

# THE EFFECTS OF MEMBER CHANGE AND CONTINUITY ON THE PRODUCTIVE EFFICIENCY OF WORK TEAMS

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*The requirements of flexibility and change demanded of organisational activities by today's environments may have diverse consequences for work teams, such as those related to conditions of the continuity and change of their members. Traditional psychological research has paid considerable attention to the static arrangement of groups. Nevertheless, most of the features of membership dynamics in work teams remain unknown. This study uses a longitudinal method to explore the influence of continuity-and-change patterns on the productivity of work teams, as measured by the quantity and quality of products. Forty teams, each with four members, worked for eight weeks, under different conditions of continuity and change of members, on real problem-solving tasks. These tasks consisted in the generation of several alternatives and the choice of the one they considered most suitable and viable. Results show higher productivity of teams whose composition changed, as against those that remained stable. Different implications are discussed with respect to the decisions of organisations on rigidity and flexibility in the formation of work teams, and the effects these may have on performance.*

*Las exigencias de flexibilidad y de cambio que los entornos imponen en la actualidad a las actividades de las organizaciones pueden tener diversas consecuencias sobre los grupos y equipos de trabajo que forman parte de ellas, como son, entre otras, las relacionadas con las condiciones de continuidad y cambio de los miembros que los componen. La investigación psicosocial tradicional ha dedicado una considerable atención al estudio de la composición estática de los grupos; sin embargo, la mayoría de los aspectos implicados en las dinámicas de la pertenencia en los equipos de trabajo permanecen aún ignorados. El presente estudio utiliza una metodología longitudinal con el objetivo de comprobar cómo diversas pautas de continuidad y cambio de miembros pueden influir sobre la productividad de los equipos de trabajo, medida a través de la cantidad y la calidad de los productos obtenidos. Cuarenta equipos compuestos por cuatro personas cada uno, trabajaron durante ocho semanas, bajo distintas condiciones de continuidad y cambio de sus miembros, en la realización de tareas de solución de problemas reales, las cuales comprendían la generación de distintas alternativas y la elección de aquella que cada equipo consideraba más adecuada y viable. Los resultados obtenidos señalan una mayor productividad en general de los equipos con cambios en su composición frente a los equipos estables. Se discuten diversas implicaciones respecto a las decisiones que las organizaciones adoptan sobre la rigidez y la flexibilidad en la formación de equipos de trabajo y los efectos que pueden tener sobre su eficacia.*

*"It is important that substitution be slow, not only to preserve the unity of the group when there are individual member changes, but also when changes are made in other group conditions, (...) Only the fact that modification, at any given moment, reaches a part of the total life of the group makes possible the preservation of the unity of the group." (Simmel, 1908, p. 530)*

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## INTRODUCTION

The most recent literature indicates three characteristics that best define the current state of research, in terms of both theory and application, on groups and work teams. These characteristics can be summarised as: 1) the importance placed on studying the influence of the context in which the group is found; 2) the consideration of efficiency as a key variable; 3) the analysis of temporal factors involved in the functioning of the group (see Ancona, 1987, 1993; Argote and McGrath 1993; Cohen, Ledford and Spreitzer, 1996; González, Silva and Cornejo, 1996; Guzzo and Dickson, 1996; Guzzo and Shea, 1992; McGrath and Grunfeld, 1993; Salanova, Prieto and Peiró, 1996, Shulman, 1996; Sundstrom, De Meuse and Futrell, 1990).

The first characteristic, the emphasis placed on the variables of the context of which work teams form a part, includes a wide variety of aspects. Outstanding among these are, first, those referring to their consideration as a support system in terms of available material and human resources, be it as a source of rewards or a system of feedback and information; second, aspects such as influences they may have with regard to the establishment and assignation of goals and tasks, as regards the type of organisational structure or the technology considered as part of the context (Argote and McGrath, 1993; Gladstein, 1984; McGrath, Berdahl and Arrow, 1995; Tannenbaum, Beard and Salas, 1992; Weldon and Weingart, 1993).

As regards the second characteristic mentioned above, one of the principle reasons for the increasing use of work teams in diverse organisations is the search for greater effectiveness in the performance of the different tasks and activities carried out in these organisations. In general, this type of working unit is more capable of successfully dealing with the growing complexity of work, which often simply cannot be carried out by individuals on their own (Ayestarán and Cerrato, 1996, Cannon-Bowers, Oser and Flannagan, 1992; Guzzo, 1996). Consequently, one of the common denominators of most theoretical models on work teams over the last two decades has been the consideration of effectiveness as the main dependent variable to be studied (see Brodbeck, 1996; Campion, Medsker and Higgs, 1993; Campion, Papper and Medsker, 1996; Guzzo, 1996; Guzzo and Dickson, 1996; Hackman, 1990; Hyatt and Ruddy, 1997; Salas, Dickinson, Converse and Tannenbaum, 1996).

The third characteristic mentioned above, that of the analysis of temporal factors, allows us, following the example of McGrath and O'Connor (1996), to consider the diverse aspects involved in the origin and subsequent development of the work group as a socio-technical system; aspects related to how the work group approaches its work, regardless of what the task may be; aspects related to how teams change according to their experience with respect to both their development and the execution of the task; and those related to changes that occur in groups as a result of modifications within the group and its environment.

Analysis of the most recent literature on the study of work, behavioural and organisational change, the influence of new technologies and the evolution of

industrial relations, indicates that one of the aspects on which a great deal of attention is currently being focused in the social sciences concerns the new, flexible work systems and their multiple consequences (Alcover, 1997). Influence of the different types of flexibility on work teams can take various forms. Specifically, certain aspects related to the numerical and the functional flexibility of such teams, such as the increasing demand on employees to be multi-skilled and belong simultaneously to different teams, or the tendency towards temporary contracts and contingency employment systems (Smith, 1997) are among the factors that can lead to frequent personnel changes in work groups. In spite of the fact that organisations use these strategies with the aim of increasing productivity and confronting the challenges of an extremely competitive environment, there is very little empirical evidence available on their effects with respect to the efficiency of work teams (Arrow, 1997; Arrow and McGrath, 1993, 1995; Guzzo and Dickson, 1996; McGrath, Berdahl and Arrow, 1995; McGrath and O'Connor, 1996).

Flexibility is considered to be a variable related to both the internal and external contexts of organisations. The objective of the present study is to analyse the influence of flexibility, in the form of changes in work team composition over time, on their effectiveness, measured in terms of the quantity and quality of productive results.

While the classic line of research on groups has devoted considerable attention to their composition and the affiliation of their members (Levine and Moreland, 1990), the results obtained have generally been of a disperse and fragmented nature. According to Moreland, Levine and Wingert (1996), this is due to the lack of a general theory to guide the research. To this can be added the relative imprecision of the term *group dynamics*, traditionally applied to this type of study, given that the approaches normally adopted permit only *static* analyses of groups (McGrath, 1993; Moreland and Levine, 1992; Worchel, 1996). Thus, in spite of its importance with respect to the identity and effectiveness of teams, the impact of member changes has not yet been studied systematically (Arrow and McGrath, 1993), and this means that there is scarce information on fundamental aspects of the implications of member continuity and change with respect to performance, group structure and processes, capacity for change, adaptation to environment and group identity (Arrow and McGrath, 1995).

Nevertheless, in recent years a moderate but growing interest in the study of the effects of member change in work teams has been noticeable. This has been due to the demands for flexibility that are predominant in organisational contexts, as well as demands from different theoretical approaches for greater attention to be focused on the dynamic aspects implicit in groups (see Argote and Epple, 1990; Argote, Insko, Yovetich and Romero, 1995; Carley, 1992; Dart, Argote and Epple, 1995; Guzzo and Dickson, 1996; McGrath and Gruenfeld, 1993).

As far as we are aware, the most complete integration of the different factors involved in dynamic aspects of membership in work groups is to be found in the exploratory formulations guiding the longitudinal empirical research of Arrow and McGrath (1993) –which formed part of the wider JEMCO study (McGrath, 1993)– and in the theoretical model subsequently proposed by the same researchers (Arrow and McGrath, 1995). In our opinion, these two works represent the most accomplished attempt made to create a frame of reference that fully takes into account the complexity of the effects of member continuity and change in work teams. Previous models, though some were of unquestionable value (e.g., the theory of *open and closed groups* proposed by Ziller (1965, 1977), nevertheless lacked a comprehensive and systematic vision of these phenomena.

In Arrow and McGrath's (1993, 1995) theoretical model, developed explicitly at group analysis level, the dynamic aspects of membership include both continuity and change, the two of which "*constitute a continuum that extends from one extreme of immobile rigidity to another of radical discontinuity, as far as membership is concerned*" (Arrow and McGrath, 1995, p. 376). They include not only changes in team composition, such as new members joining and existing members leaving, but also aspects of individual and group identity (who is and who is not a group member) and modifications in role structures and group status.

Continuity refers to the stability of the team's limits, to the fixed relationship patterns among its members and the consistent presence or absence of team members at work sessions. This continuity may assume different forms. The authors make a distinction between stability of attendance, characteristic of *acting groups*, and stability of membership, characteristic of *standing groups*. Thus, a team might have stable membership as regards the standing group, but fluctuating affiliation of mem-

bers who interact at a given moment. This might occur, for example, in the case of large groups when the nature of the task does not call for the presence of all members, or in groups where attendance at meetings is not considered essential or is not strictly regulated. In sum, stability of membership constitutes a special assumption of team dynamics, given that within groups, pressures towards change are counteracted by pressures towards continuity. This allows the system to remain unaltered in terms of its functioning.

Membership change includes any modification of the established limits, both psychological and physical, of the team, and of the positions of members with respect to these limits and to one another (Arrow and McGrath, 1995). These changes may be ephemeral or circumstantial changes (such as a one-off case of absence from a team meeting or a temporary change in team leadership), or permanent changes, such as the substitution or rotation of members.

A fundamental aspect of the dynamics of group membership is that concerning the magnitude of member change, related to what Arrow and McGrath (1993, 1995) call the *arithmetic of change*. Clearly, with respect to the functioning and effectiveness of a work group, one member joining (or leaving) may not have the same significance as two or more joining (or leaving) a group of four members, and the significance of similar changes would differ in groups of six or eight members. Similarly, from the individual's point of view, the behaviour of new arrivals joining one by one will be different from that of those who arrive in larger numbers, and the process of integration in the group will also be different in one case and the other, as pointed out by group socialisation theorists (e.g., Anderson and Thomas, 1996; Levine and Moreland, 1994; Moreland, 1987; Moreland and Levine, 1982, 1988, 1989). Thus, according to Arrow and McGrath (1995), "*the magnitude of member change must be considered in relation to the size of the group and the relative proportion of members involved*" (p. 396).

The frequency of member change is equally important, and its effects on the productive performance of teams is largely determined by the extent to which it disturbs the procedures and methods used by the work team (Arrow and McGrath, 1995). However, the learning benefits acquired by a group as the result of member changes are ambivalent in nature. On the one hand, repeated change in a group leads to a high degree of variability of its

members' behaviour, making it unpredictable, so that its performance and productivity is very likely to be adversely affected. On the other hand, repeated change may strengthen the development of a dynamic but predictable system of structural adjustments that allow the group to absorb frequent member changes without performance and effectiveness being affected.

The above is closely related to the analysis of how the system of routines and habitual procedures in work groups can influence productive performance, with both functional and dysfunctional results (Gersick and Hackman, 1990). The establishment of routine mechanisms in the execution of team tasks may, on the one hand, facilitate the work, at least for certain types of task; on the other hand, it may cause the team to stagnate, using methods that become inappropriate or obsolete with the passage of time. Consequently, frequent changes in group composition may affect productive results negatively, by preventing the group from taking advantage of the functional effect of routine, or positively, if they mean that the dysfunctional consequences referred to above are less likely to appear, or are delayed.

Furthermore, not only the duration of periods of continuity (both in terms of members and of the group itself) is related to the frequency of member change, but the circumstance of whether such changes affect an acting group or a standing group (Arrow and McGrath, 1993, 1995). Changes in the latter type of group result in a new team configuration, on which is built, in turn, the duration of a new continuity period. The difference between this new configuration and the previous one will be largely determined by the magnitude of member change. Meanwhile, changes that only affect an acting group will cause it to crystallise into more volatile structures, which disappear when the absent members rejoin.

In sum, compositional stability as against member change, the different magnitude of such changes, and the frequency of the changes all constitute important factors that can be promoted by the flexible conditions currently prevailing in organisations, and which influence the productivity of work teams. Given the relative scarcity of empirical evidence available (and non-existence in the case of some aspects mentioned), it was considered necessary to carry out a study which would at least allow the exploration of some of the consequences arising from these conditions of flexibility in the composition of work teams.

## 2. METHOD AND MEASURES

### 2.1. Formulation of hypotheses

On the basis of the empirical evidence available with respect to the effects of continuity versus member change (see Arrow and McGrath, 1993; Katz, 1982; Ziller, Behringer and Goodchilds, 1962), and of theoretical propositions about the potential influence of the magnitude and frequency of member change (see Arrow and McGrath, 1995), the following hypotheses were formulated:

*H1: Compositionally stable teams will obtain scores inferior to those of teams with member changes –considered globally, i.e., not distinguishing between different types of change– in terms of quantity and quality of productive results.*

*H2: Compositionally stable teams will obtain scores inferior to those of teams with member changes involving 100% of the team, in terms of quantity and quality of productive results.*

*H3: Compositionally stable teams will obtain scores inferior to those of teams with member changes involving 50% of the team, in terms of quantity and quality of productive results.*

*H4: Teams with changes involving 100% of their members will obtain lower scores in terms of quantity and quality of productive results than teams with member changes involving 50% of the team.*

*H5: Teams with changes involving 100% of their members, where these changes occur abruptly (50% each week) will obtain lower scores in terms of quantity and quality of productive results than teams with member changes of the same magnitude but occurring more gradually (25% each week).*

*H6: Teams with changes involving 50% of their members, where these changes occur abruptly (50% in a single week) will obtain lower scores in terms of quantity and quality of productive results than teams with member changes of the same magnitude but occurring more gradually (25% each week).*

### 2.2. Sample

160 subjects participated in the study, all of them members of the organisation in which the research was carried out (Faculty of Psychology, Universidad Complutense de Madrid). Of these, 133 were women and 27 were men. Their ages ranged from 20 to 34, mean age being 22.

### 2.3. Conditions of the experimental situation

All subjects participated in an activity related to the organisation to which they belonged, carrying out a series of tasks that were significant for them and of great relevance to quality of life in the organisation. The study was carried out during the months of October, November and December of 1996 and January of 1997. In addition, the results obtained in these tasks could have actual effects on the way the organisation was run, given that they were to be passed on to the authorities responsible (Deanery), to be studied with a view to the possible implementation of changes.

A field experiment with longitudinal design was carried out over a period of eight weeks, in which measures of the productivity of the work teams were obtained in accordance with the following variables:

### 2.4. Variables

#### *Independent variables:*

*Change type 1:* compositionally stable teams throughout the eight weeks.

*Change type 2:* teams with one member change in weeks 5, 6, 7 and 8 (thereby involving 100% of the members after the eight weeks).

*Change type 3:* teams with a change of two members in weeks 5 and 7 (thereby involving 100% of the members after the eight weeks).

*Change type 4:* teams with a change of one member in weeks 5 and 7 (thereby involving 50% of the members after the eight weeks).

*Change type 5:* teams with a change of two members in week 7 (thereby involving 50% of the members after the eight weeks).

There were eight work teams under each of these conditions, so that all of them shared an identical period of compositional stability (weeks 1 to 4) and thereafter were subjected to continuity or member change as described above.

#### *Dependent variables:*

Quantity of productive results

Quality of productive results

The weekly tasks through which work team productivity was measured consisted in proposing as many solutions as they considered appropriate for diverse problems of the organisation to which they belonged (quantity), and selecting the alternative they considered to be

most viable and appropriate for solving the problem (quality).

The task, therefore, contained a cognitive conflict component (negotiation), a creative component (generation) and a decision-making component (choice), according to the well-known typology established by McGrath (1984), thereby making it closely resemble the types of complex task that normally have to be dealt with by work teams in real situations (Tschan and Von Cranach, 1996). All of the problems analysed each week had been previously identified by the teams themselves in the first week of the research. Each work session lasted an hour.

Quantity indices were obtained by means of a weekly count of the number of solutions proposed; quality indices were obtained through assessment by a panel of judges who were experts in the problems analysed. The scores given by this panel were fixed using the group discussion technique in independent sessions for each problem examined, as is customary procedure in this type of group (Krueger, 1988).

### 2.5. Data analysis

First of all, a repeated-measures analysis of variance was carried out, taking *continuity/member change* as a between-group factor, and time, i.e., the weeks, as a within-group factor. With the objective of appreciating the possible effects caused by member change, subsequent to a

**Table 1**  
Analysis of variance between conditions of stability and member change

Variables	Stability <sup>a</sup>		Change <sup>b</sup>		F
	M	S.D.	M	S.D.	
Quantity <sup>c</sup>	-0.20	0.94	0.05	0.99	0.70
Quality	3.57	2.00	3.77	1.89	0.87

<sup>a</sup>N=8 <sup>b</sup>N=32 <sup>c</sup>Scores shown are typified  
\* p<0.05 \*\* p<0.01

**Table 2**  
Analysis of variance between conditions of stability and 100% member change

Variables	Stability <sup>a</sup>		100% Change <sup>b</sup>		F
	M	S.D.	M	S.D.	
Quantity <sup>c</sup>	-0.20	0.94	-0.14	0.92	0.02
Quality	3.57	2.00	3.99	1.78	4.59*

<sup>a</sup>N=8 <sup>b</sup>N=16 <sup>c</sup>Scores shown are typified  
\* p<0.05 \*\* p<0.01

period of stability, on team productivity, the analysis included task results obtained in weeks 2 to 8 (the week 1 task involved identification of problems).

The results obtained can be seen in *Table 1*

As can be seen from *Table 1*, statistically significant differences were not found, though means for the teams with member changes were higher, for both variables, than those of the stable teams.

Variables	Stability <sup>a</sup>		50% Change <sup>b</sup>		F
	M	S.D.	M	S.D.	
Quantity <sup>c</sup>	-0.20	0.94	0.24	1.02	1.56
Quality	3.57	2.00	3.60	1.97	0.00

<sup>a</sup>N=8 <sup>b</sup>N=16 <sup>c</sup>Scores shown are typified  
\* p<0.05 \*\* p<0.01

Variables	100% Change <sup>a</sup>		50% Change <sup>b</sup>		F
	M	S.D.	M	S.D.	
Quantity <sup>c</sup>	-0.13	0.87	0.26	1.09	3.56
Quality	3.90	1.85	3.62	2.22	0.91

<sup>a</sup>N=16 <sup>b</sup>N=16 <sup>c</sup>Scores shown are typified  
\* p<0.05 \*\* p<0.01

Variables	Change type 2 <sup>a</sup>		Change type 3 <sup>b</sup>		F
	M	S.D.	M	S.D.	
Quantity <sup>c</sup>	0.00	0.92	-0.27	0.80	0.98
Quality	4.09	1.92	3.71	1.80	1.52

<sup>a</sup>N=8 <sup>b</sup>N=8 <sup>c</sup>Scores shown are typified  
\* p<0.05 \*\* p<0.01

Variables	Change type 4 <sup>a</sup>		Change type 5 <sup>b</sup>		F
	M	S.D.	M	S.D.	
Quantity <sup>c</sup>	0.37	1.22	0.16	0.94	0.41
Quality	3.46	2.16	3.78	2.29	0.37

<sup>a</sup>N=8 <sup>b</sup>N=8 <sup>c</sup>Scores shown are typified  
\* p<0.05 \*\* p<0.01

The objective of the next set of analyses was to compare continuity of members with *magnitude* of change. Thus, teams that had retained compositional continuity throughout the eight weeks were compared to teams that had experienced member change, on the one hand involving 100% of original team members, and on the other, 50% of original members. For this purpose, a repeated-measures analysis of variance was employed, the results of which can be seen in *Tables 2 and 3*.

As can be seen from *Table 2*, the variance analysis showed a main effect of the condition *stability/100% member change*, with significant differences between the means of the variable "quality",  $F(1, 22) = 4.59, p < 0.05$ . The same tendency was to be found in the "quantity" variable, i.e., the mean of teams with 100% member change was slightly higher than that of stable teams, even though the difference was far from statistically significant.

As the results in *Table 3* indicate, significant differences were not found for the next ANOVA, though a similar tendency to that in the previous one can be appreciated, the teams with member changes having higher means than the stable ones.

With the aim of studying the effects of the *magnitude* of member change, a repeated-measures analysis of variance was carried out for weeks 5, 6, 7 and 8 for those teams with 100% and 50% member change. The results can be seen in *Table 4*.

As can be appreciated from *Table 4*, the results obtained indicate an absence of statistically significant differences between the two conditions of change. However, the teams with a greater magnitude of change obtained higher scores in the quality variable, the opposite effect being observed with respect to the quantity of productive results.

As regards frequency and intensity of member change, a new set of repeated-measures variance analyses was carried out, for weeks 5, 6, 7 and 8. Firstly, the differences between the conditions *change type 2* and *change type 3* were analysed (*Table 5*), and secondly, those between teams that used *change type 4* and those using *change type 5* (*Table 6*).

No statistically significant differences were found. However, the teams with more frequent but less intense member changes (*type 2*) obtained higher scores in both productivity variables than those with less frequent but more intense changes (*type 3*).

Once again, in this case, the variance analysis failed to

detect significant differences between the means of the two types of team. Teams with more frequent and less intense changes (*type 4*) achieved better results with respect to the quantity variable, while teams with less frequent but more intense changes (*type 5*) scored higher in quality.

Finally, a series of transversal analyses of variance was carried out, i.e., week-by-week, starting from week 5. The objective was to examine the possible effect of the variables analysed on the productivity of the teams. As far as the comparison between stable teams (*type 1*) and teams with member changes (*types 2, 3, 4 and 5*) is concerned, no statistically significant differences were found, though it was observed that, for all the weeks analysed, teams with member changes obtained higher means than stable teams.

With regard to the comparison between stable teams and those with 100% member change, Table 7 shows the results obtained in week 5, the first week in which member change took place.

As can be seen from Table 8, significant differences in the week 5 analysis were found between the means of stable teams and teams with member changes of 50% in the quantity variable  $F(1, 22) = 9.72, p < 0.001$ . The same tendency was observed with regard to quality, but the differences obtained for this and the remaining weeks were not statistically significant.

**Table 7**  
Analysis of variance (week 5) between conditions of stability and 100% member change

Variables	Stability <sup>a</sup>		100% Change <sup>b</sup>		F
	M	S.D.	M	S.D.	
Quantity <sup>c</sup>	-0.83	0.94	0.09	1.04	4.42*
Quality	2.63	2.07	3.19	1.83	0.46

<sup>a</sup>N=8 <sup>b</sup>N=16 <sup>c</sup>Scores shown are typified  
\* p<0.05 \*\* p<0.01

**Table 8**  
Analysis of variance (week 5) between conditions of stability and 50% member change

Variables	Stability <sup>a</sup>		50% Change <sup>b</sup>		F
	M	S.D.	M	S.D.	
Quantity <sup>c</sup>	-0.83	0.94	0.31	0.80	9.72**
Quality	2.63	2.07	2.75	1.98	0.02

<sup>a</sup>N=8 <sup>b</sup>N=8 <sup>c</sup>Scores shown are typified  
\* p<0.05 \*\* p<0.01

## CONCLUSIONS

The results obtained permit the verification of certain constant features of productive performance in work teams under the different conditions. First of all, although the results were not statistically significant, the comparison between stable teams and teams undergoing member change indicates a clear tendency towards better results on the part of the latter. In spite of the fact that these results are not a sufficient platform for firm conclusions, it is important to point out the consistent tendency over the weeks with respect to both quantity and quality of productive results.

Secondly, with respect to the effects of member change of great magnitude (100% after 8 weeks), as compared to stable teams, the statistically significant results obtained support the positive effects of such changes on overall quality in this type of problem-solving task. As far as quantity is concerned, the week-by-week transversal analyses reveal the same tendency, with statistically significant differences in week 5, in favour of teams undergoing member change.

Thirdly, the effects of changes of lesser magnitude (50%) could not be completely confirmed, given that the differences found were not statistically significant in the overall analysis. However, the means obtained for teams with member changes were superior to those for stable ones. The expected tendency was indeed maintained in week 5 for the quantity variable, with teams with member changes obtaining higher means than stable teams, the differences being statistically significant.

Fourthly, with regard to the differential effects of the different types of member change on team productivity, the results obtained do not allow firm conclusions to be drawn, since better results in the quantity variable were obtained by teams with 50% member change than by those with 100% change, while the opposite was observed in the case of quality. However, the differences were not significant in either case, and thus can only be regarded as tendencies.

In any case, these results are fully consistent with the behaviour presented by these teams in comparison with stable teams, which allows us to indicate the tendency found in this study in relation to the positive effects of greater member change magnitude after a period of stability on productive results, measured in terms of quality. Equally, we can point to a tendency for positive effects of a lesser magnitude of change on the quality of the teams' productive results.

Fifthly, with regard to the effects of the frequency and intensity of member change, and despite a lack of statistical significance, the consistency of the results obtained permits us to state that, with changes of identical overall magnitude, greater frequency and less intensity of change appears, in general, to lead to better productive results by teams than less frequent but more intense changes.

In summary, while it was not possible to confirm all the hypotheses, it was possible to verify the positive effects of member change of greater magnitude (100%) as against compositional stability in terms of the quality of productive results for teams performing this type of task. It was also possible to confirm the initially positive effect of both greater and lesser member change magnitude (week 5), with respect to stable teams, on the quantity and quality of productive results. Similarly, we were able to verify a general tendency among teams with member changes to achieve greater effectiveness, measured in terms of productive results, in the resolution of the tasks.

In our opinion, this data has been shown to coincide—as well as adding new and interesting information related to the magnitude, frequency and intensity of changes—with both the results obtained and the theoretical propositions formulated by authors pointing out a beneficial effect of member change as compared to compositional stability (see, for example, Arrow and McGrath, 1993, 1995; Gersick and Hackman, 1990; Katz, 1982; McGrath and O'Connor, 1996; Staw, 1980; Ziller, Behringer and Goodchilds, 1962; Ziller, Behringer and Jansen, 1961).

Nevertheless, it should be stressed that the results obtained in this study refer to a specific type of task, with a certain type of work team, in a particular organisation, during a limited time period, and with a number of groups which, although considerable by comparison with the samples normally use in this type of research, is not sufficiently large to allow generalisations to be made.

Studies such as this are of undoubted importance, given the increasing conditions of flexibility in modern organisations. This flexibility usually brings with it an increase in the use of temporary staff, frequent compositional changes in teams and growing demands on employees to be multi-skilled and belong to various teams. To know and be in a position to anticipate the possible effects of modifications in the composition of work teams on their productivity is, therefore, of great relevance to overall organisational efficiency. While the

results obtained might not permit the establishment of firm conclusions with respect to this complex matter, they at least suggest tendencies and serve as a guide to future research.

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