

## PROBLEM SOLVING TOOL

### QUALITY TOOLS Affinity Diagram

**Description of Affinity diagram:** The affinity diagram, also known as the KJ method was developed by Dr. Kawakita Jiro. This diagram gathers together items, needs or features of similar types. It is applied in conjunction with cause-effect diagram for quality design and quality improvement processes.

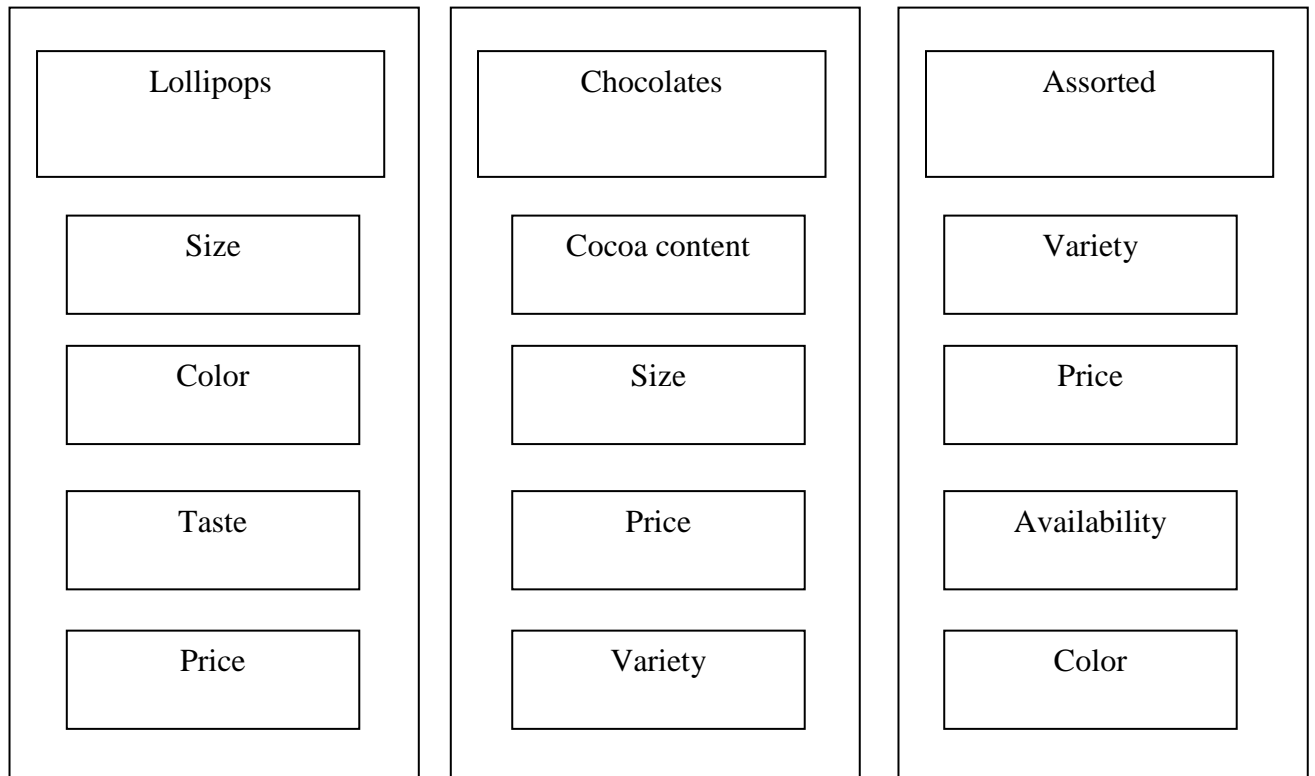
**When to use a Affinity diagram:** The affinity diagram method is a technique that an individual or team can apply for problem solving as well as idea generation and design. It is particularly useful for solving unfamiliar or complex problems. It is similar to the mind mapping technique in that one generates ideas that link up to other ideas to form patterns/chain of related thoughts. This process takes many items, needs or features and sorts them into meaningful groups. It can be applied during the analysis stage of a six sigma improvement process. It can be widely used in the planning stage of a problem to organize the ideas and information. It organizes and categorizes items and provides a good visual of independent variables.

#### **How to use a Affinity diagram:**

Steps to create:

- 1) Brainstorm ideas:
  - a) Set a time limit
  - b) Record each idea on adhesive notes or 3X5 cards
  - c) Clarify ideas and eliminate duplicates
2. Display the unsorted ideas on a table or stick them on a wall.
3. Sort the ideas into like groups; do this without speaking, based on individual perception.
  - a) Arrange ideas into meaningful categories of “like issues”.
  - b) If one person does not like the placement of an idea, he or she can move it.
  - c) If one idea seems to belong in more than one place, make a duplicate card.
  - d) Continue sorting until a consensus is reached; aim for 5 to 10 groups.
  - e). Consider breaking large groups into smaller ones.
4. Create a title or heading for each category.
- 5). Transfer the group into an organized affinity diagram.
- 6) Discuss groupings and understand how they relate to each other; if necessary, move items to complete a consensus affinity diagram.

**Application of Affinity diagram:** Example. Through brainstorming, a candy shop identified the various attributes customers would like to see in their products. Each idea was written on a post it note and placed on the board. Three categories were assigned.



**References:**

Juran Quality Handbook Sixth Edition: Joseph M Juran; Joseph A. De Feo  
CQE Primer Sixth Edition - Quality Council of Indiana