

Mine Customer Experiences

An affinity diagram allows you to organize vast amounts of qualitative data to identify patterns or groupings

by

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CUSTOMER PERCEPTION OF the quality of a product is to a large extent shaped by experiences when using the product. A customer dissatisfied with products, whether tangible goods or intangible services, will likely select a different one for his or her next purchase.¹

Such customer defections can have a surprisingly powerful impact on a firm's bottom line.² It is therefore imperative that organizations make every effort to reduce such defections by increasing customer satisfaction.

Feedback from customers regarding their experiences constitutes an invaluable source of information for firms.³ The effective analysis of such information can provide a sound basis for making product improvements.

One of the more telling ways customers provide feedback is to express their frustration with products through complaints. Beyond facilitating the customer complaint process, organizations can benefit immensely from the meaningful extraction of information con-

tained in these complaints. Through analyzing complaints, they can also better identify and understand the nature of the underlying problems that result in customer dissatisfaction.

An affinity diagram can be a valuable way to analyze a database of qualitative customer feedback. This tool was developed in the 1960s by Kawakita Jiro, a Japanese anthropologist, and is a main ingredient of the KJ method.⁴



Identifies patterns and groupings

An affinity diagram is a technique for organizing vast amounts of qualitative data to identify any natural patterns or groupings to allow a better understanding of a problem.

To illustrate an application of the affinity diagramming method, we used a database of students' real-life experiences in dissatisfaction with products. The

database was amassed over a five-year period through an experiential learning exercise on quality management for business students in undergraduate and graduate programs.

The students submitted written descriptions of actual personal experiences of frustration and dissatisfaction with products. Table 1 shows three examples of such situations.

From this substantial collection, we selected a sample of 100 experiences at random for analysis. We then used the affinity diagramming process to identify the categories that seemed to best describe and explain the nature of inherent problems with manufactured products—problems that lead to customer dissatisfaction.

Developing the affinity diagram

The affinity diagram⁵ has been shown to be an efficient way to sift through a large volume of data and identify patterns hidden by the sheer volume of detailed observations. It thus serves as a useful tool for mining information from customer complaints.

The steps in developing a standard affinity diagram are shown in Table 2. In this application, we modified some steps.

Step 1: In this study, the three authors formed the team. In practice, an internal cross functional team that includes design, purchasing, production, finance, sales and customer service functions would provide a well-balanced perspective for studying customer comments. Customers could also be included on the team.

Step 2: The question in this study was, What is it about products in use that dissatisfies customers?

Step 3: This step of the standard affinity diagramming method was modified. Instead of brainstorming to identify problems that might cause dissatisfaction, we used the 100 customer experiences randomly selected as the answer to the question in Step 2.

Answering the question

We considered each customer experience individually. One team member read the situation aloud, and the team then discussed it.

First, we checked each situation to be sure it was a complaint about a product in use and that each team member understood the situation described. If the situation was difficult to understand or not a complaint, we eliminated it and selected another situation.

Next, we examined the situation for duplication and excluded any redundant complaints from further analysis (this happened infrequently). The principal reason for excluding redundant complaints was that repeated inclusions of the same problem would result

in the grouping together of multiple instances of identical or similar items during the following stages of the diagramming process. A repeated listing of a problem already identified would not add to further understanding of the underlying dimensions of the problems customers experience.

The affinity diagramming process is not intended to determine the frequency or trends of complaints (which are better determined using other tools such as the Pareto chart), but to establish a categorization schema for the complaints.

Once an example was accepted, the team reached a consensus on a short phrase describing the situation and wrote the phrase down on a sticky note. If more than one problem was included in the situation, we wrote multiple notes. We wrote an identification number referencing the complete situation description on the back of each note.

Step 3 became fairly time consuming. The team met for several hours on several occasions to develop all the answer notes.

Steps 4 and 5: Because of the number of answers and the time taken to complete Step 3,

we made the following two modifications to the “simultaneously and silently” rule shown in Table 2.

First, if a team member could not remember the details of the situation summarized on the answer notes, he or she could question the other members and, if necessary, go back and refer to the complete description. There were two instances of a question being raised and no instances of referring back to the complete situation.

Second, because of the large number of notes being sorted, team members searching for a particular note could ask if the other members remembered where that note was. This question was asked frequently throughout the sorting.

Step 6: We developed header cards in the usual way—immediately following the sorting procedure. However, intense review and revision of the headings took place.

We developed a tentative affinity diagram and then independently reviewed the resulting groupings and headings for logic, consistency and coherence. At two subsequent meetings, we discussed apparent overlaps and ambiguities and refined the groupings and headings.

Step 7: We drew the final affinity diagram (see Table 3, p. 66).

(continued on p. 65)

We considered each customer experience individually. One team member read the situation aloud, and the team then discussed it.

TABLE 1 User Dissatisfaction Examples



Candle and candlestick: The other day I purchased a candlestick from a major chain store. With it came a candle that was supposed to go with the candlestick. I brought them home and tried to put the candle into the holder, but the candle was too big for the candlestick. I ended up having to shave away about a fourth of the bottom of the candle so it would fit the candlestick. The purchase ended up being more trouble than it was worth.



Straw and can: To a can of lubricant spray is attached a thin straw that can be used to spray the lubricant into cracks and small openings. The only problem with this idea is that the straw is attached to the side of the can with a piece of tape. When you take the straw off, you invariably rip the small piece of tape. Usually you don't have room to put the can away with the straw still attached to its mouth perpendicularly to the can, and so you need a place to put the straw. I usually end up losing the straw by the time I want to use the spray again.



Phone and caller ID: The caller ID readout on this phone is on the inside of the handset, not the outside. When you hang up the phone and place it on the base to keep it charged, you cannot see who is calling—which is the whole point in having a phone with caller ID. After installing the phone and charging it overnight, I realized the problem. I then had to return this phone and buy another one.

Resulting affinity diagram

Because of the large number of situations used, Table 3 shows only a sampling of the examples for each header card. The header cards indicated eight dimensions to explain the causes for customer dissatisfaction with products in use:

- 1. Product does not provide sufficient information for use.** This category includes all instances in which students encountered difficulty using a product because instructions were missing, incomplete or difficult to follow. The insufficiency might have been in the instructions provided or in directions that were or should have been embedded in the product.
- 2. Product does not provide customer with sufficient control.** Instances of this category were infrequent in this study but were distinct in nature. Control over a product's performance must be at a sufficiently precise level to meet customers' needs.
- 3. Product needs to be constantly reset.** Some products have unstable performance characteristics. These products have one or more features that frequently deviate from their original settings or are easily changed accidentally and need frequent resetting. Such products require constant user intervention to perform adequately. At a minimum, frequent resetting is a cause of consumer frustration and can easily lead to poor product performance.
- 4. Product components are incompatible.** Product incompatibility is indicated by a lack of correspondence or agreement among parts that must work together for the product to function adequately. This category contains two subcategories. Lack of internal compatibility involves incompatibility within a single product or between a closely con-

nected set of products. Lack of external compatibility involves incompatibility between a product and external products that are commonly used with it.

- 5. Product has missing feature.** The product is classified as having missing features if a typical consumer has a need not met by the product that could easily be met by adding a specific feature. These needs were typically not seen at the time of purchase but during use.
- 6. Product has dysfunctional feature.** This category consists of products in which one or more features significantly limit functionality. In some instances, the dysfunctional feature may be so extreme as to constitute a safety hazard.

TABLE 2 Steps for Developing a Standard Affinity Diagram

Step 1	Assemble the team.
Step 2	State the issue as a question.
Step 3	Brainstorm answers to the question, writing down answers on sticky notes. Omit duplicate answers.
Step 4	Post answers on a wall.
Step 5	Sort into related groups. The whole team should work simultaneously and silently until consensus is reached on groupings.
Step 6	Develop header cards. Each card should have a grammatical sentence describing and defining the group. Each card should be developed by team discussion and consensus. Existing groups may be reorganized if inconsistent with header cards.
Step 7	Draw the affinity diagram.

TABLE 3 Final Affinity Diagram

Product does not provide sufficient information for use.

- Difficult to find door opening switch on microwave; button and marking are on top and not the front.
- Deskjet printer's picture of envelope is inverted compared to actual use.
- Difficult to find opening on "easy flap" tall kitchen bags.
- A temporary tire repair product damages tire if left on permanently.

Product does not provide customer with sufficient control.

- Difficult to control water height with switches on water fountain.
- Television's channels can only be changed via the remote (TV has no channel button).
- Difficult to set precise cooking time with microwave's dial timer.

Product needs to be constantly reset.

- Iron has thermostat on handle where it is often accidentally reset by thumb.
- Shower caddy easily falls or slides off the shower head.
- Small stapler keeps popping open frequently during use.
- Cordless phone handset falls off easily when phone is mounted on wall.

Product components are incompatible.

Lack internal compatibility:

- A brand name container of frosting is insufficient for covering a cake made with the maker's own standard cake mix.
- Candle too big for accompanying candlestick.
- Adult tennis shoe laces too long.

Lack external compatibility:

- Laptop computer requires a specific brand of chip for memory upgrade.
- Toothbrush case too short to hold most toothbrushes.
- Spiral notebook folder in front cover will only hold notebook's own paper and not the 8.5 x 11-inch standard size paper.

Product has missing feature.

- No storage for spray straw on can of household oil.
- Analog-digital watch has only forward button for reset.
- Car's stereo/CD player does not eject CD when car is off.
- Office organizer has no penholder.

Product has dysfunctional feature.

- Handset cord of novelty telephone only a foot long.
- Button snap on helmet can't be snapped on while being worn.
- Two-way phone jack falls off with the weight of two connected phone wires.

Product quickly falls apart.

- Car's lap belt clamp breaks every year.
- Bendable straws get holes in them when bent.
- Flap holding D ring to satchel book bag tore off the bag.
- Plastic bushing on piece of exercise equipment wears out within two weeks of use (of a 10-week fitness program).

Product is difficult to access.

From package:

- Difficult to break the safety seal of a soft drink bottle.
- CD seal too hard to remove.
- Extra strength flu capsules' package couldn't be opened by hand.

In use:

- Caller ID readout on phone is on the inside and can't be seen when phone is hung up.
- Car's cigarette lighter outlet in bad position for cords to reach.
- Have to disconnect and reconnect the soft top to open the vehicle's tailgate.

For servicing:

- Inaccessible battery in car.
- Battery fits too tightly in calculator.
- Washer fluid jets designed into the car's wipers get misaligned when wiper blades are replaced.

7. Product quickly falls apart. This category is shaped by consumer experiences in which the product, as a whole or in part, simply falls apart or doesn't last as long as the typical customer expects.

8. Product difficult to access. The typical life cycle of products after purchase includes unpacking, setup, use and servicing. This category has three subcategories: products difficult to access from the package immediately after purchase, products difficult to access in use (which can at times become obvious only after repeated use) and products difficult to access when servicing.

The dimensions identified in our affinity diagram are descriptive and not necessarily exhaustive. Because the sample of customer problems was drawn from university students, it does not represent the experiences of either very young or older adults who have finished school. But the framework we present is general and can be applied to all customer complaints.

Although potentially valuable, customer complaints must be used with caution. Complaints received by a

company constitute only a small subset of all customer frustrations with products. In fact, research shows that only about 4% of dissatisfied customers actually register a formal complaint.⁶

Instead of complaining, many customers simply take their business elsewhere. Minor difficulties, in particular, may not generate formal complaints but can shape customer satisfaction and, in turn, customer loyalty to the firm.

Putting affinity diagrams to use

Information used to create an affinity diagram can be collected from many sources. For example, the database might be composed of:

- Customer complaints (as in this study).
- Comments or brainstorming by contact employees, such as customer service or sales representatives.
- Open-ended comments on customer surveys.
- Summaries of phone conversations with customer service representatives.
- Transcripts of focus group sessions.

Positive and negative comments should not be mixed in one diagram. In our affinity diagram, the database consisted of complaints, so the question was negative: What is it about products in use that dissatisfies customers?

For many businesses negative comments from customers can outnumber compliments. But if a company is fortunate in having a large number of positive customer comments, the procedure could be to identify dimensions of the product that are particularly liked by customers. The question might then become, What is it that pleases customers when they use our product?

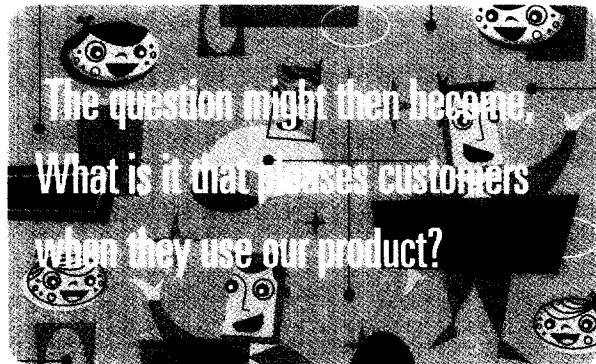
Since a wide variety of products were included in the study, the resulting affinity diagram in Table 3 is naturally generalized, but it has some valuable uses:

- As a framework to define existing complaints and known problems.
- As a scaffold to brainstorm potential problems with a proposed new product.
- As a checklist to ensure attention is focused on product functionality as well as other aspects of quality in developing methodologies for information gathering sessions, such as customer interviews, product testing and customer surveys.

While an affinity diagram provides a way to mine customer complaints, its use is not limited to that application. Using the same procedures, organizations can construct diagrams for products with untypical characteristics, for particular market segments or industries or for individual companies.

While comments from customers on a variety of products were used to illustrate the method in this study, organizations can apply this technique to customer comments pertaining only to specific products or product lines. The database used to construct the affinity diagram could be drawn from all users or a particular class of users, grouped by characteristics such as age, experience with product, geographical area, extent of use or any demographic. Such diagrams will likely result in dimensions unique to the particular product or context being studied.

Additionally, the affinity diagram approach can be used during the evaluation and testing phases of new product development and product redesign and improvement. It can be used as an initial step in analyzing the needs of customers and organizing the voice of the customer.



Product quality is fundamental to delighting customers and building customer loyalty. An affinity diagram facilitates an understanding of the underlying dimensions of a problem and allows managers to focus on the key issues and their elements rather than on an unorganized collection of information. Understanding the problem is an important first step in developing solutions.

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