

USING A MODERN TOOL OF QUALITY MANAGEMENT (AFFINITY DIAGRAM) TO IMPROVE FOOD SERVICES

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Abstract

Affinity diagram is a modern tool in quality management appropriate for processing verbal information used in the analysis and clarification of complex issues. This paper aims to identify and analyze the types of problems faced by the specialists in food services, in the customer service and finding possible practical, concrete solutions to solve them. Methodologically, was used direct research, using affinity diagram, respectively choosing the problem, production of ideas, their analysis, grouping of ideas (written fiches), verification of omissions, establishment of the first titles, regrouping titles (second level of regrouping), establishing relationships between ideas, their evaluation and the interpretation of results; to produce the ideas was used brainstorming technique. The study was conducted at county level of Iasi, through participation of 60 people aged between 21 and 24 years. In conclusion, the main causes of deficiency of customer service process were represented by the poor management of human resources, material resources and poor communication.

Key words: management, affinity diagram, brainstorming, food service

INTRODUCTION

The affinity diagram is a modern tool specific to quality management. The technique used by the tool allows the transition from the level of individual perceptions over the causes of a complex problem taken under study to the level of expressing them in groups, through a structured representation of the issued opinions [6,9,10,12]. Thus, arises the possibility to identify the causes of a latent problem or of a confusing situation through the organization of data (by its reciprocal affinities) based mostly on intuition and creativity [3,2,1,4,5,8]. The affinity diagram can be used in situations such as: the need to promote teamwork, the establishing of a quality policy in a new "zone", the design activity, the communication improvement between services or departments, the creation of a consensus based on problems specific to each service or project [4,6,7]. Although the method was initiated by Jiro Kawakita and developed in Japan by JUSE (Japanese Union of Scientists and Engineers) in the 80s, in Europe has begun to be used only recently and at a small scale [4,2,3,5,7,11].

MATERIAL AND METHOD

To reduce the time spent explaining opinions issued during the brainstorming step, literature recommends for the participant group to have (preferably) a similar training, to come from the same sector or related sectors of activity and to have an empirical knowledge about the proposed problem for the identification of the causes (factors) that generates it.

Due to this reason, in the conducted study took part 60 students who did an internship in a restaurant type of public alimentation unit and a moderator.

In the preliminary organization of this method is imposed the assurance of a corresponding creative environment and the preparation of necessary materials required for the method, namely: display panel, writing instruments of different colors', coloured sets of "Post-it" of different sizes.

When selecting the materials to be used and during the dimensioning and shaping process was took into consideration ensuring a good readability from the distance.

The methodology used in the making of the affinity diagram consisted of several steps: selection of problem, producing ideas (using brainstorming technique), analyzing the ideas, regrouping ideas (written fiches), verification of omissions, establishment of the first titles, regrouping titles (second level

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of regrouping), establishing relationships between ideas, evaluation and interpretation of results (conclusions).

Performing these steps has helped the group to progress towards the objective, to understand and recognize the common points of view and the differences between them.

For the debate was proposed a problem of common interest for all the participants ("What are the difficulties that delay the serving of restaurant menu items?"), fact that generated interaction, exchange of ideas in the group, the production and rapid association of them.

RESULTS AND DISCUSSION

After completing the steps of prior organization, presenting the problem "What are the difficulties that delay the serving of restaurant menu items?" and providing a favorable environment through a short exchange of opinions essential for the understanding of methodology and the building of consensus, was passed on to the brainstorming step and thus to the obtaining of first results, shown in figure no. 1.

ABSENCE OF AID OF CHEF	LACK OF CERTAIN INGREDIENTS	FAILURE THE MAINTENANCE WORKS	INSUFFICIENT NUMBER OF WAITERS	INEFFICIENT COMMUNICATION BETWEEN EMPLOYEES	UNORGANIZED KITCHEN
HIGH CONSUMPTION OF ELECTRICITY	LACK OF NON-FOOD PRODUCTS	EQUIPMENT IMPROPER USE	IMPROPER CONDUCT	DELAY STATIONARY SUPPLIERS	ORGANIZING FLAWED OF PREPARATION
INADEQUATE EQUIPMENT, OUTDATED	DELAY VEGETABLES, FRUIT	DISORDER OVEN THERMOSTAT	LACK OF QUALIFIED STAFF	LACK OF EXPERIENCE OF STAFF	CONGESTION OF CUSTOMERS
HIGH GAS CONSUMPTION	DELAY WATER SUPPLIER, BEER, WINE	NON-CONFORMING PRODUCTS BURNED/RAW	CONFUSION OF ORDERS	STAFF SHORTAGE	TOO MANY COMMANDS SIMULTANEOUSLY LAUNCHED
OTHER ADDITIONAL TASKS TO EMPLOYEES	INSUFFICIENT STAFF	HIGH TIME FOOD PREPARATION	HIGH DIFFICULTY IN PREPARING FOOD	CONFUSION OF ORDERS	LACK CERTAIN DISHES
RAPIDITY OF STAFF	NON-QUALIFIED PERSONAL	INSUFFICIENT NUMBER OF WORKFORCE	BREACH FOOD PREPARATION TIME	DISAGREEMENTS BETWEEN EMPLOYEES	PERIODICALS FLUCTUATIONS OF NUMBER OF CUSTOMERS
LACK OF STAFF MOTIVATION	DELAY SUPPLIERS TOOTHPIKES, STRAWS	IMPROPER CONDUCT CHEFS	DISORGANIZATION OF EMPLOYEES	WRONG ORDERS	DISORGANIZATION OF ACTIVITIES
DELAY SUPPLIERS DISINFECTANTS	UNTRAINED STAFF		UNFAIR DIVIDING OF TASKS	DELAY SUPPLIERS DETERGENTS	DELAY SUPPLIERS MEAT, DAIRY

Fig. 1 Production the ideas

Producing ideas was done in a properly creative environment. Participants wrote down the afferent answers of the problem under debate, legibly on two-three fiches, in short sentences, following the principle "one idea in a fiche"; subsequently sheets were glued on the panel, creating thus the effect of brainstorming.

The content of each sheet was the personal opinion of a participant, the moderator ensuring that there is reached a consensus in understanding the content of each idea.

The analysis of fiches carried by a group of five-six people led to a regrouping of them

depending on the existing affinities between the ideas presented. To each group of fiches was assigned a headline corresponding to the meaning of each ideas from the group (figure 2). In this phase, the correct identification of titles assigned is particularly important, reason for why the moderator should be involved in providing assistance and help to participants. The next step was represented by the regrouping of ideas (figure 3) starting from previously established titles (order I headlines) and joining the solitary ideas to some titles.

"What are the difficulties that delay the serving of restaurant menu items?"

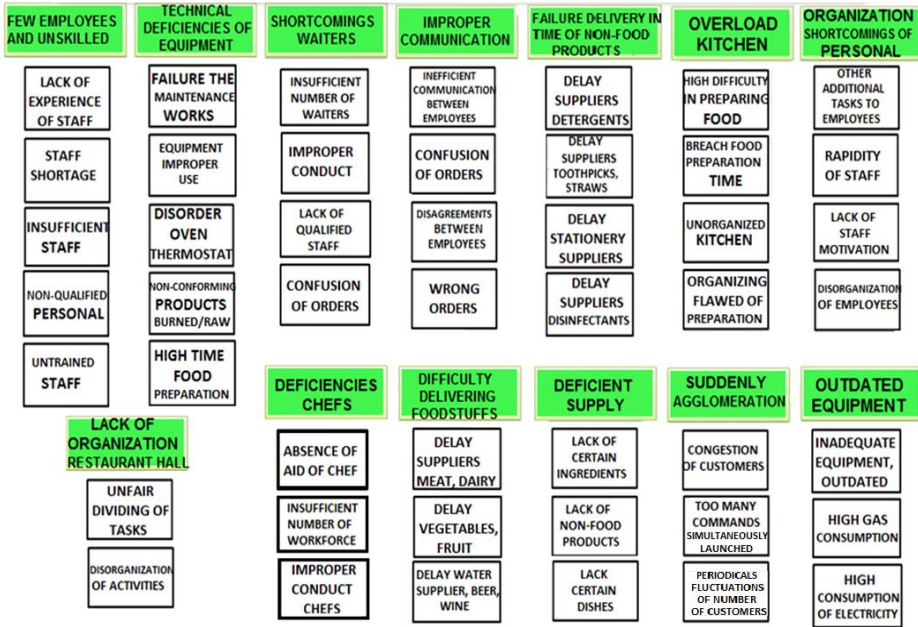


Fig. 2 Realization of titles

"What are the difficulties that delay the serving of restaurant menu items?"

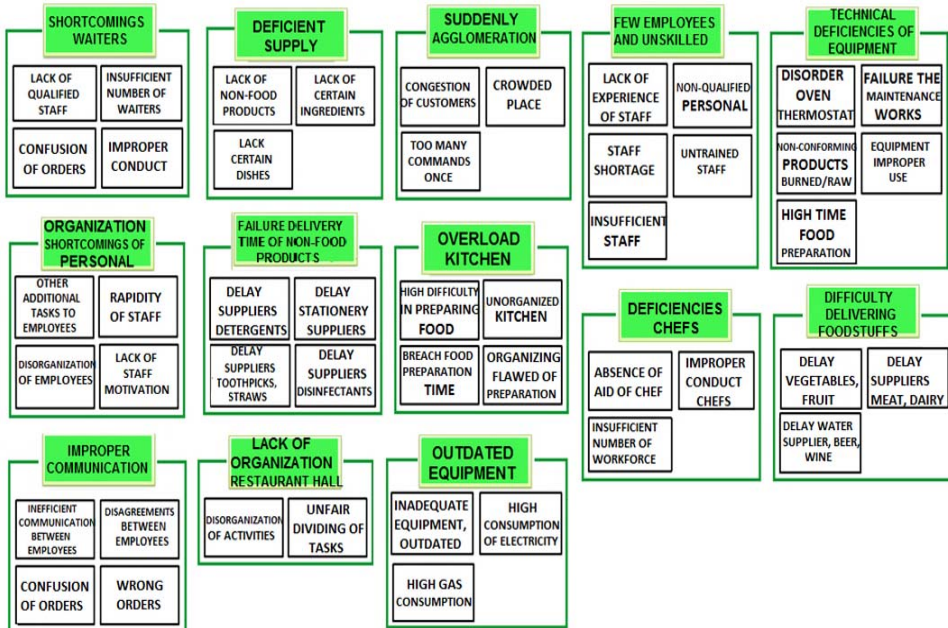


Fig. 3 Grouping of ideas

Afterwards were established other titles for the second level of regrouping (figure 4). There have been used different colors for each stage of regrouping and for each type of title. After this step followed the setting of

logical relationships between groups of ideas, that were drawn with thick arrows of different colors, aiming to highlight as clearly as possible the relationship existing between them.

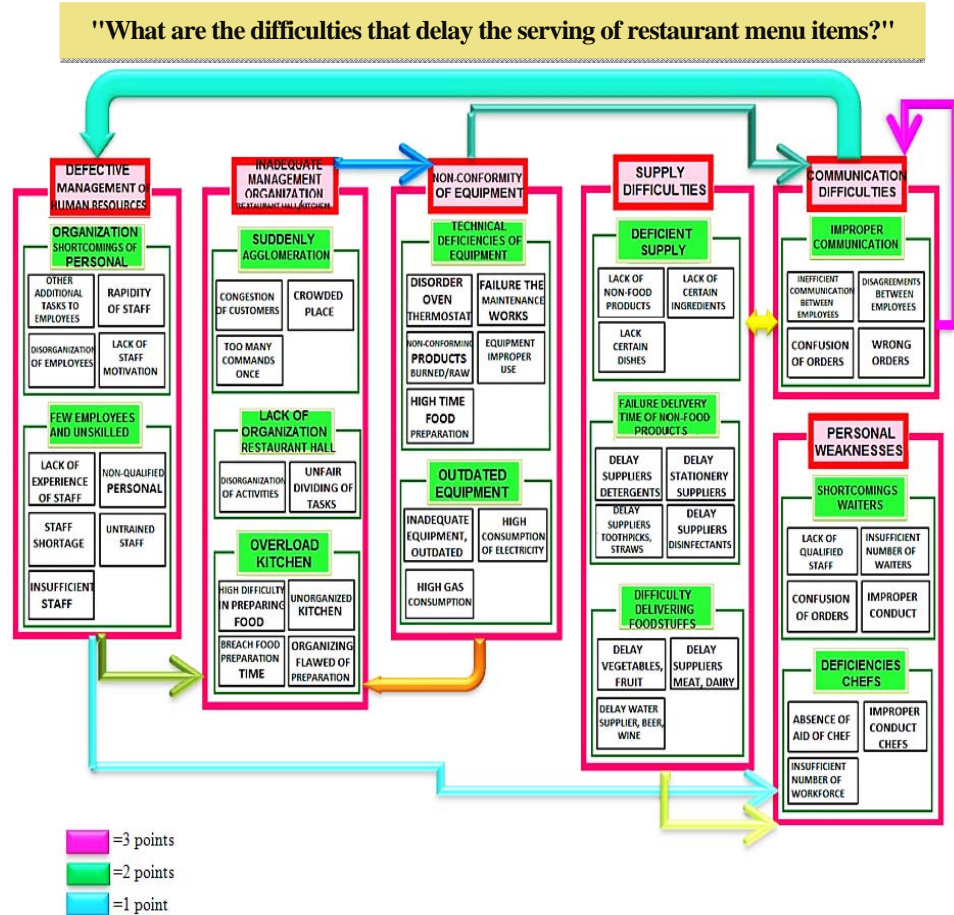


Fig. 4 Establishing the titles of order II, indicating relationships between them and assessing of the main ideas

The evaluation of ideas (second level titles) was achieved by vote. Each group of ideas with their afferent title have received a certain score (1, 2, or 3 points) by using sticker strips of different colors.

Some of the ideas repeated several times which confirms that there is the same perception about the problem under analysis (table no. 1).

Depending on the number of reiterated ideas, it will fill a certain proportion in the

overall image of the analysis results on the examined problem.

The most repeated ideas (from a total of 155 fiches) were observed in the following: insufficient staff (16), non-qualified personnel (14), failure maintenance works (12), lack of certain ingredients (eight), delays of suppliers (eight), crowd of customers (five) and fluctuating number of restaurant customers (four).

Table no. 1 The ideas produced, the number of repetitions and the percentage from the total obtained of these, order I headlines and order II headlines

No.	Ideas	No of repetition	Percentaje %	Order I headlines	Order II headlines	
1	other additional tasks to employees	2	1.29	organization shortcomings of personal	defective management of human resources	
2	rapidity of staff	3	1.93			
3	disorganization of employees	2	1.29			
4	lack of staff motivation	1	0.64	few employees and unskilled		
5	lack of experience of staff	2	1.29			
6	non-qualified personal	14	9.03			
7	staff shortage	3	1.93			
8	untrained staff	2	1.29	periodical agglomeration		
9	insufficient staff	16	10.3			
10	congestion of customers	5	3.24			
11	periodicals fluctuations of the number of customers	4	2.58	lack of organization restaurant hall	inadequate management of restaurant hall/kitchen organization	
12	too many commands simultaneously launched	2	1.29			
13	disorganization of activities	1	0.64	overload kitchen		
14	unfair dividing of tasks	1	0.64			
15	high difficulty in preparing food	2	1.29			
16	unorganized kitchen	1	0.64	technical deficiencies of equipment		
17	breach food preparation time	1	0.64			
18	organizing flawed of preparation	4	2.58			
19	disorder oven thermostat	1	0.64			
20	failure the maintenance works	12	7.74	outdated equipment	non-conformity of equipment	
21	non-conforming products (burned/raw)	1	0.64			
22	equipment improper use	1	0.64			
23	high time food preparation	1	0.64	deficient supply		
24	inadequate equipment, outdated	1	0.64			
25	high consumption of electricity	1	0.64			
26	high gas consumption	1	0.64			
27	lack of certain non-food products	1	0.64	failure delivery time of non-food products		
28	lack of certain ingredients	8	5.16			
29	lack certain dishes	1	0.64			
30	delay suppliers detergents	2	1.29	difficulty delivering foodstuffs	supply difficulties	
31	delay stationery suppliers	2	1.29			
32	delay suppliers disinfectants	1	0.64			
33	delay suppliers toothpicks, straws	1	0.64			
34	delay vegetables, fruit	4	2.58	improper communication		
35	delay suppliers meat, dairy	5	3.22			
36	delay water supplier, beer, wine	8	5.16			
37	inefficient communication between employees	11	7.1	shortcomings waiters		personal weaknesses
38	disagreements between employees	1	0.64			
39	confusion of orders	2	1.29			
40	wrong orders	2	1.29	deficiencies chefs		
41	lack qualified staff	4	2.58			
42	insufficient number of waiters	2	1.29			
43	no room supervisor, the coordinator	2	1.29	absence of aid of chef		
44	improper conduct	4	2.58			
45	insufficient number of workforce	6	3.88			
46	improper conduct chefs	2	1.29			
47	absence of aid of chef	1	0.64			
		155	100%			

Thus, we obtained the highest score of 165 points for poor human resource management, followed by 71 points for non-conformity of equipment, communication difficulties 69 points, effective space management 24 points, supplying difficulties 19 points; the lowest score of 12 points for deficiencies in staff training.

The importance of these results can be presented more eloquently through a simple percentage calculation.

Thus, poor human resource management had a share of 45.8% from the total, followed by non-conformity of equipment 19.7%, then by communication difficulties with a percentage of 19.2%, inadequate management of restaurant hall/kitchen organization 6.7%, supplying difficulties 5.3%; the lowest share was recorded for deficiencies in staff training, 3.3% from total.

The obtained results were enrolled in a logical decision process, materialized in the form of clear conclusions.

CONCLUSIONS

As a result of using the affinities diagram to identify the causes of a frequently encountered situation in public alimentation units (delayed customer service), it can be ascertain that the most important factor in solving the analyzed problem is represented by the human resource management and everything else that implies it: motivation of employees, specialization training courses etc. Also, determining and strictly complying with the maintenance plans and organizing the activities in a more effective way influences directly and decisively the quality of the developed process. The results obtained in the conducted study have revealed a practical applicability of the affinity diagram in the public alimentation field. The method is relatively simple to apply, promotes teamwork, enhances creativity and allows to fast determine the sources of complex problems. Therefore, we recommend applying this method in public alimentation units, granting special attention to constituting appropriate working groups (maximum 10 people) for each problem that needs to be solved. Empirical results have demonstrated

that, in the process of selecting participants for a specific group, homogeneity should refer to the involvement of participants in the processes that generate the causes of the analyzed problem, as well as to the degree of experience acquired regarding the discussed problem. The education homogeneity and the level of culture criteria mentioned in the specialized literature we appreciate them to be of a minimal relevance.

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