

# Scatter diagram



Tools and Techniques Paper: Scatter Diagram MGT350 October 1, 200 Tool and Techniques Paper: Scatter Diagram When faced with a problem, one can utilize various tools and techniques to try to solve the said problem.

Depending on the way a person process his or her thoughts would greatly affect which tools or techniques might be the best for one to use. For example, if a person understands better by seeing the information, one might use a visual tool like a pie chart, bar graph or perhaps a scatter diagram; which will assist in the member interpreting the information being presented more accurately.

If you have ever had a brain block or just simply “ spaced-out” to the point to where you might not even know where to start trying to solve a problem, you could utilize the brainstorming technique. An example of this technique is used to jot down ideas and facts about the problem; then arrange them in an order that you believe is best in solving your problem. Along with my primary job tasking for the military, I am also assigned as the Physical Fitness Assessment Coordinator for my command.

One of my recent projects that I analyzed was the relationship between age and physical readiness scores of the Navy personnel in my command. Since I tend to retain and understand information better when utilizing visual aids, I decided to use a scatter diagram to plot my findings. A scatter diagram shows the relationship between those data items of two numeric properties or variables. One property is represented along the x-axis and the other along the y-axis. The purpose of a scatter diagram is to display what happens to one variable when another is changed (Clemson, 2006).

Some determining factors on when to use a scatter diagram is when you suspect there is a relationship between the variables; the data is continuous, such as temperature, time or numbers; and when you need a fast and easy way to test relationship between variables. You would not use the diagram when trying to figure out a solution with no cause and effect relationship.

The process steps to compile a scatter diagram are the following: collect and construct a data sheet; draw the axes of the diagram; plot the data on the diagram; and finally, interpret the diagram.

To apply this step by step process to my recent analysis; I first scheduled a week's time period to allow myself to collect each personnel's height, weight, body composition index, and age. The following week, I monitored a Navy physical readiness test which each one of the personnel completed three separate events: curl-ups, push-ups and a timed cardio event. The first testing event is the curl-ups, also known as sit-ups, which are performed on a relatively level surface, arms folded across the chest and hand on shoulders.

The individual first raises up, touching their elbows to the thigh region of the leg while the leg is flexed at the knee with heels approximately ten inches from the buttocks, then touches back to the ground. This is a two-minute timed event and the total number of correctly performed curl-ups at the end of the two minutes is their score (NPC, 2006). The second testing event is the push-ups. There are performed on a relatively level surface with legs, back and buttocks maintained in a straight line.

With the hands slightly wider than shoulder-width, the individual will lower the body as a single unit until the upper arms are parallel to the ground and then raising the body back up (as a single unit) until the arms are straight and the elbow are locked. This is a two-minute timed event as well, and the total number of correctly performed push-ups at the end of the two minutes is their score (NPC, 2006). The third, and final testing event is the cardio. The cardio event consists of a 1.5 mile run. The cardio can be performed on a treadmill, outside on a measured surface or in an officially measured swimming pool.

As each person crosses the finish line for their respective cardio event, they are handed a card with a number on it. The time is written down with the corresponding number that the person was handed. After all people have completed the cardio, all of the people are lined up and they hand in their card, along with their name, for time recording (NPC, 2006). For the curl-ups and push-ups, the older the age of the person performing the physical fitness testing, the lower the number of required repetitions to be awarded the maximum points allowed.

This also holds true to the length of time allowed to complete the cardio portion of the testing. The higher the age, the longer the allowed time to complete the cardio event for the maximum points allowed. The maximum number of points for each event is 100. Depending on the age of the person performing the test also determines how many points each properly completed repetition is worth. After compiling each member's score, I constructed a data sheet with the age being represented by the x-axis and the physical readiness score being represented by the y-axis.

I averaged the overall scores for all of the ages as follows: 17-20, 21-25, 26-30, 31-35, 36-40, 41-45, 46-50, 51-55 and 56-60 for the purpose of this paper. Then, I plotted each age group onto the diagram above. Gender also plays a factor in scoring, however, for the purpose of this paper the results are keep gender neutral. As one might determine from the diagram, as the average age increases, the average score decreases. This is not to distract away from the fact that many people in higher age brackets perform better than some of those in the lower brackets.

There are many different tools and techniques that are available to help solve problems. Whether it be someone needing assistance in figuring out where to start: individually with brainstorming or in a working group with group think; or, just needing visual aids like line graphs, pie charts and starbursting, or flow charts to enhance your audience's understanding on the outcome of the presented analysis, there is a right tool or technique for everyone in any problem solving situation.

References Clemson University Website, Scatter Diagrams. Retrieved October 19, 2006 from: <http://deming.eng.clemson.edu/pub/tutorials/qctools/scatm.htm#Construction%20of%20Scatter%20Diagrams> Navy Personnel Command (NPC) Website. Retrieved October 18, 2006 from: <http://doni.daps.dla.mil/Directives/06000%20Medical%20and%20Dental%20Services/06-100%20General%20Physical%20Fitness/6110.1H.pdf>