Social Sciences
2016; 5(6-1): 50-58
http://www.sciencepublishinggroup.com/j/ss
doi: 10.11648/j.ss.s.2016050601.17
ISSN: 2326-9863 (Print); ISSN: 2326-988X (Online)

The Group Reduction Technique to Achieve Consensus Among Collectives in Health Care Training

Jorge Irigaray[1], Guillem Bou[1], Casilda Güell[1], Francisco Benjamín Cobo[2]

[1]EAE Business School, Barcelona, Spain
[2]Universidad Camilo José Cela, Madrid, Spain

Email address:

irigaray@eae.es (J. Irigaray), gbou.bauza@onlinebschool.com (G. Bou), casilda.guell@onlinebschool.com (C. Güell), fbcobo@ucjc.edu (F. B. Cobo)

To cite this article:

Jorge Irigaray, Guillem Bou, Casilda Güell, Francisco Benjamín Cobo. The Group Reduction Technique to Achieve Consensus Among Collectives in Health Care Training. *Social Sciences*. Special Issue: Re-Imagine Education for Social Improvement. Vol. 5, No. 6-1, 2016, pp. 50-58. doi: 10.11648/j.ss.s.2016050601.17

Received: January 30, 2017; **Accepted**: February 9, 2017; **Published**: February 28, 2017

Abstract: In training processes within professional practice, professional discourse can benefit from the study of language and its complexity, incorporating both its representational and presentational aspects. Integrating a professional's thoughts and actions is key in the research of professionalizing knowledge, in which the use of narrative exceeds the dichotomy of thought and action. In many institutions it is common for many trainers to begin interventions with an initial study of expert opinions [1, 2, 3, 4]. However, when dealing with very specific disciplines, experts occasionally prioritize their own field of research over and above that of others, as they experience an intense connection with their field due to the social repercussions of their work; paradoxically, it is this same social commitment which defines concrete priorities and pushes other areas into second place, making it difficult to reach consensus among different professionals [5, 6]. The aim of this paper is to study how certain processes of reduction in the number of experts and variables can be carried out as an initial training step when interventions aimed at achieving consensus among experts have been unsuccessful. In our case, we intervened in the field of Health Management through a work group consisting of professionals in different specialties within the health sector (doctors, managers, pharmaceutical industry specialists, etc.). The evaluation of the degree of consensus was undertaken with the study of the deviations of the Delphi Method and Kendall's coefficient of concordance W, as is often the case [7, 8, 9, 10]; we realized, however, that we had not achieved an acceptable degree of consensus. We therefore opted to apply a study of profiles and of variable reductions, in search of a more compact subgroups of opinion among the experts. We concluded that, when working with groups with a high level of identification or when no appropriate consensus techniques have been applied, it is possible to resort to this method to achieve more cohesive work groups. Moreover, when a consensus technique is applied as a correct intervention, this same technique can serve as an evaluation tool.

Keywords: Health Care, Management, Course, Professional Discourse, Delphi Method

1. Training Processes in Health Care and Consensus Among Experts

The presentational and representational aspects of language offer a framework for analysis of training processes in professionals. From a presentational aspect of language, professionals are considered participants in a social system where language is a form of participation ([11, 12]). From a social point of view, words themselves are not simply a way for professionals to express themselves; they are strata connected with an entire social system. Language provides a map of these relationships and data offers an interrelationship between health professionals and their professional environment. Therefore, language is studied in and of itself and not for how it presents a professional environment. The study of language is focused systematically on the relationships created between the discourse and the sources through which it is verbalized.

In this context we use the term *voices*. The word voices is used when referring to three interrelated ideas and linking them to the source of epistemology and understanding of

knowledge; incorporating the actions of the transmitter and their purpose; and finally, as a methodological form meaning a thought. Voices exist as part of a social medium. From this translinguistic point of view, we investigate the origin of words and of the sources, and how these transform when they appear together.

From a representational aspect, we analyze how the mental representations of the professional morph into elements of action [13, 14]. During the training process, the actions of the health professional who acts as trainer build mental representations in the other participants – these mental representations form the groundwork for new actions that will convey a deeper professional understanding. The process-product paradigm reduces the complexity of the actions of teaching and learning to a series of variables with the aim of analyzing the management of complexity by health professionals acting as teachers. The representational aspect has also brought us to understand the professional as a system of decision-making without the reductionism. This concept allows researchers to analyze the language of professionals who participate in courses to prove the depth of their understanding.

Literature reviews, in this sense, discriminate between preactive and interactive decision-making [15]. The concept of decision-making provides an accessible point for searching, as well as a methodological framework: it brings us closer to the complexity of reasoning of the teacher and methodologically introduces precedents and topics that can be studied qualitatively and quantitatively.

In the context of health related services, there are many authors who point to the strategic importance of management [16, 17, 18, 19, 20, 21]. Hospitals or primary care centers should not only provide patient-facing information systems – they should also communicate with suppliers (mainly the pharmaceutical sector) who in theory are equally as developed in the standardization of their procedures and, in general, sufficiently coordinated and well-connected in terms of patient care [22, 23, 24, 25]. It would not be useful, for example, for a hospital to provide high-quality medical care to deal with a health issue in their area, while at the same time being insufficiently supplied with the drugs those doctors prescribe.

In addition, the importance of response time is key when dealing with health – efficient management is just as important as effective management. In other words, a high-quality response to an issue is no longer high-quality if it is not provided within an appropriate time-frame according to the specific situation. This demands of hospital centers to build strong internal protocols as well as to be able to carry them out in the shortest possible time [26, 27, 28]. As a consequence, research in Health Care management is a field that has experienced strong growth throughout the second half of the 20th century and into the present. Nonetheless, when management or innovation plans requiring staff training are implemented, it is common for these to be hindered by the specializations of the participating agents [6]. Any project that is carried out in this sector will be developed by professionals with very different backgrounds and with very different perspectives on intervention policies (even within the same medical area of expertise) [29, 30, 31]. In these cases, the intervention itself is just as important as the agreement reached among the agents who will carry it out, manage it or simply initiate it. If a minimal common vision across the team cannot be achieved, it is well-known that the absence of collaboration and coordination among different agents intervening in Health Care carries a high social cost (Pimentel, [32]). Medical consensus is so important that in the US, France and in particular Spain, so-called "consensus conferences" have been organized since 1973 in which experts critically analyze bibliographies, including interaction with interested parties, with the aim of creating recommendations for clinical practice [31].

Now that the conditioners have been exposed, we will refer to the principles of group dynamic and include their recommendations in the intervention plans.

We need to keep in mind that in the field of Health Care professionals are often subjected to high levels of pressure, and that these professionals often display valuable and socially renowned skills and knowledge. It therefore seems more appropriate to consider the possible stereotypes that might exist among experts by their belonging to specialized groups, and to frame the initial situation within a *minimum group* approach [33]. We should consider that in the debate about experiments on discrimination and bias in the group's favor, the importance of compensation was initially established [34] but, in approximate dates [35] and later years [36, 37], the tendency of the results was to discard possible competition mechanisms or any other derivative of prize-giving. In addition, the experiments on groups were normally conducted with random labelling and with no link to the participants' biographies; on the other hand, Health Care experts (doctors, pharmaceutical professionals, hospital managers, etc.) maintain strong links with their respective professional groups. Therefore, as we can see, a simple glance at the striking results of Social Psychology in the 70s predicts a panel of specialists with potentially strong feelings of belonging to the group, which would hinder consensus in many situations.

A recent approach that may resolve the problem is the so-called strategic consensus [38, 39], which states that consensus of opinion in strategic aspects causes cooperation between individuals, among other desirable results. Given that the conception of strategic consensus is defined in the construct of shared cognitions [40] and of the groups' emerging states [41], given therefore its strongly cognitive nature and the specialized training of the individuals in question, there is a natural need for an approach based on content and knowledge which may resort to pooling strategies to achieve consensus. In other words, consensus among Health Care experts can be achieved via a plan of convergence towards shared cognitive structures; however, since their knowledge corpus will be highly specialized, the participation of content specialists will be necessary in order to provide consultancy throughout the process.

Some of the authors refer to strategic consensus, not only as a theoretical construct but also as a process to achieve results in work teams [42]. If we follow this point of view, we can list four known results that could be applied in the case of Health Care experts:

a) Consensus is provided by other similar variables among the individuals [43].
b) Consensus can also be provided by contextual variables [44].
c) The participation and involvement of individuals in tasks makes it easier for consensus to be reached [45, 46].
d) Higher-performance organizations display greater consensus in terms of methods than aims [47]

Following these guidelines, and taking into account the cognitive aspects mentioned previously, we can form a rather approximate image of what a successful intervention would look like in terms of seeking consensus among experts. Once the consensus technique has been applied, it is always advisable to use some measuring tool to quantify the results [39]. In other fields of research, verified scales are available to help with measuring consensus [39, 48], but in the field of Health Care it is very common to apply the Delphi Method [49, 50, 51] to surveys carried out ad hoc for each specific situation.

In the case in question, the methods applied for the implementation of an innovative plan, which entailed the training of professionals, did not achieve the desired consensus. A numerical technique was therefore used on the data, which can be used as a last resort in the intervention, consisting in the reduction in the number of both experts and variables towards a more compact opinion group – this initial group would subsequently include more professionals over time. This strategy is based on the fact that the mechanics that aim for unanimity in decision making usually generate more consensus than those that use the simple method of voting [52], so working with a compact group may bring the researcher towards a situation that facilitates and promotes consensus.

The aim of this research is therefore to analyze how to take carry out certain actions for the reduction in the number of experts and variables as an initial training step when the intervention to achieve consensus among experts has not given the desired results. After such reduction, and starting from a smaller group with greater consensus, the authority of such group can be used to attract new members and, finally, meet the conditions to execute the innovation plan.

2. Methodology

The Delphi Method and its multiple rounds applied to a group of experts seeks to reduce discrepancies of opinion on different issues [53, 54]. The simplest structure of the Delphi Method is as follows:

a) Provide the experts with a list of items to evaluate (the items, in our case, were the proposals of an innovation plan).
b) Collect the evaluations of the experts (each item was assigned a relevance score).
c) Calculate the average and deviation of each item.
d) Send the results to each expert, so they may compare their evaluation for each item with the average for the group (the experts are thus aware of whether their evaluations vary from the group average).
e) Ask the experts to re-evaluate the items (in order for them to correct their evaluations).
f) Calculate the new average and deviation of each item.

Each time we ask the experts for their evaluations, this counts as a "round". The general idea of this method is that, once the group evaluation is known, the experts can reflect and evaluate the possibility of adjusting their evaluation to approach the average. We'll know if any variation in the evaluations is due to the observation of the new deviations of the items, as these will have decreased.

Once this technique has been applied, Kendall's coefficient of concordance can also be applied as a general-use test. This consists of a correlational calculation that indicates if the priorities of the experts are similar. In other words, if the same item receives a high evaluation from the surveyed individuals, such that all of them place it among the high-priority items, that item will contribute to W's value being high. If, on the other hand, an item is evaluated highly by some experts and not by others, it will cause W to decrease.

The Delphi Method and Kendall's coefficient of concordance can be applied to small groups, and are thus used both in quantitative studies and, as a supporting technique, in qualitative studies [55].

The calculation of W after applying the Delphi Method is an indicator of the success that has been achieved. Examples of this way of proceeding can be observed in [3, 4, 7, 8, 10]. If an acceptable level of consensus is not achieved (an acceptable final value of W), other authors [56, 57] propose an algorithm of item extraction to at least achieve a subgroup of issues where the experts *are* in agreement. In the field of Health Management, various researchers [5] applied the technique of item extraction to achieve various groups of issues with an acceptable level of consensus among the experts (W=0.708), and thus access a condensed list of issues that could lead to a discussion on innovation with the support of the experts. In our case, as we will see later, we applied the method of item extraction based on Kendall's coefficient of concordance combined with expert grouping techniques (clustering) – we can therefore offer a mixed methodology to achieve the desired compact core of experts.

2.1. Participants

A total of 28 experts linked to pharmaceutical laboratories participated in the collection of opinions (personal interviews and surveys): experts or people with an understanding of the hospital pharmacy sector, hospital staff, Public Administration staff, training experts and study consultancy. Usual criteria were followed in terms of the size of the panel of experts, the recommendation being a number closer to 30 [58, 59]. Three experts did not follow the entire procedure, so the final sample consisted of 25 individuals.

The items to be evaluated, and on which consensus was sought, belonged to a hospital management program within the

methodology of Efficient Consumer Response, defined as the cooperation of commercial and manufacturing institutions with the aim of adapting the FMCG sector to the needs of consumers, and thus reduce unnecessary supply chain expenses [60, 61]. This methodology was implemented in the hospital sector under the term EHCR (Efficient Healthcare Consumer Response) in the 90s, and has had great impact on the economic and service performance of hospital institutions [62].

In the case in question, the interviews and surveys were more extensive, but the focus of the degree of consensus was specifically on 27 items. The experts evaluated the items through different rounds on a scale of 1 to 5, evaluating the priority of each item.

2.2. Process

The initial situation consisted of 25 experts offering their opinion on 27 variables. Kendall's W analysis was used to obtain the result W=0.266, which pointed to considerable discrepancy in the ordering of the items. Furthermore, the variations in the evaluations of the items were large.

Rather than using item extraction techniques or techniques to extract experts via the elimination of extreme evaluations, we decided to approach the problem as an issue of "similarity of opinions" among the experts. We should thus observe the following:

a) When we look at the consensus among experts using Kendall's W, we're applying a hard criterion, as we require of the experts to assign scores to the items which, when ordering them, will be similar.
b) If we only extract experts by eliminating extreme evaluations, the criterion is too soft, since we don't have an overview of the global consensus among the remaining experts.
c) On the other hand, if we detect profiles that are based on the distance between different opinions (clustering), we'll know that the experts that were finally selected have a certain degree of similarity of opinion (because they belong to the same cluster).

In clustering methods researchers commonly use a very useful tool called a *dendrogram*. A dendrogram is a graph of the groups which allows us to decide the level of segmentation we want to use. On the left side, the graph contains the individuals in the sample, ordered by similarity of opinions. As we move towards the right, some lines will appear indicating which opinion group each individual belongs to. The researcher can trace a vertical line on the dendrogram, and each intersection with a horizontal line implies a group. In this manner, the researcher can opt for various vertical lines according to the model they are following. For instance, if a researcher wants to discriminate solely among two large groups, they will trace a line to the far right, so that it may only cut two horizontal lines. If, on the other hand, they want a more detailed segmentation, they'll trace a vertical line in the central region, so that four or five groups may be obtained.

3. Results

Below are the results from the two selected processes, providing us with a dendrogram and a compact group:

3.1. First Process

In the case in question we obtained the following dendrogram, with two possible cut lines resulting in four or five clusters:

Dendrogram with average bonding (between groups)
Combination of re-scaled distance conglomerates

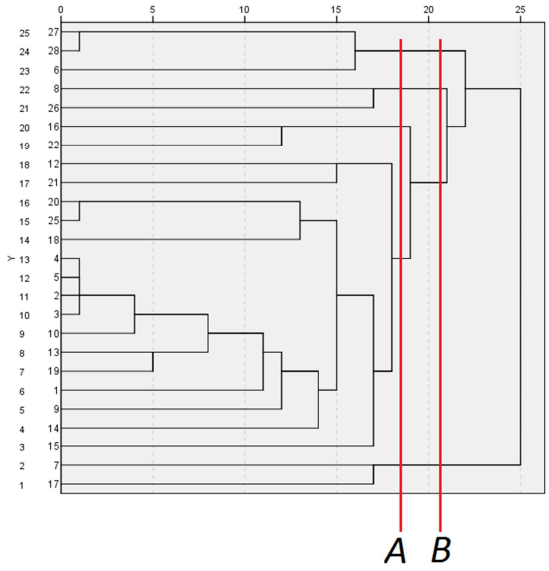

Figure 1. *Dendrogram obtained with two possible cut lines.*

When deciding between cut A or cut B, we took the following points into consideration:

a) The initial grouping distances are long and the convergence of individuals towards the groups is slow. Individuals 6 and 8 are a clear example of this, since they are far from the rest and from each other. They enter in a cluster after 20 iterations, only to be subsequently absorbed by the majority cluster.
b) Opting for cut A is a slightly more precise option that opting for cut B, since it obtains one more profile, but the dendrogram does not recommend this. If we look carefully, the two individuals (16 and 22) which constitute the difference between A and B have been grouped rapidly with the large group of 16. On the other hand, the grouping distance between A and B is greater, meaning that we can include the two individuals in the group of 16 and, therefore, opt for cut B.
c) Furthermore, we want to maintain a certain number of experts in the compact group. In any case, we can always eliminate more of them in subsequent classifications.

Option B establishes four groups of experts. The central group, composed of 18 experts, draws our attention – it could potentially be our core of experts with similar opinions. If we process a descriptive analysis of the group, we obtain the following table:

Table 1. *Size of the resulting clusters.*

Cluster	Frequency
1	18
2	3
3	2
4	2
Total	25

The majority profile, 18 individuals, is:

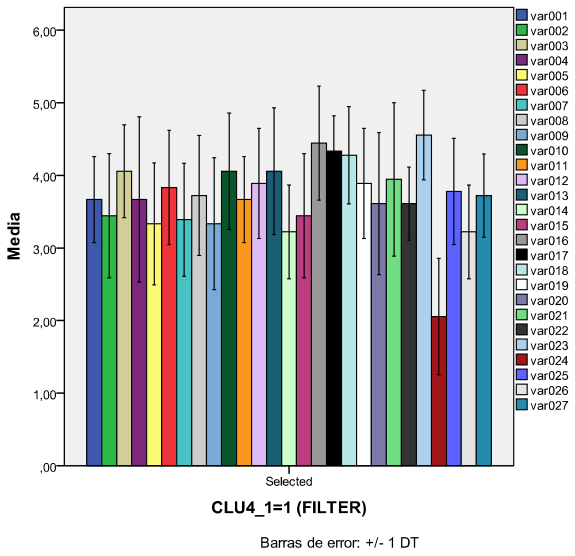

Figure 1. *Averages and variations of the items.*

For the purposes of understanding the contents of the items, the following table can serve as a reference:

Table 2. *Variables, items and survey texts.*

Variable	Item	Survey Text
var01	3	Trust in the strategy…
var02	4.1	Cost reduction…
var03	4.2	Supply markets…
var04	4.3	Reduction of medical errors…
var05	4.4	Development of joint projects…
var06	4.5	Implementation of Best Practices…
var07	4.6	Increase in efficiency…
var08	6.1	Establishing Centralized Coordination…
var09	6.2	Building a coalition of groups…
var10	6.3	Implementing common techniques…
var11	6.4	Implementing programs and setting deadlines…
var12	6.5	Setting up a database…
var13	6.6	Launching a training program…
var14	6.7	Ensuring hospitals organize themselves...
var15	6.8	Consolidating figures for hospital supply purchases…
var16	8.1	Digitization of patient management
var17	8.2	Digitization of supply chain
var18	8.3	Automatized inventory management
var19	8.4	Integrated and digitized invoicing and accounting system
var20	8.5	Purchasing of supplies with the use of…
var21	8.6	Interconnection among local networks…
var22	10.1	Trust in IT 5 years
var23	10.2	Trust in IT 10 years
var24	12.1	Trust in Electronic Data Interchange 5 years
var25	12.2	Trust in Electronic Data Interchange 10 years
var26	17.1	Implementing EHCR in 5 years
var27	17.2	Implementing EHCR in 10 years

We calculated the concordance of the group and the resulting W was still low (W=0.312, p=0.001). This time we can clearly see a much lower variable than the rest, number 24, so we can at least state with confidence that this group does not want to support option 24.

3.2. Second Process

If we want to obtain a greater W and an even more compact group, we can repeat the process. We now have a new clustering classification and we obtain a more compact group of 10 individuals. Kendall's coefficient of concordance is now (W=0.467, (p=0.001)), which is close to 0.5. The group profile is thus:

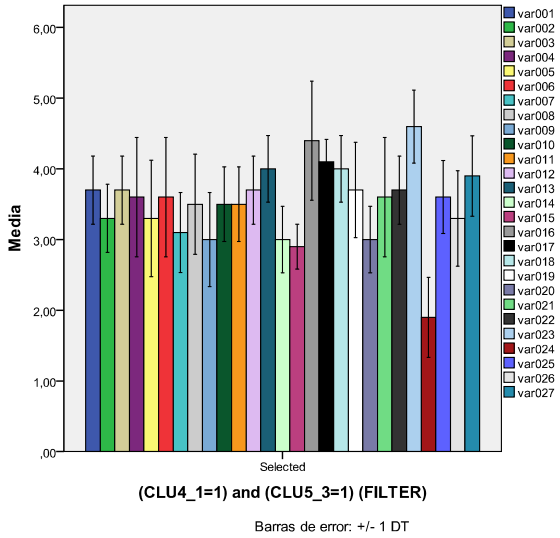

Figure 2. *Averages and variations of the items.*

Here we can reaffirm that the most compact core of experts rejects item 24.

Now we can complete the method with an elimination of the items that manifest greater deviation. We order the items according to typical deviation and we obtain the following:

Table 3. *Items ordered from smaller to greater deviation.*

Var.	Label	Min.	Max.	Avg.	Typ. Dev.
var015	Consolidate purchase figures	2	3	2.9	0.31623
var017	Supply digitization	4	5	4.1	0.31623
var014	Organization of hospitals	2	4	3	0.4714
var020	Supply purchasing	2	4	3	0.4714
var013	Training program	3	5	4	0.4714
var018	Inventory management	3	5	4	0.4714
var002	Cost reduction	3	4	3.3	0.48305
var001	Trust in strategy	3	4	3.7	0.48305
var003	Supply markets	3	4	3.7	0.48305
var022	Set up database	3	4	3.7	0.48305
var012	Trust IT 5 years	3	4	3.7	0.48305
var025	Trust EDI 10 years	3	4	3.6	0.5164
var023	Trust IT 10 years	4	5	4.6	0.5164
var010	Implement techniques	3	4	3.5	0.52705
var011	Implement programs	3	4	3.5	0.52705
var024	Trust EDI 5 years	1	3	1.9	0.56765
var007	Increase efficiency	2	4	3.1	0.56765
var027	Implement EHCR 10 years	3	5	3.9	0.56765
var009	Construction of groups	2	4	3	0.66667

Var.	Label	Min.	Max.	Avg.	Typ. Dev.
var026	Implement EHCR 5 years	3	5	3.3	0.67495
var019	Invoicing system	2	4	3.7	0.67495
var008	Establish Coordination	2	4	3.5	0.70711
var005	Project development	2	5	3.3	0.82327
var004	Reduction in medical errors	2	5	3.6	0.84327
var006	Best Practices	2	5	3.6	0.84327
var021	Network interconnection	3	5	3.6	0.84327
var016	Patient Management	3	5	4.4	0.84327

An acceptable criterion is to reject those items whose deviation is equal to or greater than 0.5. If we apply this rule, we obtain the following table of surviving items:

Table 4. *Items with less than 0.5 deviation.*

Var.	Label	Min.	Max.	Avg.	Typ. Dev.
var015	Consolidate purchase figures	2	3	2.9	0.31623
var017	Supply digitization	4	5	4.1	0.31623
var014	Org. of hospitals	2	4	3	0.4714
var020	Supply purchasing	2	4	3	0.4714
var013	Training program	3	5	4	0.4714
var018	Inventory management	3	5	4	0.4714
var002	Cost reduction	3	4	3.3	0.48305
var001	Trust in strategy	3	4	3.7	0.48305
var003	Supply markets	3	4	3.7	0.48305
var022	Set up database	3	4	3.7	0.48305
var012	Trust IT 5 years	3	4	3.7	0.48305

Therefore, the final result is a compact core of 10 experts and 11 variables. The final profile is thus:

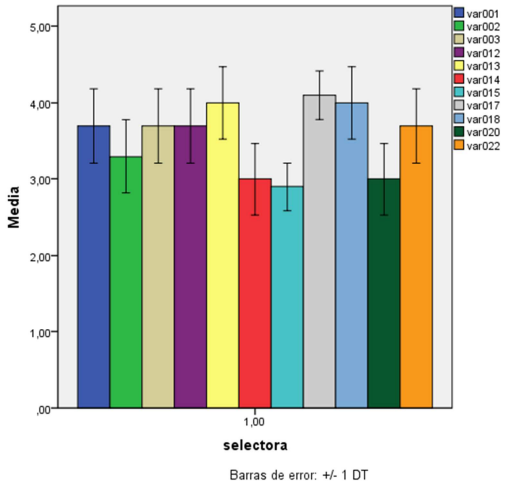

Figure 3. *Profile of compact expert group.*

We can observe three groups of items to consider when we intervene in this group with training or innovation proposals:

- There are three items with regular acceptance (3 of 5): var014, var015 y var020.
- There is only one item whose acceptance is slightly above 3: var002.
- And finally, in the remaining items the acceptance is close to 4, but it is never greater than 4.

This indicates that we have three items of regular acceptance and one item of slightly regular acceptance. We should not get the participants too excited about the reasons or explanations based on these items. But the situation for those who wish to intervene in the group is even more difficult: if we observe the items with greater scores, we realize that the averages do not approach 5. That is to say, this group is not enthusiastic about any of the initiatives proposed in each item.

For a more detailed interpretation of the results, we need the meaning of the proposals of each item:

Table 5. *Texts of the items with their averages and deviations.*

Variable	Item	Survey Texts	Average	Deviation
var15	6.8	Consolidating figures for the purchasing of hospital supplies and reducing the number of references to simplify the process of standards acquisitions.	2.9	0.31623
var17	8.2	Digitization of the supply chain.	4.1	0.31623
var13	6.6	Launching a training program for hospital staff.	4	0.4714
var14	6.7	Ensuring that hospital organization is done collaboratively.	3	0.4714
var18	8.3	Automatized inventory management.	4	0.4714
var20	8.5	Purchasing of supplies using simplifying tools such as *EDI - Electronic Data Interchange*.	3	0.4714
var01	3	What level of trust do you have in the potential implementation of this management strategy?	3.7	0.48305
var02	4.1	Cost reduction through purchasing discounts, reduction of inventory and efficient drug management within the supply chain.	3.3	0.48305
var03	4.2	Supply markets and online distributors will allow hospitals to reduce inventory and drug provisioning costs.	3.7	0.48305
var12	6.5	Setting up of a database of best practices from all participating hospitals.	3.7	0.48305
var22	10.1	Level of trust of ICT implementation in the hospital sector in the next 5 years.	3.7	0.48305

3.3. Recommendations Deduced from the Experts Consensus Core

In the case in question, we carried out an interpretation of the meaning of the most striking items on the characteristics of the consensus group. The topic of discussion was the implementation of a system called EHCR (Efficient Health Care Response). In view of the results, action guidelines became apparent, two examples of which can be seen below:

- The best point to pursue in terms of implementing the system, and the point to reject (items 8.2 and 6.8): item 8.2 (Digitization of the supply chain) presented the greatest average and, luckily, the least deviation. On the other hand, item 6.8 (Consolidating figures for the purchasing of hospital supplies and reducing the number of references to simplify the process of standards acquisitions) had the lowest average and also the least deviation. These two key items could be the reference points (the most popular and least popular proposals) for the intervention of the compact group of experts.

- Consequences derived from the acceptance of item 8.2: The high level of agreement expressed by the health experts on item 8.2, in reference to the digitization of the supply chain, indicated a high level of trust in the fact that IT applications in the hospital network could substantially improve the quality and access to information. In this sense, the Efficient Healthcare Consumer Response (EHCR) considered actions related to the improvement of information and communication systems as one of the options for strategy implementation.

On one hand, the high acceptance of item 8.2 facilitated the implementation of EHCR, considering that this application was strongly based on the use of technologies. A receptive position towards them would allow for the implementation of a collaborative strategy among participating agents in the drug supply chain (from the laboratory to the final dispensing to the patient admitted to the hospital center). Furthermore, the immediate effect was the elimination of inefficiencies in the patient care value chain via the use of management techniques, so the best possible benefits could be offered to consumers (costs, security, speed).

On the other hand, the low average score expressed by the subgroup of experts of item 6.8 in relation to consolidating figures for the purchasing of hospital supplies and reducing the number of references to simplify the process of standards acquisitions, could be a stumbling block. If the EHCR components are not exhibited with the required tact, it could be perceived as a tool that adds complexity to the hospital management process.

Although more action guidelines could be established, we will now present the conclusions derived from the method and experience of the research, given that said guidelines are not the central scope of this paper. These conclusions are methodological in nature and can help to implement and evaluate actions aimed at achieving consensus.

4. Conclusions

In view of the results, we can deduce three key conclusions:

a) Nature of the discrepancy among experts

A compact core of opinion composed of 10 experts and 11 items was detected. Curiously, despite the reduced size of the experts and the items, the coefficient of concordance is not excessively high (W=0.549, p=0.001). It's important for those who deliver consensus plans to consider the final meaning of the statistical indicators. One has to keep in mind that the coefficient W indicates if there is a crossover in priorities. Let's imagine the following example: an expert assigns a 4 to topic A and a 5 to topic B, whereas another expert assigns the exact opposite (5 to A and 4 to B). These two scores are high in both cases, so the simple descriptive indicators (such as deviation) would be small; nonetheless, the different ordering would provoke a crossover, so the W coefficient would decrease. Therefore, one must consider the analysis of Kendall's W together with the deviations, since with high deviations W has much more weight if it indicates discrepancy. Nevertheless, W might also not be too high given the frequent crossovers which, observing the scale, are differences of one point in the allocation of priorities.

b) Clarification of the vision of the consensus group

The analysis of the characteristics of the consensus group sometimes sheds light on the group in general. In our case, when we observed the low average and deviation of item 6.8, we detected that other expert subgroups could be found with a consensus score that was not as high but with fewer deviations in the low scoring items. This indicated that our experts disagreed in terms of the items they favored, but agreed in terms of the items they disfavored. Similarly, while attempting to find groups that are not so restricted but with a certain level of agreement on specific topics, we discovered that the average in the questions on training actions was rather high and with low deviation; in general, actions could be taken based on the fact that the group where the project was carried out was very open to receiving training in relation to project implementation.

c) Evaluation of a consensus action

Finally, as a general rule for the evaluation of a program aimed at seeking consensus, this technique offers a criterion that is easily explainable to the institution. If the size of the resulting group consensus when imposing a condition (for example, that Kendall's W must be above 0.5) is large, this means the consensus technique used has yielded good results. If, on the other hand, it has been necessary to greatly reduce the number of experts in order to obtain high statistical indicators of consensus, this means that in effect not much consensus has been achieved, and thus the plan of intervention in the group was inappropriate.

The resulting consensus that brings about a greater cohesion of a group of health professionals will allow for the implementation of planned training steps structured around a group of common interests. This first group of more cohesive professionals indicates that the trainer can approach the professional discourse from presentational and representational aspects of language. The structure of more cohesive groups and later training steps will repeat in the institution until appropriate consensus ratios for implementation have been achieved.

References

[1] G. Carrasco and J. Ferrer, "Las vías clínicas basadas en la evidencia como estrategia para la mejora de la calidad: metodología, ventajas y limitaciones," Revista de Calidad Asistencial, 16:199-207, 2001.

[2] P. Comet, G. Escobar, T. González, A. De Ormijana-Sáenz, M. Rich, C. Vidal, P. Córcoles and C. Dolores Izquierdo y Silvestre, "Establecimiento de prioridades de investigación en enfermería en España: estudio Delphi" in Enfermería Clínica 20(2), March, 2010.

[3] I. Murua, "Las cibercomunidades de aprendizaje y la formación del profesorado" (doctoral thesis), Universidad Nacional de Educación a Distancia, 2015.

[4] A. Rushton and G. Lindsay, "Defining the construct of Masters level clinical practice in healthcare based on the UK experience", Medical Teacher, 30:4, e100-e107, DOI: 10.1080/01421590801929950, 2008.

[5] C. Casilda, G. Bou, and J. Irigaray, "An alternative to Delphi's Method: the detection of concordant groups. Application of a training plan within health management", 11th annual International Technology, Education and Development Conference, 2017.

[6] D. Knight, C. L. Pearce, K. G. Smith, J. D. Olian, H. P. Sims, K. A. Smith, and P. Flood, "Top management team diversity, group process, and strategic consensus", Strategic Management Journal, 20(5), 445-465, 1999.

[7] F. Pedrosa, "El control del cumplimiento de las normas de información financiera. Perspectiva sobre el sistema institucional de control- aplicación de un estudio Delphi", Doctoral thesis, Universidad Autónoma de Madrid, 2006.

[8] N. Becheikh, "Conceptualisation d'un système de contrôle pour les organisations virtuelles de type réseau temporaire", Doctoral thesis, Faculté des Sciences de l'Administration, Université de Laval (Québec), 2004.

[9] R. C. Schmidt, "Managing Delphi surveys using nonparametric statistical techniques", Decision Sciences, 28 (3), Summer, pp. 763-774, 1997.

[10] C. Okoli and S. D. Pawlowski, "The Delphi Method as a research tool: an example, design considerations and applications", Information & Management, 42, pp. 15-29, 2004.

[11] S. Purdy, M. Little, C. Mayes and W. Lipworth, "Debates about conflict of interest in medicine: deconstructing a divided discourse", Journal of Bioethical Inquiry, 1, pp.1-15, 2017.

[12] C. Mayes, W. Lipworth and I. Kerridge, "Declarations, accusations and judgement: examining conflict of interest discourses as performative speech-acts", Medicine, Health Care and Philosophy, 19 (3), pp. 455-462, 2016.

[13] S. L. Specker, "Dynamic axes of informed consent in Japan", Social Science and Medicine, 174 (1), pp. 159-168, 2017.

[14] P. Andreassen, M. Neergaard, T. Brogaard, M. H. Skorstengaard and A. B. Jensen, "Talking about sensitive topics during the advance care planning discussion: a peek into the black box", Palliative and Supportive Care, (1), pp.8-18. DOI: 10.1017/S1478951515000577, 2015.

[15] J. Paul, S. Metcalfe, L. Stirling, B. Wilson and J. Hodgson, "Analyzing communication in genetic consultations: a systematic review", Patient Education and Counseling, 98 (1), pp. 15-33, 2015.

[16] A. Mª Mangues, "Gestión de la farmacoterapia desde el servicio de farmacia del hospital. Gestión del conocimiento", España: SEIS; 2004 [consulted on 09/10/2014]; 241-242. Available here: http://www.seis.es/documentos/informes/secciones/adjunto1/CAPITULO9_0.pdf

[17] R. Cigolini, M. Cozzi and M. Perona, "A new framework for supply chain management conceptual model and empirical test," International Journal of Operations & Production Management, 24:7–41, 2004.

[18] CSC Consulting Inc., "Efficient Healthcare Consumer Response. Improving the efficiency of the healthcare supply chain," Chicago: American Hospital Association/American Society for Healthcare Materials Management, 1996.

[19] C. Chandra and J. Grabis, "Application in Health Care", Supply Chain Configuration, New York: Springer; p. 277-88, 2016.

[20] S. S. Marimón, "La sanidad en la sociedad de la información", Sistemas y tecnologías de la información para la Gestión y la Reforma de los Servicios de Salud, Barcelona, 1999.

[21] IMS Health, "Evolución del Mercado de Genéricos," [consulted on 03/15/2016]. Available here: http://www.aeseg.es/documentos/Mercado%20Farmaceutico%20Genericos%20tras%20PRef%202013.pdf, 2013.

[22] S. Shortell and A. Kaluzny, "Health care management: organization design and behavior", Clifton Park, NY: Thomson Delmar Learning, 2006.

[23] A. Rico, R. B. Saltman and W. B. Boerma, "Organizational restructuring in European health systems: the role of primary care", Social Policy Administration; 37:592-608, 2003.

[24] K. Letford and T. Ashton, "Integrated family health centres", Health Policy Monitor, April. Available here: http://hpm.org/en/Surveys/The_University_of_Auckland_-_New_Zealand/15/Integrated_Family_Health_Centres.html, 2010.

[25] Department of Health, "Operational productivity and performance in English NHS acute hospitals: unwarranted variations an independent report for the Department of Health by Lord Carter of Coles", February 2016, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/499229/Operational_productivity_A.pdf, 2016.

[26] V. Navarro, "La sanidad española. La situación social en España II", V. Navarro (coordinator), Madrid: F. Largo Caballero-E. Biblioteca Nueva, 293–316, 2007.

[27] Various authors, "La implantación de la promoción de la salud en los hospitales: manual y formularios de autoevaluación", Ministerio de Sanidad y Consumo, Madrid, 2007.

[28] Various authors, "El futuro de los hospitales", Congreso Nacional de Hospitales y Atención Sanitaria, Escuela Andaluza de Salud Pública, 2016.

[29] M. Trapero, et al., "Cuestiones controvertidas en evaluación económica (ii): medidas de resultado en salud de las intervenciones sanitarias", Revista Especializada de Salud Pública, 2015.

[30] A. Martínez Sahuquillo and M.ª C. Echevarría, "Métodos de consenso. Uso adecuado de la evidencia en la toma de decisiones", "Método RAND/UCLA", Revista Rehabilitación. Elsevier, 2001.

[31] J. Asua, "Entre el consenso y la evidencia científica", Evaluación De Tecnologías Médicas, Departament of Health, Basque Government, Bilbao. Vizcaya, Spain, 2004.

[32] M. Pimentel, "Nuestra sanidad precisa salud", Madrid: Ediciones de El País, (Opinión. Firmas Tribuna), recovered from www.cincodias.com, 2004.

[33] H. Tajfel, "Experiments in intergroup discrimination", Scientific American, 223, 96-102 (abstract), 1970.

[34] J. M. Rabbie and M. Horwitz, "Arousal of ingroup-outgroup bias by a chance win or loss," Journal of Perspective Social Psychology, 1969 Nov; 13(3):269-77, 1969.

[35] M. Sherif, "Group conflict and co-operation", London: Routledge, 1967.

[36] M. Rubin and M. Hewstone, "Social identity, system justification, and social dominance: commentary on Reicher", Jost et al., and Sidanius et al. Political Psychology, 25, 823-844, 2004.

[37] M. Rubin, C. Badea and J. Jetten, "Low status groups show in-group favoritism to compensate for their low status and to compete for higher status. Group processes and intergroup relations", 17, 563-576. doi: 10.1177/1368430213514122, 2014.

[38] F. W. Kellermanns, K. A. Eddleston, T. Barnett and A. Pearson, "An exploratory study of family member characteristics and involvement: effects on entrepreneurial behavior in the family firm", Family Business Review, 21 (1), 1-14, 2008.

[39] K. Puente and T. Puente, "Validación de una escala de medición del consenso estratégico en equipos pedagógicos", Revista de Psicología, Vol. 31 (2), 2013, pp. 227-245 (ISSN 0254-9247), 2013.

[40] R. Swab, T. Postmes, I. Van Beest and R. Spears, "Perceived shared cognition as a product of, and precursor to, shared identity in negotiations", Personality and Social Psychology Bulletin, 45, 187-199, 2007.

[41] J. E. Mathieu, M. T. Maynard, T. Rapp and Gilson, "Team effectiveness 1997-2007: A review of recent advancements and a glimpse into the future", Journal of Management, 34, 410-476, 2008.

[42] K. Puente, T. Puente, T. Moreira and N. Lira, "El consenso estratégico como predictor de resultados de equipos de trabajo", Revista de Psicología Vol. 33 (1), (ISSN 0254-9247), 2015.

[43] F. W. Kellermanns, K. A. Eddleston, T. Barnett and A. Pearson, "An exploratory study of family member characteristics and involvement: effects on entrepreneurial behavior in the family firm", Family Business Review, 21 (1), 1-14, 2008.

[44] F. W. Kellermanns, J. Walter, C. Lechner and S. W. Floyd, "The lack of consensus about strategic consensus: advancing theory and research" Journal of Management, 31(5), 719-737, 2005.

[45] M. Carney, "How commitment and involvement influence the development of strategic consensus in health care organizations: the multidisciplinary approach", Journal of Nursing Management, 15(6), 649-658, 2007.

[46] M. A. Roberto, "Strategic decision making processes: beyond the efficiency consensus trade off", Group & Organization Management, 29(6), 625-658, 2004.

[47] G. G. Dess, "Consensus on strategy formulation and organizational performance: competitors in a fragmented industry", Strategic Management Journal, 8(3), 259-277, 1987.

[48] T. F. Moreira, "O papel do consenso estratégico em equipes pedagógicas", Brasilia: Universidade de Brasilia, 2011.

[49] J. Landeta, "El Método Delphi. Una técnica de previsión del futuro", Barcelona, Ariel.31-35:93-4, 2002.

[50] R. Yañez and R. Cuadra, "La técnica Delphi y la investigación en los servicios de salud", Ciencia y Enfermería XIV:9-15, 2008.

[51] M. De Villiers, P. De Villiers and K. Athol, "The Delphi technique in health sciences education research", Med Teach 27(7);639-643, 2005.

[52] S.Mohammed and E. Ringseis, "Cognitive diversity and consensus in group decision making: the role of inputs, processes, and outcomes", Organizational Behavior and Human Decision Processes, 85(2), 310-335, 2001.

[53] M. Varela, L. Díaz, and R. García Durán, "Descripción y usos del método Delphi en investigaciones del área de la salud", Revista de Investigación En Educación Médica, Elsevier, 2012.

[54] M. García, and M. Suárez, "El Método Delphi para la consulta a expertos en la investigación científica", Revista Cubana de Salud Pública, 39(2), 253-267, 2013.

[55] C. Pérez Andrés, "¿Deben estar las técnicas de consenso incluidas entre las técnicas de investigación cualitativa?", Revista Española de Salud Pública, Ministerio de Sanidad y Consumo, Madrid, 2000.

[56] D. Badía, "Metodología de los mapas de concordancia para la stratificación de variables cuantitativas: aplicación a la asignatura de Medidas Electrónicas", Doctoral thesis, Universidad Ramon Llull, 2012.

[57] G. Bou, "Aprendizaje comprensivo y procesos de la información", Aplicaciones educativas, Universitat Autònoma de Barcelona (UAB), 1991.

[58] A. L. Delbecq, A. Van de Ven and D. H. Gustafson, "Group techniques for program planning: a guide to nominal group and Delphi processes", Glenview, IL: Scott/Foresman, 1975.

[59] E. Vernette, "Evaluation de la validation prédictive de la méthode Delphi-leader", Proceedings of the Congrés International de l´AFM, pp. 988-1010, Toulouse. Cited by: Camisón, C. et al. (2009): "¿Hacia dónde se dirige la función de calidad?: la visión de expertos en un estudio Delphi", Revista Europea de Dirección y Economía de la Empresa, 18(2), pp. 13-38, 1997.

[60] J. Aastrup, H. Kotzab, D. B. Grant, C. Teller and M. Bjerre, "A model for structuring efficient consumer response measures", International Journal of Retail & Distribution Management, 36(8), 590-606, 2008.

[61] R. Zvirgzdiņa, I. Liniņa, V. Vēvere, "Efficient Consumer Response (ECR) – principles and their application in retail trade enterprises in Latvia", European Integration Studies, 9, 257-264, 2015.

[62] Various Authors, "Efficient Healthcare Consumer Response. Improving the efficiency of the healthcare supply chain", Chicago: American Hospital Association/American Society for Healthcare Materials Management. Report of CSC Consulting Inc, 1996.