena (National Council of Teaching Mathematics, 2000).

Because of the numerous ways that Fathom can be easily integrated into any math curriculum as an aid to meet standards, I highly recommend Fathom as a classroom learning tool. Fathom has a wealth of support, teacher resources and lesson plans, along with user help which is available online. Fathom can be further reviewed and purchased at the website for Key Curriculum Press.

References

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