

ATTITUDES TOWARDS ORGANIZATIONAL CHANGE: VALIDATION OF A SCALE

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Individual attitudes toward organizational change emerge as one of the most pervasive factors in individual resistance to processes of change. This resistance to change appears to account, in turn, for failure in such change processes. The aim of this study is to construct and validate a scale of attitudes toward organizational change by surveying attitudes of 409 workers from two Brazilian organizations.

An exploratory factor analysis with Promax rotation was performed on the 50 items of the attitudes scale. These analyses were replicated within the samples from each organization. A confirmatory factor analysis, using AMOS, was also performed on the same scale, and showed good validity and reliability indices. Results are quite similar for the two organizations, attitudes of acceptance and fear towards change emerging with similar strength. Attitudes of cynicism towards organizational change are not so strong. Additional cluster analyses revealed some patterns of conflicting and consistent attitudes towards change, and the role of these patterns in organizational change is discussed.

Las actitudes de los individuos frente a los cambios organizacionales son consideradas como las grandes responsables de la resistencia ante el cambio y estas resistencias, a su vez, responsables, de los fracasos de estos procesos. Este estudio tiene como objetivo construir y validar una escala de actitudes frente al cambio organizacional, para lo cual se investigan las actitudes ante el cambio en la organización de 409 trabajadores de dos organizaciones brasileñas.

Se han realizado análisis factoriales exploratorios para toda la muestra y para cada una de las dos empresas que han participado en el estudio. Se ha completado, además, un análisis factorial confirmatorio con el uso del modelado por ecuaciones estructurales y sus resultados muestran una adecuada validez del instrumento. Los resultados fueron similares en las dos organizaciones y evidencian actitudes de aceptación y de temor al cambio organizacional con intensidad similar. En menor grado, aparecen actitudes de cinismo con relación al cambio. En los análisis de cluster, se observan patrones de actitudes conflictivas y consistentes ante el cambio, lo que genera una discusión sobre su función en los procesos de cambio.

INTRODUCTION

The role of the individual in change.

Individual attitudes in relation to organizational change.

According to Damanpour (1991), managers' attitudes to change determine employee participation and the successful development of programmes of change, which suggests that individuals' cognitive processes constitute a determining factor in processes of organizational change. Moreover, part of the reason for the failure of many change programmes in organizations is precisely individuals' resistance to the change (Bovey & Hede, 2001). This fact alone justifies the analysis of people's

cognitive processes as a component of organizational change.

However, the literature on this issue includes many speculations about the relationship between individual cognition, individual emotion and resistance to change, speculations fuelled in part by a lack of empirical support. From the cognitive point of view, three basic types of explanation of resistance can be identified. The first refers to resistance as a natural and normal process generated by distorted beliefs or by individuals' tendency to assess situations using extreme categories. The second measures resistance as the intention to resist, and analyzes resistance as the set made up of perception of the impact of change, of irrational ideas and of affect (Bovey & Hede, 2001). The third attributes resistance to a negative emotional reaction activated by the inconsistencies and discrepancies between the cognitive schemes of individuals and those present in the proposals for change (George & Jones, 2001).

The majority of studies in this field work implicitly or explicitly with the model of cognitive consistency,

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which suggests that people strive to resolve inconsistencies between their behaviour and their attitudes (Festinger, 1957; Salancik, 1977; Bacharach, Bamberger & Sonnenstuhl, 1996; cited in Bartunek, Greenberg & Davidson, 1999). People desire a degree of balance in their interactions with the environment and show some intolerance to ambiguity (Gupta & Govindajaran, 1984), and since change involves moving from the known towards the unknown, those who are relatively intolerant to ambiguity prefer to maintain the *status quo* (Hambrick & Finkelstein, 1987).

One aspect of this whirlwind of speculations is the confusion among the concepts of resistance involving attitudes, beliefs and cognitions. Schiemann (1995) suggests that the term resistance to change is highly generic, and can be subdivided in six more specific areas along the following lines:

- Sensation of loss of control with respect to familiar, and probably comfortable, patterns of work, and fear of "difference" with respect to the present routine.
- Uncertainty about new processes and expected results arising from the change.
- Perceived and real loss of power brought about by the demands of change.
- Increase in the demands of work generated by the change.
- Misunderstandings and unclear demands in the change process.

Piderit (2000), without empirical backing, also stresses the ambiguity of the term resistance to change, and proposes that individuals' responses to change can be analyzed through the concept of attitudes, from the perspective of Social Psychology. In this case, the concept comprises three dimensions: the cognitive dimension, which involves beliefs that express positive or negative judgments about an object, the affective dimension, which covers feelings and emotions about the object, and the behavioural dimension, based on past behaviour or future action intentions in relation to the object of change (Ajzen & Madden, 1986).

In support of this perspective, Lau and Woodman (1995) claim, again without empirical evidence, that individuals' general cognitive schemes are mediators of attitudes to generic and specific changes. Moreover, attitudes would function as predictors of subsequent behaviour with regard to participation in the process of change.

Valley and Thompson (1998), in an empirical study of a longitudinal nature, explored people's attitudes to alterations in the organizational structure and routine on a daily basis throughout the period of change. Their

results indicate that resistance becomes stronger when attitudes in relation to change are negative, or when people's job definition and security are under threat.

Some psychological theories consider the possibility that attitudes affect the social structure: Sarnoff, Katz and McClintock (1965; cited in Valley & Thompson, 1998) argue that attitudes shape people's feelings and perceptions, as well as their behaviour concerning change. Attitudes help people to understand the new face of the environment, to assimilate each new item into a set of beliefs that transmit value and guide behaviour. In times of change, if the members of the organization embrace the change or believe it will bring benefits, they will probably adapt rapidly to the new system of work. In contrast, negative attitudes towards change may have the opposite effect, decreasing the probability of adaptation to the proposed changes.

In sum, the speculations about this issue, which display considerable conceptual confusion, are in dire need of empirical support. Given the enormous complexity of the relationship between attitudes and resistance to change, our intention here is to describe and group, using factor analysis, possible individual attitudes to the process of change in organizations. Thus, the objective of the study is to construct and validate an instrument of individual attitudes to organizational change, as a first step on the road to understanding the mechanisms antecedent to the phenomenon of resistance to change.

The development of a valid instrument for measuring individuals' attitudes in processes of organizational change will provide a useful tool for researchers interested in understanding the beliefs, emotions and behaviours involved when changes are proposed and implemented.

A second objective of the study is to verify empirically the attitudes of individuals in two organizations, one public and one private, with headquarters in the Federal District of Brasilia, on the basis of the data obtained with the validated instrument.

METHODOLOGY

Development of the instrument

The instrument was constructed on the basis of interviews with 15 professionals from public and private organizations whose aim was to determine what people thought about change in organizations. The group interviews were transcribed and subjected to content analysis to identify the principal categories. One of the categories found was labelled "attitudes to change", as it described people's beliefs, behaviours and feelings during processes of organizational change. This category was re-ana-

lyzed with further interviews to explore the types of attitudes. The questions drawn up for these interviews were:

- When there is a process of organizational change, what do people think, do or feel about it?
- Please describe what people think, feel or do when they are faced with a programme of change in the organization.

Participant's responses, re-analyzed by means of content analysis, indicated three categories, which were called acceptance, fear and cynicism. Attitudes were operationalized through the phrases participants used to describe them. The phrases placed in each category were transformed into 50 items of a psychological instrument.

The items were used in a 5-point Likert-type scale on which 0 = total disagreement and 4 = total agreement. The items were applied in a pilot study to 30 employees with 3 educational levels (primary, secondary and university), in order to make the necessary corrections for proper comprehension of the instrument.

Procedure

After the semantic validation, the scale was applied to 409 participants in 2 organizations (one public and another private) based in the Federal District of Brasilia. Application was in group format, and took approximately 25 minutes.

Sample

Participants were 286 employees of Organization A (a bank) and 123 employees of Organization B (a digital TV channel). Those from Organization A were selected by means of a draw, so as to form a random sample stratified by department and type of post. The number of interviewees in Organization A represented 0.05% of its employees. A total of 69.9% of the sample are men; 24% have an average educational level, 32% are doing university courses, and 26% already have university degrees. Of those interviewed, 84% work in the operations department, 46% in the central administration and 29% in regional offices. Mean time worked in the organization is 16 years, and mean age is 40. The most common period of service at the time of the study was 10 to 15 years. There is great stability of personnel in this organization.

In Organization B, participants' mean age is 39 years, and mean period worked in the organization is 4.29

years: this is a new organization with a lower rate of personnel stability. The majority (65.7%) have worked in the company for 5 years or less, and just 16.5% of the sample occupy high- or middle-management positions.

The number of employees interviewed in Organization B represents 90% of its employees. The majority (57.4%) are men, and most are aged between 18 and 30. As far as educational level is concerned, 32.5% are doing university courses, 35% have high-school education, and 25% have degrees or higher.

RESULTS

Exploratory factor analysis

We first carried out an exploratory factor analysis¹ of the instrument (Principal Components), with the aim of identifying the initial indicators of its factorability. In this way it was verified that the sample is suitable for the validation of the instrument: the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) presented an index of 0.90, which is considered very good for carrying out factor analysis. As for the number of factors that can be extracted from the correlations matrix, the determinant of the matrix is very close to zero, indicating that the number of factors is smaller than the number of items in the instrument.

For choosing the number of factors, we examined the following indices: the variance explained by each factor, the sedimentation graph, the eigenvalues greater than 2 and the total variance explained by the instrument. Following the criterion that the variance explained by each factor is 3%, the principal components analysis indicates the possibility of five factors. According to the criterion of eigenvalues greater than 2, three factors emerge in the instrument, and this is confirmed with the sedimentation graph. The latter criterion was eventually employed, so that the instrument had a more stable structure.

Through the extraction of the Principal Axes (PA) and Promax oblique rotation, three factors were extracted. From these two possibilities we chose the oblique rotation, as the factors correlated with one another. The first two factors explain 40% of the variance, and the extraction of a third factor would increase this figure to 45%, which represents a certain rise in explanatory power. We chose the 3-factor solution, as that which presented the best statistical indices. The cut-off point for remaining in

¹ In the initial screening of the data we found three cases of multivariate *outliers* in the sample, identified by Mahalanobis distance, and some variables with problems of asymmetry and kurtosis. We opted not to transform the variables or withdraw the *outliers* of the sample, in order to avoid the substantial alterations to the analyses that result from these procedures. The missing data were treated as pairwise, but they did not present values above 5% of the data collected.

the factor was 0.40 of factor loading of the items, as can be seen in Table 1. Of the 50 initial items, 36 remained in the questionnaire after the factor analysis because they presented suitable factor loadings.

As regards correlation of the factors with one another, the opposition to change factors show a very high correlation, and can make up a single second-order factor. However, correlations between these and the third factor are practically non-existent.

The three factors presented reflect some phenomena associated with organizational change as described in

the literature (Bovey & Hede, 2001; George & Jones, 2001; Valley & Thompson, 1998; Schiemann, 1995). The first factor, Attitude of Cynicism to Change, clearly reflects opposition and cynicism; the second, Fear Beliefs, also describes a negative attitude to change, and the third, Favourable Attitude to Change, covers positive beliefs and behaviour in relation to organizational changes.

The first factor includes cognitions that the change will not actually happen, that the objectives of the change will not be achieved within the time envisaged, that peo-

Table 1
Factor structure of the instrument of Attitudes to Organizational change

Ítems	Factors			h ²
	1	2	3	
8 People tend to say that although the change has been made, in practice it has not.	0.907			0.675
7 Not permitting all the objectives of change to be accomplished with the envisaged time is common in this organization.	0.905			0.638
6 People tend to pretend they agree with the changes, but in reality do not allow them to be introduced.	0.878			0.650
10 Not becoming involved with the processes of change is a common practice in this organization.	0.852			0.651
3 People tend to pretend they are doing their work in a different way.	0.799			0.495
9 People take on the new discourse to defend themselves against the changes.	0.777			0.551
16 Here the different attempts at change continue to be unsatisfactory.	0.764			0.497
5 Pretending that there has been a change is a characteristic of the people in this organization.	0.731			0.521
11 People tend to deny that the change will take place.	0.731			0.577
2 Changes in this organization generally stop at the level of discourse; they don't actually happen.	0.696			0.461
4 People develop mechanisms for not changing.	0.668			0.509
15 Letting time look after people's adaptation to new things is a common practice in this organization.	0.620			0.413
13 In processes of change, access to information is usually restricted so that there is no opposition to the changes.	0.620			0.477
14 This organization does not plan processes of change – they just happen.	0.611			0.413
12 People are reluctant to try to understand the fundamental objectives of the changes.	0.598			0.514
18 It is common to continually change direction, not giving continuity to what was already done.	0.526			0.398
17 People who have been in power for a long time feel threatened by change.	0.462			0.578
36 Changes in behaviour in this organization are always very slow.	0.419			0.506
34 In processes of change, fear of loss generates resistance in people.		0.884		0.680
32 People are afraid because of the uncertainty generated by the new way of working.		0.809		0.583
29 Employees who lost position because of change generally oppose the process.		0.699		0.521
31 People react negatively to changes that lead to wage cuts.		0.669		0.347
33 Decentralization of power generates fear because there is a sensation of loss of control and competence.		0.633		0.366
25 In processes of change, people fear the loss of their job.		0.620		0.454
27 Lack of information about processes of change generates misunderstandings in the organization.		0.445		0.435
28 Lack of information about processes of change generates fantasies and unrealistic expectations in employees.		0.444		0.406
26 Pressures for change in this organization generate lack of satisfaction in people.		0.402		0.533
41 Changes are beneficial because they can "air" this organization.			0.729	0.485
39 Changes in this organization generate opportunities for personal growth.			0.703	0.531
43 Change generates opportunities for employees who know how to take advantage of it.			0.678	0.425
40 Change involves the need for more detailed knowledge of the way things work.			0.628	0.385
48 Changes in this organization are important because they bring benefits to employees.			0.588	0.395
49 Employees realize that the majority of their colleagues support the changes in the organization.			0.553	0.450
37 Those most involved are those with the most favourable attitude to change.			0.543	0.288
50 The employees believe they can make changes in the organizational environment.			0.481	0.339
46 People accept change when they realize they can gain from it.			0.475	0.236
Cronbach's alphas	0.95	0.88	0.83	
Number of items	18	9	9	
Percentage of variance	13.66	12.79	9.09	
Percentage of covariance	38.42	36.00	25.57	

ple tend to pretend they agree with the changes but do not allow them to be implemented, that changes occur only at the level of discourse, that changes in behaviour are slow, and that processes of change are not planned.

The second factor refers to fear of loss of position and salary, to the uncertainty caused by a new form of working, to fear of loss of control over one's responsibilities, and finally to misunderstandings, fantasies and pressures generated by processes of change.

The third factor describes the benefits of change, such as

the "airing" of the organization, the need for more detailed knowledge of the way things function, opportunities for personal growth and the development of one's professional career, and employees' commitment to the organization.

In synthesis, the instrument appears to have a stable structure for this sample. Nevertheless, we decided to employ an additional criterion for verifying the stability of its structure, checking whether this stability was maintained in each of the two groups or sub-samples used in the study.

Table 2
Factor structure of the instrument of Attitudes to Organizational change for Organization A.

Items	Factors			h ²
	1	2	3	
2 Changes in this organization generally stop at the level of discourse; they don't actually happen.	0.697			0.619
3 People tend to pretend they are doing their work in a different way	0.815			0.636
4 People develop mechanisms for not changing.	0.672			0.679
5 Pretending that there has been change is a characteristic of the people in this organization.	0.730			0.687
6 People tend to pretend they agree with the changes, but in reality do not allow them to be introduced.	0.888			0.702
7 Not permitting all the objectives of change to be accomplished with the envisaged time is common in this organization.	0.908			0.716
8 People tend to say that although the change has been made, in practice it has not	0.910			0.734
9 People take on the new discourse to defend themselves against the changes.	0.777			0.680
10 Not becoming involved with the processes of change is a common practice in this organization.	0.855			0.724
11 People tend to deny that the change will take place.	0.730			0.684
12 People are reluctant to try to understand the fundamental objectives of the changes.	0.593			0.647
13 In processes of change, access to information is usually restricted so that there is no opposition to the changes.	0.627			0.582
14 This organization does not plan processes of change – they just happen.	0.617			0.581
15 Letting time look after people's adaptation to new things is a common practice in this organization.	0.622			0.663
16 Here the different attempts at change continue to be unsatisfactory.	0.779			0.646
17 People who have been in power for a long time feel threatened by change.	0.455			0.501
18 It is common to continually change direction, not giving continuity to what was already done.	0.524			0.515
36 Changes in behaviour in this organization are always very slow.	0.403			0.678
22 Changes generate chaos in the organization because nobody knows what to do.	0.595			0.649
20 People are slow to adapt to the new elements introduced by change.		0.535		0.640
25 In processes of change, people fear the loss of their job.		0.625		0.598
26 Pressures for change in this organization generate lack of satisfaction in people.		0.407		0.689
27 Lack of information about processes of change generates misunderstandings in the organization.		0.438		0.798
28 Lack of information about processes of change generates fantasies and unrealistic expectations in employees.		0.451		0.765
29 Employees who lost position because of change generally oppose the process.		0.727		0.576
30 The release of information about processes of change generates conflicts in the organization.		0.437		0.490
31 People react negatively to changes that lead to wage cuts.		0.672		0.483
32 People are afraid because of the uncertainty generated by the new way of working.		0.820		0.668
33 Decentralization of power generates fear because there is a sensation of loss of control and competence.		0.659		0.516
34 In processes of change, fear of loss generates resistance in people.		0.898		0.678
35 It is very difficult to change the behaviours and attitudes of people in this organization.		0.422		0.583
37 Those most involved are those with the most favourable attitude to change.			0.545	0.414
39 Changes in this organization generate opportunities for personal growth.			0.694	0.553
40 Change involves the need for more detailed knowledge of the way things work.			0.632	0.462
41 Changes are beneficial because they can "air" this organization.			0.723	0.543
42 Younger people adapt more easily to processes of change.			0.411	0.407
43 Change generates opportunities for employees who know how to take advantage of it.			0.676	0.512
46 People accept change when they realize they can gain from it.			0.505	0.461
48 Changes in this organization are important because they bring benefits to employees.			0.580	0.534
49 Employees realize that the majority of their colleagues support the changes in the organization.			0.550	0.609
50 Employees believe they can make changes in the organizational environment.			0.472	0.468
Cronbach's alphas	0.95	0.89	0.82	
Number of items	19	13	8	
Percentages of variance	14.66	12.35	10.23	
Percentages of covariance	39.62	35.09	25.29	

Analysis of the Factor Structure in each of the Companies in the Study

Organization A

In order to carry out the analysis of factor structure stability by groups of the sample, we made the same factor analysis in each of the two organizations involved in the study. In the first company there were 286 participants. The exploratory factor analysis of the instrument also indicated good conditions of factorability, with a high percentage of correlations among the items over 0.40. The KMO has an index of 0.93, which is considered

highly suitable for performing factor analysis, and the determinant of the matrix is very close to zero, indicating that the number of factors is smaller than the number of items in the instrument.

The same criteria were used for selection of the number of factors: the sedimentation graph once more indicates the presence of three factors in the instrument, and there is a considerable gain in explained variance in the case of extraction of a third factor.

The factor structure explains 46% of the variance of the instrument. The cut-off point for remaining in the factor

Table 3
Factor structure of the instrument of Attitudes to Organizational change for Organization B.

Items	Factors			h ²
	1	2	3	
2 Changes in this organization generally stop at the level of discourse; they don't actually happen.	0.632			0.632
3 People tend to pretend they are doing their work in a different way	0.771			0.731
4 People develop mechanisms for not changing.	0.712			0.774
5 Pretending that there has been change is a characteristic of the people in this organization.	0.722			0.764
6 People tend to pretend they agree with the changes, but in reality do not allow them to be introduced.	0.903			0.783
7 Not permitting all the objectives of change to be accomplished with the envisaged time is common in this organization.	0.922			0.814
8 People tend to say that although the change has been made, in practice it has not	0.812			0.806
9 People take on the new discourse to defend themselves against the changes.	0.724			0.766
10 Not becoming involved with the processes of change is a common practice in this organization.	0.935			0.817
11 People tend to deny that the change will take place.	0.734			0.763
12 People are reluctant to try to understand the fundamental objectives of the changes.	0.696			0.745
13 In processes of change, access to information is usually restricted so that there is no opposition to the changes.	0.472			0.704
14 This organization does not plan processes of change – they just happen..	0.563			0.669
15 Letting time look after people's adaptation to new things is a common practice in this organization.	0.580			0.727
16 Here the different attempts at change continue to be unsatisfactory.	0.804			0.714
17 People who have been in power for a long time feel threatened by change.	0.431			0.564
35 It is very difficult to change the behaviours and attitudes of people in this organization.	0.406			0.634
36 Changes in behaviour in this organization are always very slow.	0.538			0.706
22 Changes generate chaos in the organization because nobody knows what to do.	0.546			0.792
20 People are slow to adapt to the new elements introduced by change.		0.461		0.702
25 In processes of change, people fear the loss of their job.		0.648		0.738
26 Pressures for change in this organization generate lack of satisfaction in people.		0.523		0.747
27 Lack of information about processes of change generates misunderstandings in the organization.		0.596		0.868
28 Lack of information about processes of change generates fantasies and unrealistic expectations in employees.		0.566		0.836
29 Employees who lost position because of change generally oppose the process.		0.642		0.682
30 The release of information about processes of change generates conflicts in the organization.		0.427		0.592
31 People react negatively to changes that lead to wage cuts.		0.644		0.584
32 People are afraid because of the uncertainty generated by the new way of working.		0.796		0.677
33 Decentralization of power generates fear because there is a sensation of loss of control and changes in one's responsibilities.		0.645		0.659
34 In processes of change, fear of loss generates resistance in people.		0.851		0.766
42 Younger people adapt more easily to processes of change.		0.496		0.666
23 With the change, this organization will lose its human side.			-0.545	0.681
37 Those most involved are those with the most favourable attitude to change.			0.604	0.599
39 Changes in this organization generate opportunities for personal growth.			0.739	0.746
40 Change involves the need for more detailed knowledge of the way things work.			0.726	0.707
41 Changes are beneficial because they can "air" this organization.			0.754	0.671
43 Change generates opportunities for employees who know how to take advantage of it.			0.745	0.775
46 People accept change when they realize they can gain from it.			0.501	0.584
48 Changes in this organization are important because they bring benefits to employees.			0.621	0.696
49 Employees realize that the majority of their colleagues support the changes in the organization.			0.530	0.778
50 Employees believe they can make changes in the organizational environment.			0.453	0.678
Cronbach's alphas	0.94	0.88	0.85	
Number of items	19	12	9	
Percentage of variance	13.92	12.85	10.13	
Percentage of covariance	39.62	36.11	24.27	

was 0.40. The final factor structure of the instrument for Organization A is shown in Table 2. Of the 50 initial items, 41 remained in this structure of the questionnaire after the factor analysis because they presented suitable factor loadings.

Organization B

The exploratory factor analysis of the instrument also indicated good conditions of factorability, with a high percentage of correlations among the items over 0.40. The KMO presented an index of 0.93, which is considered highly suitable for performing factor analysis, and the determinant of the matrix is very close to zero, indicating that the number of factors is smaller than the number of items in the instrument.

The same criteria were used for selection of the number of factors: the sedimentation graph once more indicates the presence of three factors in the instrument, and there is a considerable gain in explained variance in the case of extraction of a third factor.

The determinant of the correlations matrix in Organization B is also close to zero, while the index of suitability of the sample – KMO – indicates the reduction of 1 point. This may be due to the fact that the sample is quite small (just 123) for performing the analysis.

As in the first analysis, the sedimentation graph and the criteria of variance explained by the factor indicate that the best solution is that of three factors. This three-factor structure explains 45.4% of the instrument's variance, and the cut-off point for the item remaining in the factor was a loading of 0.40. The final factor structure of the instrument for Organization B is shown in Table 3.

Comparisons between the structures

The factor structures for the two groups of the sample display many similarities, as regards number and distribution of items in the factors, factor loading of the items, Cronbach's alphas of the factors, and so on, as can be seen in Table 4. Of the 50 initial items, 41 remained in this structure of the questionnaire after the factor analysis because they met the cut-off criterion for factor loading.

In factor 1, just 5 items present a different distribution on comparing the initial structure with the subsequent structures. Items 16, 18, 22 and 36 appear in two of the three structures, and item 35 appears only in factor 1 of the factor structure of Organization B. These items can be considered as the most ambiguous of the general structure, as they do not show much stability. With regard to factor 2, items 20, 30 and 42 are the only ones that appear in just two factors, and not in the third. And in factor 3, only two of the items are not common to the

three factor structures found. Item 23 appears only in the third factor of Organization B and item 37 is common to two of the structures found. Thus, 74% of the factor 1 items, 85% of the factor 2 items and 75% of the factor 3 items are replicated in the factor structure of the two organizations. Moreover, the interpretation of the factors is not adversely affected by the items that are not common to the two organizations.

The three factors presented in the two structures can therefore be named and interpreted in the same way as in the initial structure. The first factor clearly represents an attitude of opposition to change, covering positions of cynicism; the second factor is closely linked to beliefs and to personal fears associated with change, with a marked negative attitude to it; and the third factor involves a favourable attitude, reflected in positive beliefs and behaviours in relation to organizational changes.

Once more the opposition to change factors are strongly correlated (correlations of 0.55 and 0.65), and the correlation between these factors and the third one is very weak, with values that do not attain 0.30.

Confirmatory factor analysis

Given that the factor structure remained stable on analyzing each company separately, we proceeded to perform a confirmatory factor analysis using AMOS 4.0, with the aim of determining which factor structure best fits the instrument of attitudes to change. The hypothesized model is shown in Figure 1, in which the circles represent latent variables and the rectangles represent variables measured in the questionnaire. The absence of lines connecting the variables implies a lack of direct effects hypothesized between them.

A 3-factor model is proposed, with the following factors: attitudes of opposition due to cynicism, attitudes of opposition due to fear and uncertainty, and an attitude of acceptance of change. The two opposition factors were hypothesized as correlated, and form part of a larger (second-order) factor called opposition.

Aspects	Total sample	Organization A	Organization B
Explained variance	45%	46%	45.4%
Number of items of factor 1	18	19	19
Number of items of factor 2	9	13	12
Number of items of factor 3	9	8	9
Alpha of factor 1	0.95	0.95	0.94
Alpha of factor 2	0.88	0.89	0.88
Alphas of factor 3	0.83	0.82	0.85

Analysis of the structural equation was carried out using the same 409 cases as the previous analysis. The *missing values* were substituted by the average on failing to exceed 5% of the general data. The initial model did not permit identification of the structure, and this can be resolved in two ways: through restructuring of the model, or through enlargement of the sample. We opted for the former solution. However, as there were many parameters to be estimated, we decided to withdraw the items of factor 1 with the lowest factor loadings in order to perform the analysis. Thus, we used only items 8, 7, 6, 10, 3, 9, 16, 11, 5 and 2. With this modification, it was possible to process the confirmatory factor analysis.

The parameter of maximum fit was used for estimating all the models, and the independent model that confirms the hypothesis that all the variables are uncorrelated was easily rejected ($\chi^2 36, N = 409) = 69.688, 9, df = 666, p <$

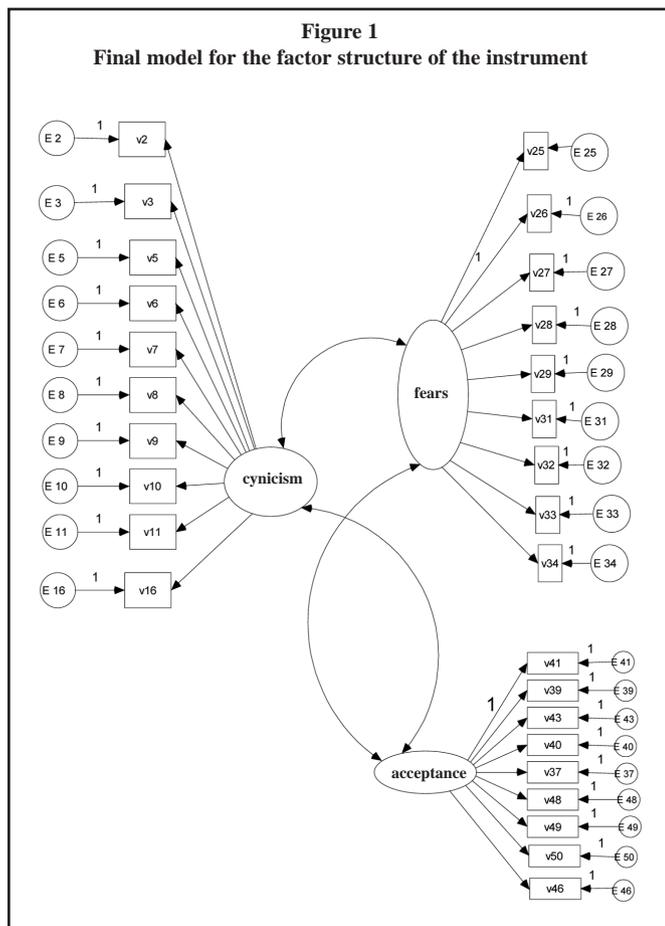
0.01). The hypothesized model was tested, its fit demonstrated ($\chi^2 60, df = 347, N = 409) = 1.525,336, p = 0.000$), and its comparative fit index calculated (CFI = 0.94). The difference in χ^2 indicates a significant improvement in fit between the hypothesized model and the independent model².

We made modifications to the model in order to obtain better fit, and possibly to achieve a more parsimonious model. The use of a general factor was dropped, and the correlation between the factors of opposition and acceptance established with the aim of improving the fit. We obtained an $\chi^2 (56, df = 347, N = 409) 1.026,417, p = 0.000$; and comparative fit indices (CFI = ³0.96), NFI = 0.95, RMSEA⁴ = 0.033, AIC⁵ = 148,417 and CAIC = 143,433. The difference in the χ^2 indicates a significant improvement in fit between the hypothesized model and the independent model. The final model appears in Figure 1.

The final model includes three factors: attitudes of opposition due to cynicism, attitudes of opposition due to fear and uncertainty, and an attitude of acceptance of change. It can be seen that the three factors are correlated with one another. Factor 1 – Opposition due to cynicism – presents 10 items, factor 2 – Opposition due to fear and uncertainty – presents 9 items, and factor 3 – acceptance – also contains 9 items. The CFI and NFI presented values above 0.90, and the RMSEA index, values below 0.05. The results indicate high suitability and very good fit of the model to the data, and this is what we would expect with the use of modelling by means of structural equations. Table 5 shows all the indices of fit of the tested model.

Descriptive statistics and interpretation of the patterns of attitudes among participants

Tables 6 and 7 present the means, standard deviations and ranges of the three factors found both for the total



CFI = 0.96	NFI = 0.95	TLI = 0.953
AIC = 148,417	CAIC = 143,433	CMIN/DF = 14.139
RMSEA = 0.033	Hoelter (0.05) = 204	Hoelter (0.01) = 223

² The difference between the χ^2 of the hypothesized model and of the independent model is the parameter of fit of the model.

³ The comparative fit indices CFI and NFI must have values above 0.90 for the model to fit.

⁴ The RMSEA indicates the amount of residue in the model. This value must remain below 0.05.

⁵ CAIC and AIC are indices of selection of the model used for seeking the most parsimonious model on the growing curve of analysis.

sample and for each one of the two companies.

Table 6 shows the means in each factor that result from averaging the items of each one of the factors. The highest mean is for the factor Attitude of Acceptance of Organizational Change, both in the total sample and in the two companies considered separately. However, this mean is very close to the value found for the factor Attitude of Fear and Uncertainty. The standard deviations and ranges indicate that there was no great dispersion in the results by participant, and this fact endorses the use of the mean as an index of analysis of the group.

The two organizations have very similar indices of the preponderance of Acceptance of Change, which is followed by that for the presence of Fear and Uncertainty, with the Cynicism attitude having a lesser presence.

In order to verify the consistency among the attitudes towards change, we carried out hierarchical and normal cluster analyses by means to analyze the distribution of the three attitudes (see Table 7). For the cluster analysis, the best solution is that of 4 clusters, so that there is no superposition of patterns. The value for the analysis of intensity of attitude was considered from 2 upwards (on a scale of 0 to 4). The first cluster is characterized by the preponderance of attitudes of fear/uncertainty and cynicism, showing clearly that in this group of individuals there is clarity and consistency among attitudes in relation to organizational change. This group pattern was predominant in people who had higher educational level, were older, and who had been longer with the organization. The second cluster indicates an emphasis on the positive attitude of the acceptance of change. This predominant positive attitude also denotes a harmonious pattern of cognitions and affect in relation to organizational change. This pattern shows an explicit divergence from clusters 3 and 4, which highlight, respectively, attitudes of fear and uncertainty accompanied by attitudes of acceptance and the simultaneous and marked presence of the three attitudes studied. In the case of clusters 3 and 4 there is a presence of ambiguity and conflicts in the pattern of attitudes presented, and in some cases the patterns are opposite in different groups of participants.

In order to verify whether these patterns are preponderant among the groups of participants according to their sociodemographic characteristics, we carried out some analyses of differences of means, considering the total study sample. In the entire sample, the attitude of acceptance of change was predominant among younger and less well educated participants. The two last-mentioned patterns of attitudes (clusters 3 and 4) were predominant in women with 5-10 years of service in the organization, better education and an age range of 25 to

35 years. This suggests that these women may have experience of failures in processes of change.

DISCUSSION AND CONCLUSIONS

We have developed a scale for measuring the attitudes of people working in organizations to processes of organizational change. This scale shows high levels of reliability and validity for use in research on the determinants or consequences of organizational change. Its three-factor structure – Acceptance of Change, Fears about Change and Cynicism – has good indices of internal consistency and construct validity. Moreover, this general structure of three factors is maintained when the analyses are replicated in each of the two organizations in the sample, which lends convergent validity to the instrument, since it has been applied to two different organizations, with different goals, different age profiles and different levels of work experience. The instrument also presents satisfactory indices of fit of the model, obtained through confirmatory factor analysis performed by means of structural equations. The indicators show stability of the structure. Despite the different nature of the two organizations (one is a bank and the other a TV channel), the attitudes of the participants in relation to organizational change do not present substantial differences according to our results. There is a strong presence of acceptance, coupled with fear and uncertainty and a small proportion of cynicism. Both organizations have undergone processes of thorough restructuring in the last 10 years, and in the case of one of them the change was quite traumatic, as it involved renewing crucial aspects of its culture of a public organization. We can therefore conclude that the convergent and divergent val-

Table 6
Cluster Analysis of Attitudes to Organizational Change

Attitudes	N		Mean	SD	Range	Cluster			
	Valid	Missing				1	2	3	4
Cynicism	409	0	1.28	0.83	0.79	2.33	0.33	1.18	4.00
Fears	409	0	2.35	0.82	2.04	2.97	0.98	2.68	3.89
Acceptance	409	0	2.65	0.63	2.19	1.36	3.16	3.00	3.78

Table 7
Means and standard deviations of Attitudes to Change in Organizations A and B

Attitudes Change	Organization A			Organization B		
	N	Mean	Standard deviation	N	Mean	Standard deviation
Cynicism	286	1.29	0.84	123	1.27	0.82
Fears	286	2.33	0.83	123	2.40	0.78
Acceptance	286	2.66	0.62	123	2.64	0.67

idation of the scale through the comparison of its structures in two different organizations is quite satisfactory.

The cluster analysis illustrates the conjunction of different patterns of consistency and inconsistency of attitudes in the face of organizational change. Thus, there emerges a pattern of consistency among favourable or unfavourable attitudes to change, together with a pattern of inconsistency in which we find people who can simultaneously maintain favourable and unfavourable attitudes. These patterns are highly informative of the complexity of organizational change, and suggest the need to consider them in order to understand consistency and inconsistency among cognitions and behaviour in relation to organizational change, especially in the design of company strategies for convincing employees to accept proposed changes. Resistance to change will be stronger in groups of people with inconsistent and unfavourable attitudinal patterns, and the present scale can provide a sound instrument for identifying the factors underlying such resistance. These patterns of resistance are also related to psychosocial characteristics, such as time worked in the organization, age, sex or education, as shown by the results of the comparison of means tests. Inconsistent attitudinal patterns predominated in women, with service duration in the company of 5-10 years, with better education and aged 25 to 35. Such participants may have lived through some experiences of failure in relation to processes of change.

Moreover, knowledge about these factors may help in the identification of the socio-structural determinants of these attitudes and in the design of strategies for the analysis of the collective factors that facilitate or hinder resistance to innovation and change in organizations.

The goodness of the factor structure found, however, does not preclude the usefulness of continuing to replicate in future studies the indices of the structural equations modelling with a view to checking the extent to which the structure of attitudes towards change are replicated regardless of diversity of contexts, differences in type of organization, and the presence or absence of planned change.

It is true that the participants in the present study were not in a situation of imminent planned organizational change, and that the instrument was not applied to check two or more temporal points of presentation of attitudes in relation to change. In this sense, our work studies the process of change from a static perspective, thus limiting the generalization and global comprehension of its mechanisms. However, and in spite of the difficulties involved, we are now planning a study of attitudes to change in a dynamic context.

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